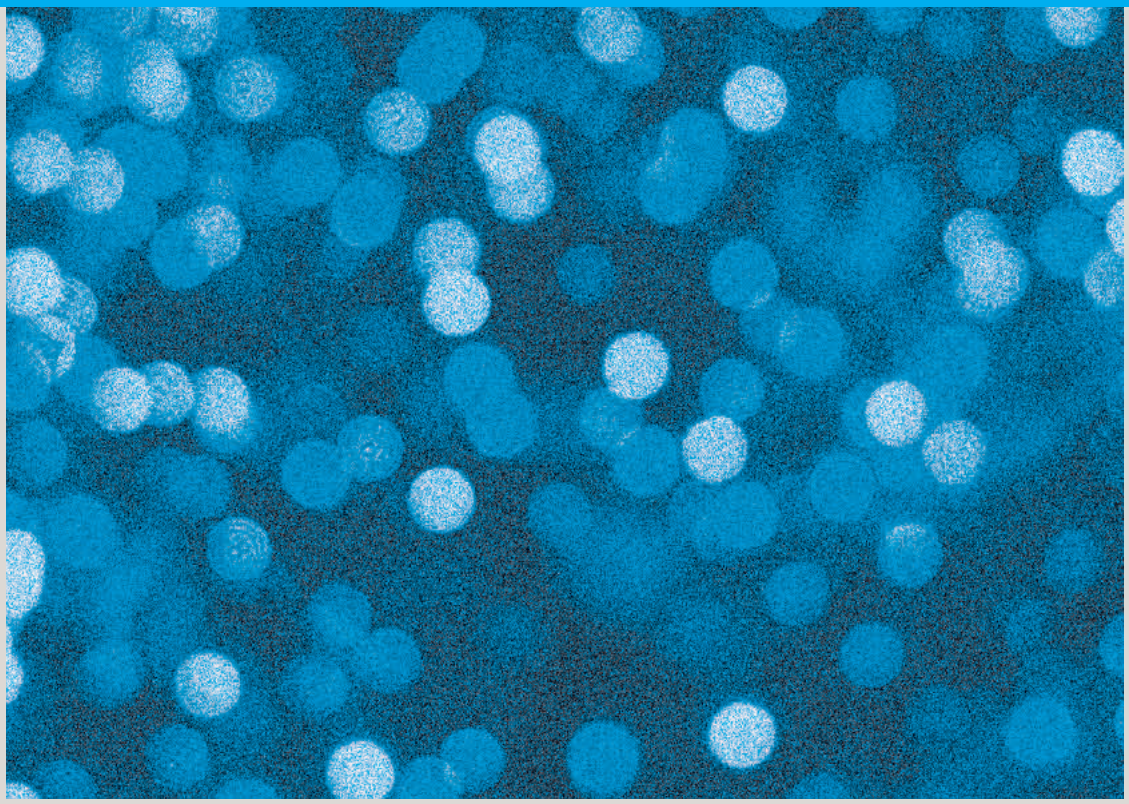
Orkestra
BASQUE INSTITUTE OF COMPETITIVENESS

Report for the "Competitiveness in the Basque Country" series

2nd Report on the Competitiveness of the Basque Country:

Towards an innovation-based competitive stage



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2nd Report on the Competitiveness of the Basque Country: Towards an innovation-based competitive stage

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2nd Report on the Competitiveness of the Basque Country: Towards an innovation-based competitive stage

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Letter from the Chairman

Since the publication of the first Basque Country Competitiveness Report, we have witnessed a major transformation of the world economy, triggered by a downturn that as of two years ago was hard to predict in all its intensity.

The crisis is no doubt marking a turning point and the Basque Country is certainly not impervious to this. During a period when paradigms appear to be shifting, it can be tempting to adhere to a short-term perspective. At Orkestra-Basque Institute of Competitiveness, we believe that right now is the moment for us to think about and design a future that can only be accomplished by having a long-term perspective and the involvement of all relevant actors.

In this context of uncertainty, the 2nd Competitiveness Report examines the factors that affect the competitive performance of the Basque Country, in order to answer the fundamental question of whether or not the region is indeed competitive. It also discusses the Basque economy's transition from an efficiency-based stage to an innovation-based stage, offering recommendations on how to optimize that process.

This report is the fruit of a cooperative effort between the Institute's team of researchers, collaborating professors and advisors, and of the contrasting viewpoints of its administrative and governing bodies. It is conceived as the Institute's response to the trust that the social and economic actors, and Basque society as a whole, have placed in it.

Sincerely,

José Luis Larrea Jiménez de Vicuña
Chairman
Basque Institute of Competitiveness-Orkestra

Donostia/San Sebastián, July 2009

II Informe de Competitividad del País Vasco: hacia el estadio competitivo de la innovación

Resumen ejecutivo

1. **Hacia un estadio competitivo basado en la innovación**

Este segundo *Informe de Competitividad* elaborado por Orkestra, Instituto Vasco de Competitividad, tiene por objetivo presentar los resultados de la investigación realizada en torno a la competitividad de la CAPV, y más concretamente, en torno a la evolución de este territorio hacia el nuevo estadio competitivo basado en la innovación[1]. El Informe responde a la confianza depositada en el Instituto por los agentes socioeconómicos y, en general, por la sociedad vasca. Para hacerlo, ofrece las principales conclusiones que para la mejora competitiva de la CAPV se derivan de la investigación realizada en el tiempo transcurrido desde la publicación del anterior Informe en 2007.

La época de incertidumbre actual incide en la percepción de la competitividad

No se puede obviar que los dos años transcurridos desde la publicación del primer Informe son un periodo en que la crisis está marcando claramente un antes y un después. El horizonte «natural» que se mostraba entonces está hoy repleto de incertidumbres. Ello incide, consciente o inconscientemente, en la percepción y actitudes en relación con la competitividad. Es difícil pensar en el largo plazo en épocas de tanta incertidumbre. En algún momento puede ser tentador considerar que, en una época en la que los paradigmas están cambiando, no tiene sentido intentar construir una visión que nos guíe hacia el futuro. Ciertamente no se puede prever lo que va a ocurrir, pero este segundo Informe apuesta por un ejercicio basado en entender el pasado y, partiendo de lo aprendido, plantear retos de futuro siguiendo una línea de pensamiento sistémico en torno a la competitividad. Se trata, por lo tanto, de un ejercicio de reflexión a largo plazo en una época en la que dicho largo plazo aparece inquietantemente difuso. Es precisamente en este momento de crisis cuando resulta necesaria la prospectiva, así como pensar y diseñar un futuro que solamente puede construirse desde una visión a largo plazo, comprometido con el cambio y con el concurso de todos los agentes implicados.

Orkestra trabaja en la mejora competitiva

El Instituto ha trabajado desde su creación acompañando a los distintos agentes de competitividad de la CAPV en su esfuerzo de, por una parte, entender la dinámica de la economía global y sus efectos en la estructura productiva regional; y, por otra, responder a los retos que la mejora competitiva les plantea. Ello ha permitido profundizar en la comprensión y avanzar en la adaptación del Modelo Vasco de Competitividad, cuyas

[1] En el capítulo introductorio de este Informe se presentan las características de cada estadio competitivo.

características principales ya se presentaron en el Informe anterior. El siguiente gráfico muestra la adaptación del referido modelo a los temas tratados en este Informe.

Modelo de Competitividad de la CAPV adaptado para el Informe

Fuente: elaboración propia.

Hacia un nuevo estadio competitivo basado en la innovación

Uno de los elementos centrales para la comprensión del modelo es la transición de las economías en su proceso de desarrollo desde un estadio competitivo a otro. Siguiendo a Porter (1998)[2], son tres los estadios que un territorio atraviesa en su camino de competitividad. Inicialmente se parte de una economía basada en la «dotación de los los factores productivos», que son los que aportan ventaja competitiva. La segunda etapa es la de una economía basada en la «inversión». Lo que aporta ventaja competitiva en este caso es la capacidad para producir bienes y servicios estándares de alta calidad, usando métodos relativamente eficientes, pero con menores costes, fundamentalmente salariales, y otros como los ambientales y regulatorios, que en las economías avanzadas. En el tercer estadio, la dinámica económica de un territorio se basa en su capacidad de «innovación». Es decir, su ventaja competitiva reside en la capacidad de producir eficiente y sostenibleme bienes y servicios innovadores en la frontera de la tecnología.

[2] El diagnóstico competitivo basado en el llamado «Diamante competitivo» de Porter (1998) analiza para el territorio en cuestión lo siguiente: (1) las condiciones de los factores productivos, (2) el contexto para la estrategia y rivalidad de las empresas, (3) las condiciones de la demanda y (4) las industrias relacionadas y de apoyo.

Según el modelo, otras características de este estadio competitivo basado en la «innovación» son las siguientes: (1) que las empresas compiten con estrategias únicas, que a menudo tienen alcance global, y (2) que el diagnóstico territorial, que se realiza a través del análisis del **diamante competitivo,** presenta fortalezas en todos los elementos del diamante. En este estadio competitivo se detectan, además, un número elevado de ***clústeres*** productivos sólidos e internacionalizados, la estructura económica territorial tiene una alta cuota de servicios avanzados, existe cierta capacidad de acomodarse a los choques externos, y priman la sostenibilidad ambiental y social.

En estos momentos la CAPV está evolucionando de ser una economía basada, según la clasificación referida, en la «inversión», a ser una basada en la «innovación». La transición de un estadio a otro no implica la desaparición de los elementos que caracterizaron el estadio anterior, sino la preponderancia de los elementos básicos del nuevo estadio sobre los del antiguo. No obstante, los aspectos que han sido característicos de la etapa basada en la «inversión», como es, por ejemplo, la importancia de los sistemas de calidad, siguen siendo relevantes en el nuevo estadio, si bien pasan a ser dominantes otras características más propias de este. Además, debido a que los distintos actores avanzan a distintos ritmos, una estrategia hacia el estadio basado en la innovación no puede olvidar subestrategias complementarias que incidan sobre estos.

En este contexto, las preguntas principales a las que se responde con el Informe son de si la CAPV transita al nuevo estadio competitivo de la innovación, y cuáles son las principales recomendaciones para hacerlo de la forma más eficiente. Por ello, uno de los elementos críticos analizados en el Informe es el desempeño competitivo de la economía regional, que permite responder a la pregunta de si la CAPV es o no competitiva. Teniendo en cuenta que las que realmente compiten en los mercados son las empresas, se han analizado no solo el desempeño económico agregado de la CAPV, sino también el de sus empresas. Según el modelo de competitividad, en el nuevo estadio competitivo, dicho desempeño debe derivarse de la capacidad de innovación. Con objeto de establecer la relación entre ambos parámetros y valorar si dicha relación es característica de una economía en el «estadio competitivo de la innovación», el análisis del desempeño se complementa con el de la cantidad y calidad de innovación, y eventualmente de su características e instituciones.

En el modelo desarrollado en este Informe hay una serie de elementos que inciden en el desempeño competitivo de un territorio y que se han agrupado en tres: 1) los «diamantes competitivos» y las estrategias derivadas de su análisis, 2) la *clusterización* de la actividad productiva y los agentes partícipes relevantes (incluyendo el análisis del contexto histórico) y 3) el marco para la acción política y la institucionalidad del modelo de competitividad.

El Informe cuenta con dos partes diferenciadas. En la primera, se presenta una serie de capítulos orientados a medir el desempeño competitivo de la CAPV y sus empresas, y se vincula dicho desempeño al posicionamiento de la región en torno a la innovación. En la segunda, se analizan los factores críticos de competitividad de la economía vasca, catalizadores para la transición al nuevo estadio competitivo basado en la innovación en el contexto de la región.

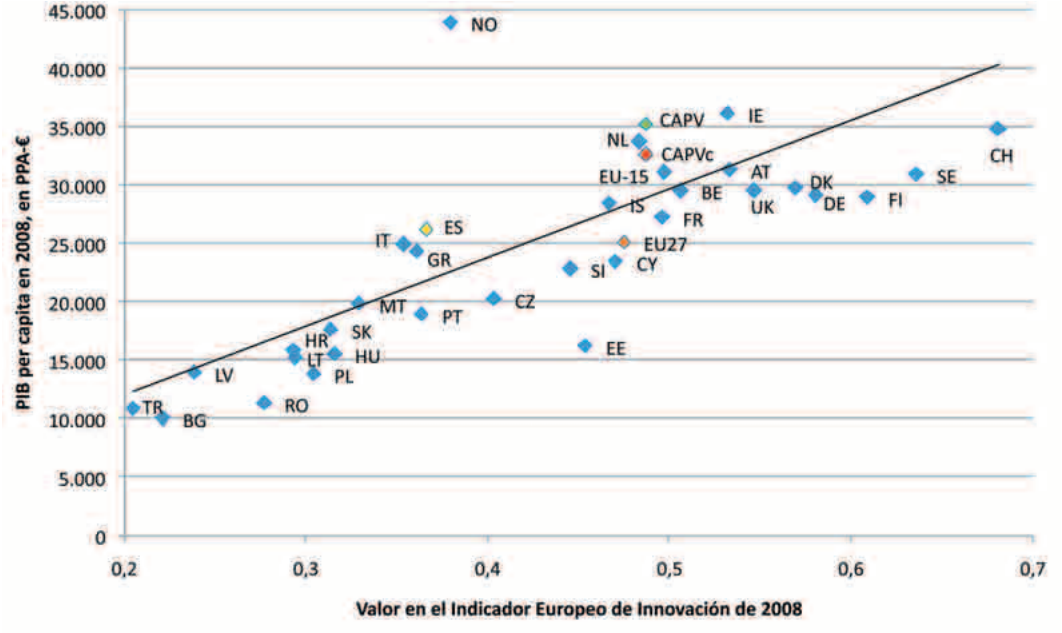
2. **Desempeño competitivo y su vinculación a la innovación: la paradoja competitiva**

Antes de pasar a presentar el primero de los elementos analizados en el Informe, es importante posicionar el sistema de innovación de la CAPV en relación con los sistemas de otras regiones europeas. El estudio abordado permite constatar que la CAPV pertenece a un grupo de «regiones centrales de nivel económico y tecnológico intermedio» y que su avance como resultado de los esfuerzos realizados consistiría en la migración al grupo de «regiones industriales reestructuradas con capacidad económica y tecnológica», del que se encuentra muy próximo. Dicha proximidad indica que la CAPV se encuentra a las puertas de un estadio marcado por una clara aproximación a la competitividad a través de la innovación. A nivel de comunidades autónomas, se posiciona entre las cuatro más avanzadas, junto con Navarra, Cataluña y Madrid. Ello confirma las conclusiones anteriores.

La CAPV tiene un nivel elevado de renta per cápita

El primero de los elementos que se ha analizado es el desempeño competitivo de la CAPV. Un punto de partida obvio para calibrar el desempeño competitivo de una economía es valorar tanto en términos estáticos, como de su dinámica temporal, si su *output* determinante –el PIB per cápita– es apropiado y muestra sendas de crecimiento positivas. En este sentido, la conclusión general de este apartado es que la región presenta, de entrada, un posicionamiento favorable en torno al nivel competitivo medido en términos de PIB per cápita, tanto en comparación con otros países (véase gráfica a continuación) y regiones europeas, como respecto a otras comunidades autónomas españolas. Por ello, el punto de partida relevante del Informe es que la CAPV, en cuanto a su capacidad de generar renta mediante la producción de bienes y servicios, es competitiva.

PIB per cápita (en PPA-€) y valor en el Indicador Europeo de Innovación de 2008



Fuente: Eurostat, PRO INNO EUROPE y Eustat. Elaboración propia.
PPA: Paridad de Poder Adquisitivo.
TR (Turquía), BG (Bulgaria), LV (Letonia); RO (Rumanía); LT (Lituania); HR (Croacia); PL (Polonia); HU (Hungría); SK (Eslovaquía); MT (Malta); PT (Portugal); IT (Italia); GR (Grecia); ES (España); CZ (República Checa); EE (Estonia); ST (Santo Tomé y Príncipe); CY (Chipre); IS (Islandia); NL (Holanda); FR (Francia); BE (Bélgica); IE (Irlanda); AT (Austria); UK (Reino Unido); DK (Dinamarca); DE (Alemania); FI (Finlandia); SE (Suecia); CH (Suiza).
PVc: El valor representado por PV (PIB per cápita en PPA) corregido por la diferernia en el nivel general de precios entre España y la CAPV.
El Indicador Europeo de Innovación es un indicador sintético desarrollado por la Comisión Europea, para intentar superar los inconvenientes que presenta cada indicador individual de innovación (gasto en I+D, patentes, exportaciones por niveles tecnológicos etc.) tomado en sí mismo por separado.

Nivel de innovación

Los niveles de innovación de la CAPV son menores que los que le corresponderían por su PIB per cápita

Una vez verificado el nivel de competitividad regional medido en términos de renta per cápita, la segunda pregunta clave es la de si dicha competitividad está basada en la innovación. En este contexto, el Informe ha concluido lo que el Instituto ha denominado la *paradoja competitiva,* que constata que los niveles de PIB per capita existentes se corresponderían en teoría con niveles de innovación, medidos según el Indicador Europeo de Innovación (elaborado por la Comisión Europea) superiores a los registrados en la realidad (véase el gráfico anterior). Es decir, la posición de la CAPV respecto al PIB per capita es significativamente más favorable que su posición respecto a los indicadores de innovación.

El referido análisis, en términos relativos a otras regiones europeas, muestra que en el Indicador Europeo de Innovación, la CAPV se sitúa en el puesto 55 de las 202 regiones europeas analizadas. Si bien esta posición no es particularmente negativa, si se compara con relación a la posición en el PIB per cápita (puesto 30 entre 202 regiones) se hace palpable la anteriormente descrita «paradoja competitiva».

Niveles de gasto en I+D mejorables y con necesidad de mejorar su eficiencia

Si nos referimos exclusivamente a la intensidad del gasto en I+D, la CAPV se sitúa en el puesto 55 entre el conjunto de 146 regiones de la UE-15 (es decir, por encima de la media). No obstante, con respecto a las comunidades autónomas españolas, la CAPV solo se sitúa detrás de Navarra (con un desarrollado y singular sistema universitario) y Madrid (cuyos resultados pueden verse positivamente afectados por el efecto capitalidad, así como por ser sede de una proporción elevada de los organismos públicos de investigación españoles). En conclusión, y debido al rezago que el gasto en I+D tiene en España, se verifica que, si bien la anteriormente referida paradoja competitiva es palpable en términos regionales europeos, no lo es tanto, sino todo lo contrario, en el contexto de las comunidades autónomas españolas.

La competitividad de la CAPV responde a su capacidad de innovar a través de la experiencia y la interacción

Una explicación del buen desempeño en términos europeos de la economía vasca al tiempo que su nivel de innovación no alcanza niveles de primer rango (en términos de gasto en I+D y del Indicador Europeo de Innovación) radica en que la forma en la que se innova en muchas de las empresas no está vinculada al gasto en I+D, sino al aprendizaje a través de la experiencia y la interacción. Teniendo en cuenta esto, y la evolución de dichos indicadores de innovación habituales, que mejoran en el tiempo, podríamos concluir que existen indicios de que la competitividad lograda responde a la capacidad que se ha tenido de innovar en la región. Esto se debe a que lo que se mide a través de indicadores convencionales de innovación no refleja stricto sensu la dinámica de innovación de las empresas vascas. Los procesos de innovación en la CAPV han respondido básicamente a modelos de innovación basados en la experiencia (DUI, *learning by doing, by using and by interacting,* o aprender haciendo, usando o interactuando), sin ser tan relevantes otros aspectos recogidos en el Indicador Euroepeo de Innovación, que refleja en mayor medida la dinámica de los modelos de innovación basados en la ciencia y en la tecnología *(STI-Science, Tecnology and Innovation)*.

La actividad emprendedora muestra un desempeño dinámico

Otra explicación de la referida paradoja podría fundamentarse en el análisis de la actividad emprendedora regional. A este respecto, según se concluye en el Informe GEM (General Entrepreneurship Monitor) 2008, el TEA (indicador de Actitividad Emprendedora Total) ha recorrido desde el 2001 una senda creciente en la CAPV; la tasa de supervivencia de las empresas nuevas presenta una buena posición; y hay una mayor concentración emprendedora relativa en el sector manufacturero en

comparación con otras regiones. No obstante lo anterior, y a futuro, en el estadio de desarrollo basado en la innovación, la promoción de la actividad emprendedora de alto impacto debería ser selectiva y estar dirigida y personalizada a los distintos colectivos existentes. Colectivos estos, distintos en función del nivel de experiencia de las personas/empresas y el nivel de diversificación tanto funcional como sectorial.

El futuro: es necesario innovar

Población relativamente envejecida

En términos de prospectiva, respecto de la capacidad de la economía vasca de mantener su nivel de desempeño competitivo, el análisis más detallado de los elementos que inciden en el indicador de PIB per cápita permite constatar una realidad objetiva: la actual pirámide poblacional, con una concentración alta de personas en edad de trabajar (15-64 años) y poca presencia de población menor de 15 años en términos relativos (aproximadamente un 15%), plantea la necesidad de prever una situación en la que una reducción de la población activa pueda incidir negativamente en la competitividad. Esto nos lleva al menos a dos recomendaciones. Por un lado, esta reducción de la población activa hace todavía más acuciante la necesidad de incidir en la innovación y mejora de la productividad, para mantener y desarrollar los niveles de competitividad de la CAPV en el futuro. Por otro lado, es necesaria una adecuada política de inmigración para mantener el nivel competitivo actual y crecer en el futuro. Esta conclusión coincide con la que ha definido el grupo sobre Déficit de Profesionales del Foro de Competitividad Euskadi 2015 en su visión y retos estratégicos del mercado para el horizonte 2015, accesible en <www.euskadi2015.net>.

Impulsar cambios reales que mejoren los indicadores y no una mejora de indicadores sin cambios reales

Definir indicadores que reflejen realmente la innovación

Por otra parte, las reflexiones realizadas en torno a la paradoja competitiva subrayan la necesidad, en primer lugar, de una comprensión profunda de cuáles son los mecanismos mediante los que las empresas aprenden e innovan. Solo desde dicha comprensión se pueden definir indicadores que reflejen realmente la innovación que se lleva a cabo. Por lo tanto, los procesos de definición de indicadores deben ir acompañados de estudios, tanto cuantitativos como cualitativos, que permitan diagnosticar la innovación de las empresas. El Informe presenta los riesgos que conllevan los distintos indicadores, aun los más comúnmente aceptados. Ello permite recomendar cautela al establecer objetivos en términos de posicionamientos en torno a indicadores, ya que, si este no va acompañado por parte de los distintos agentes de competitividad de una comprensión en profundidad de los cambios reales que se deben realizar, se podría caer en procesos de mejora del posicionamiento en indicadores sin avances en los caminos reales de competitividad.

Desempeño de las empresas vascas

Positivo desempeño económico-financiero de las empresas

Además del desempeño de la CAPV, se ha analizado el desempeño de las empresas, agentes críticos de competitividad. Uno de los elementos destacables en este sentido son los resultados positivos mostrados por el análisis económico-financiero, que por los datos disponibles ha podido realizarse hasta el 2007.

1) La rentabilidad sobre recursos propios de las empresas manufactureras está por encima de la media europea y tras el 2007, también sobre la media española.

2) Los costes aparentes de los recursos ajenos son inferiores y los niveles de endeudamiento son comparativamente menores respecto a las demás comunidades autónomas.
3) Tienen también menor dependencia de la financiación a corto.
4) En cuanto a la evolución del endeudamiento, su tendencia al crecimiento se detuvo en 2005 e incluso se invirtió algo hasta el 2007.
5) Se detecta también buena rentabilidad de la actividad productiva ordinaria y de los activos financieros.

Se puede decir, por lo tanto, que el comportamiento de la empresa vasca en los últimos años en relación con su estructura económico-financiera ha sido positiva, y que, en términos comparativos, se encuentra en mejor situación que empresas de otras regiones a la hora de enfrentarse a la actual situación de crisis económica y a la incertidumbre respecto al acceso a financiación externa.

La empresa vasca sigue siendo de tamaño reducido para competir en el mercado global

En cuanto a su tamaño, sigue vigente la crítica del anterior Informe sobre el reducido tamaño en términos comparativos de la empresa vasca en el contexto de una economía crecientemente globalizada. No obstante lo anterior, los datos de este Informe muestran indicios –aunque no se pueden extraer aún conclusiones claras con respecto a la tendencia, debido a que pudiera estar influida por factores cíclicos derivados de la expansión económica de los últimos años– de haberse detenido la tendencia a la disminución del tamaño de la empresa vasca. Para contrarrestar esta debilidad competitiva las empresas debieran recurrir a la cooperación, a las alianzas y a la participación en consorcios de empresas de fuera de la región con objeto de participar en proyectos de valor añadido, particularmente si con ello hay aportación y/o transferencia de tecnología.

Impulso en la creación de grupos empresariales

Otra estrategia para compensar el reducido tamaño relativo de la empresa vasca es la creación de grupos empresariales. Esto permitiría explotar sinergias en el ámbito de la I+D, de la comercialización, internacionalización, etc., importantes fuentes potenciales de ventajas competitivas en el estadio de la innovación. En este sentido, la CAPV muestra un desarrollo positivo, dado que es, por un lado, la comunidad autónoma española con mayor porcentaje de empresas en que entre sus socios figura otra empresa; y por otro, la comunidad autónoma española con mayor porcentaje de empresas con participaciones empresariales en otras empresas. Es decir, las empresas vascas han acometido políticas de desarrollo o participación en grupos empresariales, de modo que lideran el *ranking* de comunidades autónomas españolas en cuanto a indicadores de creación de grupos empresariales. De cara a competir en el estadio basado en la innovación es relevante seguir potenciando su desarrollo.

Continuar profundizando en la senda positiva de mejorar la sofisticación de las exportaciones

En cuanto a la internacionalización de la economía vasca se analizan tres indicadores: la propensión exportadora, la inversión exterior en la CAPV y la inversión vasca en el exterior. En el primer indicador se concluye que, teniendo en cuenta que la CAPV es una economía que por su tamaño ha de ser necesariamente abierta, el índice de propensión exportadora de la región todavía debe progresar sustancialmente, aunque los datos evolutivos mostraban ya una tendencia favorable en este sentido hasta que se han notado los efectos de la crisis económica en la segunda mitad del 2008. Sin embargo, si se analiza no exclusivamente la cantidad, sino las características de las exportaciones, aparece como elemento positivo que las empresas vascas han sido capaces de innovar en productos y en mercados, y así han logrado transitar hacia estadios de exportación más complejos, tal y como muestra el índice de sofisticación de las exportaciones desarrollado en el Informe. En el nuevo estadio competitivo basado en la innovación es muy importante avanzar en la senda positiva de sofisticación de las exportaciones vascas.

En cuanto al segundo indicador, relativo a la inversión extranjera directa, la CAPV es una de las tres comunidades autónomas cuyo porcentaje de participación en el total de la inversión directa española en el extranjero supera al de su PIB. El análisis detallado de la composición de la inversión en el extrajero mostraría, como para el conjunto de la economía española, que dicha inversión se dirige fundamentalmente hacia países en desarrollo, y es relativamente reducida en países desarrollados, especialmente en aquellos que no han sido tradicionalmente destino de la inversión española, así como en los emergentes de alto crecimiento denominados BRIC (Brasil, Rusia, India y China).

Es necesario incrementar los flujos de inversión externa hacia la región

Por el contrario, en cuanto a la inversión exterior en la región, esta captura un porcentaje del flujo y *stock* de inversión extranjera directa venida a España inferior al que le correspondería de acuerdo con su PIB, lo que en este caso puede clasificarse como una debilidad. Superar esta debilidad es aún más necesario si la competitividad de la economía vasca se ha de basar en el creciente uso de la tecnología.

Necesidad de diversificar la oferta exportadora e inversora hacia países más desarrollados

Como complemento del análisis anterior, el examen detallado de la oferta exportadora y del destino de las inversiones de las empresas vascas permite argumentar la necesidad de diversificar esta oferta exportadora e inversora hacia países que exijan mayores niveles de sofisticación o de valor añadido tecnológico, lo que es coherente con el análisis porteriano, que establece una relación positiva entre la sofisticación de la demanda interna y externa, y el nivel de desarrollo tecnológico.

Como conclusión general puede afirmarse que, por un lado, se detectan indicios de una evolución del tejido empresarial hacia parámetros típicos de una economía basada en la innovación, como, por ejemplo, la mejora en la sofisticación de las exportaciones vascas, la creación de grupos empresariales o el peso en la inversión directa en el extranjero. Por otro lado, se detectan ámbitos de mejora como la necesidad de avanzar en la atracción de la inversión exterior, aumentar la propensión exportadora y diversificar la oferta exportadora e inversora a países más desarrollados e incrementar el tamaño medio de las empresas vascas.

Trabajar en los elementos de mejora del atractivo de la región

Para atraer capital extranjero resulta necesario hacer, por una parte, más atractivo el sistema de innovación y, por otra, profundizar en el debate sobre los elementos económicos, de infraestructuras, sociales y políticos, que impiden optimizar el atractivo de la región.

Fomento de la inversión externa y de la implantación de Nuevas Empresas de Base Tecnológica

En este sentido, es importante que desde las administraciones públicas se realice un esfuerzo en el fomento y financiación de la inversión exterior, a través de la utilización correcta de los recursos existentes en la CAPV y España, así como mediante el posible desarrollo de instrumentos financieros propios. También cobra especial relevancia apoyar decididamente la implantación en la CAPV de actividades de base tecnológica e innovadora, o el establecimiento de *joint-ventures* empresariales entre empresas vascas y del resto del mundo. Adicionalmente, es importante apoyar la inversión de las empresas vascas en el exterior, no solo en los países en desarrollo guiados por la lógica de menores costes o del seguimiento de sus clientes, sino también hacia los países más desarrollados.

Avanzar en la sofisticación de las exportaciones vascas

En el ámbito del fortalecimiento de la propensión exportadora, el mensaje no se centra exclusivamente en el aspecto cuantitativo. No basta con exportar más. Es preciso trazar rutas a través de las cuales avanzar hacia una sofisticación cada vez mayor de los productos exportados. Dichas rutas deben ayudar, a partir de las competencias

que actualmente se tienen, a evolucionar paulatinamente hacia otros productos en los que dichas competencias siguen siendo una fortaleza, pero que son más sofisticados que los actualmente exportados. Un instrumento útil en este sentido es el impulso a la participación de las empresas vascas en consorcios, concesiones y licitaciones de proyectos con empresas nacionales y extranjeras, que obligan a una creciente sofisticación de los productos y procesos involucrados.

El sistema de innovación

Potenciar el esfuerzo en intensidad en I+D y mejorar su eficiencia. Apostar por la excelencia

Tras el análisis del desempeño competitivo regional y empresarial, se aborda en el Informe un estudio de algunos aspectos del sistema de innovación del que se extrae una serie de recomendaciones. La primera es la de mantener, e incluso incrementar, el esfuerzo realizado en los últimos años en torno a la intensidad en I+D, pues la evolución de los indicadores muestra que se están obteniendo resultados en esta línea. No obstante lo anterior, es preciso avanzar en una reflexión sobre la eficacia del gasto en I+D procediéndose a su evaluación a los efectos de apostar crecientemente por I+D de excelencia. Habría que hacer un esfuerzo especial en la potenciación de la I+D en la universidad, dado que el análisis de los sectores ejecutores del gasto en I+D pone de manifiesto el escaso porcentaje relativo del gasto en I+D en el entorno universitario frente al que dicho sector ejecuta en otros ámbitos geográficos. La desventaja de la CAPV es incluso más evidente en gasto en I+D de los organismos públicos de investigación, con poca presencia en la región.

Sería oportuno apostar por centros tecnológicos de élite, a ser posible en el curso de convenios de colaboración de ámbito europeo y nacional, así como potenciar que las universidades y centros tecnológicos de la región incrementen sus relaciones con centros internacionales de élite, participen en programas concretos y en proyectos de excelencia y apoyen la presencia de tecnólogos en las empresas.

Una segunda recomendación radica, por una parte, en avanzar en el consenso –no exclusivamente entre administraciones públicas, sino también incluyendo a los agentes privados– sobre el papel que cada agente generador de conocimiento tiene en el sistema (sobre todo universidades y centros tecnológicos). Por otra parte, uno de los elementos críticos para que el conocimiento generado por estos agentes pueda traducirse en innovaciones empresariales es la capacidad de absorción de las empresas, junto a la necesidad de los centros tecnológicos y de la universidad de acercarse a la demanda tecnológica de las empresas. Avanzar en políticas orientadas a generar dicha capacidad de absorción, en la línea emprendida por ejemplo con las agendas de innovación, es otra de las recomendaciones. En el ámbito empresarial, el Informe subraya al respecto la necesidad de complementar el modo de innovación predominante en la CAPV, aparentemente más basado en la experiencia (el llamado modelo DUI, *Doing, Using and Interacting*), con actividades innovadoras de base más científica (más basados en el modelo STI, *Science, Technology and Innovation*). Tal combinación tendría, por un lado, un efecto positivo en la capacidad de innovación, y, por otro, evitaría quedar anclados en tecnologías y actividades obsoletas o más sujetas a la competencia de países emergentes. En definitiva, esto supone seguir avanzando en la *i* minúscula de la I+D+i, pero intensificando simultáneamente el esfuerzo y la eficiencia en la I+D.

En coherencia con esta lógica, otro de los aspectos derivados del análisis realizado es que se cuenta con estructuras suficientes, aunque mejorables, para la realización de I+D, aunque con lagunas, por ejemplo, en el ámbito universitario, los organismos públicos para la investigación y los centros de élite. Pero, en coherencia con el modelo vasco de innovación, una de las claves para mejorar el *output* de innovación es la articulación de interacciones entre los distintos agentes. La recomendación en este sentido está basada en una idea muy simple, pero con implicaciones importantes si se llevase a cabo:

Profundizar la articulación de interacciones entre distintos agentes

complementar la generación y posterior transferencia de conocimiento con el establecimiento de mecanismos de cogeneración de conocimiento. Ello implica contar con mecanismos en los que la empresa trabaja con los investigadores universitarios y de centros tecnológicos en equipo desde el principio hasta el final. El Instituto Vasco de Competitividad tiene como misión facilitar esa mayor interlocución entre los actores «orquestando» la sintonía entre ellos.

Otra recomendación, esta vez orientada a los responsables de las administraciones públicas y al subsistema de generación de conocimiento, es la de ir aumentando los recursos disponibles por investigador e incrementar el número de doctores entre el personal dedicado a la I+D en el ámbito de las empresas. Programas de becarios y estancias postdoctorales en las empresas, así como de reciclaje universitario de alto nivel para los científicos que trabajen en las empresas, podrían ser instrumentos apropiados para este fin.

En conclusión, se puede afirmar que existen indicios de que se avanza hacia un estadio competitivo basado crecientemente en la innovación, y es necesario fortalecer las palancas de esta transición.

3. Elementos catalizadores de la evolución hacia el nuevo estadio competitivo: los diamantes competitivos, la *clusterización* y el marco para la acción política e instituciones para la colaboración

El modelo de competitividad sobre el que está trabajando el Instituto considera importante profundizar en la comprensión y mayor eficiencia de los siguientes elementos críticos de competitividad: (1) el diamante competitivo, (2) la *clusterización*, y (3) el marco para la acción política e instituciones para la colaboración. El análisis de estos elementos permite profundizar en el cómo se está avanzando hacia el nuevo estadio competitivo basado en la innovación. Se añade así la visión dinámica del proceso.

Visión sistémica para avanzar hacia el nuevo estadio de la innovación

Según el referido modelo de análisis, una de las características del estadio competitivo basado en la innovación es la visión sistémica, es decir, la aproximación al conjunto de agentes, entendiendo tanto a cada uno de ellos como a la complejidad de sus interacciones. Ya no es suficiente con que cada uno de los actores del proceso, sea empresa, administración pública, entidad para la colaboración o investigador, entienda su propia situación. Para construir una visión común que lleve a estrategias conjuntas y compromisos compartidos es necesario partir de herramientas que permitan percibirse dentro de un sistema, en el que se entienda el papel de cada uno y se visualicen las interacciones. Esta visión sistémica es muy difícil de medir de forma cuantitativa, pero es una de las claves para avanzar hacia el nuevo estadio.

El diamante competitivo

El primer Informe aportó a la generación de esta visión sistémica un análisis del diamante competitivo de la CAPV en que se visualizaban los distintos elementos básicos para la competitividad del territorio y se analizaban sus interacciones. Este segundo Informe profundiza esta visión con el análisis del diamante para los distintos tipos de comarcas de la CAPV (comarcas metropolitanas, aglomeraciones industriales con comportamiento tecnológico medio, aglomeraciones industriales avanzadas, pequeñas comarcas rurales y pequeñas comarcas industriales). La conclusión principal en este sentido es que existen indicios claros de que la visión sistémica se está integrando en los procesos de diagnóstico y planificación en las comarcas, y ello está llevando a la definición de algunos procesos de *clusterización* comarcal que resultan esperanzadores para la mejora de la competitividad regional.

Estas dinámicas ya han ofrecido resultados en términos de mayor capilaridad de las políticas de innovación del Gobierno Vasco y las Diputaciones forales. Ello apunta a que la visión sistémi-

Los *clústeres* comarcales son beneficiosos para la pequeña empresa

ca se está generando no únicamente en las comarcas, sino que se están produciendo sinergias entre distintos niveles territoriales dentro de la región. Aunque no se cuente con datos cuantitativos al respecto, dentro de algunas de las comarcas analizadas se aprecian indicios de que la *clusterización* está incidiendo en las actitudes de las empresas –sobre todo en las de menor tamaño– en relación con la necesidad de sofisticar sus estrategias. Así, el ámbito comarcal parece mostrarse como idóneo para la inserción competitiva de las empresas pequeñas en la dinámica general de los sectores globalizados.

Avanzar en la función estratégica del sistema de ciudades

No obstante, el análisis realizado permite constatar que el territorio de la CAPV no es homogéneo en relación con las posibles estrategias hacia el nuevo estadio competitivo. Por lo tanto, es importante que las políticas y la investigación al respecto se diseñen de forma que cubran las necesidades de los principales tipos de comarcas detectados. En este sentido y como complemento a lo anterior, teniendo en cuenta su relevancia poblacional, social, política e institucional, uno de los retos para los próximos años es el de reforzar las políticas y la investigación sobre ciudades y sus estrategias competitivas y su papel como agentes de innovación.

Las políticas de competitividad e innovación son competencia de distintos niveles administrativos

El Informe realiza una serie de recomendaciones para las administraciones públicas teniendo en cuenta los resultados del análisis de los diamantes competitivos comarcales. La primera de ellas va orientada a los ayuntamientos y a todas las administraciones públicas que interactúan con ellos. Además de la incidencia que pueden tener las políticas europeas y de España, tradicionalmente las políticas de competitividad e innovación en la CAPV se han visualizado como competencia del Gobierno Vasco y de las Diputaciones forales. Sin embargo, el nuevo estadio competitivo requiere una aproximación a estas políticas en la que todos los niveles administrativos tienen un rol que jugar. Frecuentemente los ayuntamientos han delegado en las agencias de desarrollo comarcal los aspectos relativos a la promoción económica, siendo éstas las que están directamente desarrollando diagnósticos y planes de acción. Aunque todos estos planes llegan en algún momento a los ámbitos de decisión política, el grado de implicación de los políticos en estos procesos varía en gran medida de un caso a otro. Sin embargo, estos proyectos carecen de viabilidad a menos que los políticos locales estén directamente implicados. Por lo tanto, la implicación directa de los políticos municipales en los diagnósticos y planes de acción para la *clusterización* sería la primera de las recomendaciones a las administraciones públicas. Es preciso que los políticos locales trasciendan de su papel tradicional de prestación de servicios locales y tomen en cuenta su papel en el desarrollo económico local.

Maximizar la eficiencia de las políticas de distintas instancias, a través de una aproximación multinivel a ellas

De cara a la segunda recomendación a las administraciones públicas, es pertinente subrayar el elevado nivel de desarrollo institucional alcanzado. Ello se ha reflejado, entre otros aspectos, en la creación por parte de administraciones públicas de distintas entidades de apoyo a la colaboración que han permitido aglutinar a agentes públicos y privados en torno a proyectos comunes. En este sentido, además de proceder a una reflexión acerca de la eficiencia y funciones de las dieferentes instancias, es preciso establecer mecanismos de coordinación en lo que se denomina la aproximación multinivel de las políticas. En este sentido se recomienda mantener espacios de diálogo entre distintos niveles institucionales en los que se pueda garantizar la coherencia de las iniciativas desarrolladas en sus correspondientes niveles.

En tercer lugar se recomienda a las administraciones públicas supervisar en el contexto de la reestructuración ante la crisis económica actual, los procesos políticos y económicos que se desarrollen por el Gobierno central y la Unión Europea. Piénsese en la relevancia para la competitivi-

dad de la CAPV de decisiones, que necesariamente han de tomarse a ese nivel, sobre la reestructuración del automóvil, las energías renovables o la ubicación de centros tecnológicos de élite internacionales.

En resumen, existen indicios de que, en el contexto del modelo vasco de competitividad, las agencias de desarrollo comarcal pueden jugar en los próximos años un papel central en los procesos de cooperación y *clusterización* en niveles inferiores a la CAPV. Este esfuerzo de «profundización» debe, por otra parte, complementarse además con esfuerzos de «coordinación hacia arriba», con las políticas e iniciativas de la administración central y europea. Este papel central hace que las recomendaciones realizadas en los párrafos anteriores les afecten directamente.

A continuación se señalan otras recomendaciones consideradas especialmente relevantes para el fortalecimiento selectivo de estas entidades de apoyo a la colaboración.

Es importante desarrollar competencialmente los equipos de las agencias

La primera es trabajar en el desarrollo competencial de los equipos de las agencias, para que puedan gestionar adecuadamente los procesos vinculados al nuevo estadio competitivo, entre ellos los procesos de *clusterización*. Estos procesos necesitan que tanto los equipos directivos como técnicos de las agencias compaginen la oferta de servicios con la dinamización de agentes comarcales, y busquen un liderazgo político y económico compartido. Ello requiere conocimientos, habilidades y actitudes específicos, sin los cuales puede resultar difícil desarrollar el tipo de liderazgo relacional que las redes requieren.

Clusterización

Otro de los elementos catalizadores de la transición hacia el nuevo estadio según el modelo de competitividad es la *clusterización*, que ya ha sido citada en el contexto del análisis de los diamantes competitivos en los párrafos anteriores. La *clusterización* supone crear ámbitos de cooperación público-privada y conlleva, por una parte, generación de visión sistémica, y por otra, la orientación de las políticas a los requerimientos del nuevo estadio competitivo. La *clusterización* facilita puntos de confluencia entre las diferentes empresas a lo largo de la cadena de valor, los diferentes agentes de innovación (las empresas, la universidad, los centros tecnológicos, etc.) y las distintas instancias políticas que definen políticas micro y macroeconómicas con impacto en la dinámica competitiva a largo plazo. La política *clúster* del Gobierno Vasco es un ejemplo de este tipo de procesos. En este sentido, es importante diferenciar un *clúster*, que es la realidad natural derivada de las relaciones económicas en la cadena de valor o en otros aspectos horizontales (conocimiento, tecnología…), que existe independientemente de que haya o no una política, y las asociaciones *clúster*, que son las instituciones creadas para dinamizar las sinergias y potencialidades de la realidad *clúster* con objeto de mejorar su competitividad. Las asociaciones *clúster* son, pues, la plasmación administrativa de ciertas realidades *clúster.*

Potenciar y desarrollar la filosofía *clúster*

La política *clúster* ha conseguido aglutinar a una parte sustancial de las empresas vascas más competitivas

Los datos presentados en el Informe permiten por primera vez contrastar el peso de las empresas participantes en las asociaciones *clúster* creadas gracias a esta política en la economía de la CAPV. Estas suponen el 28% del empleo y el 32% del valor añadido industrial, y presentan mejores indicadores de competitividad que la media de las empresas de la región. Las empresas asociadas presentan mayores niveles de crecimiento de sus ventas, están más internacionalizadas y tienen mejores indicadores de innovación que las no asociadas. Ello muestra que la política *clúster* ha conseguido aglutinar a una parte muy sustancial de las empresas vascas más competitivas, lo que es, de nuevo, un indicio de avance en los parámetros establecidos por el nuevo estadio competitivo. En cuanto al grado de

avance en el proceso de *clusterización*, se ha constatado que la evolución es lenta, porque requiere un cambio importante en los esquemas mentales de los participantes. Se confirma el diferente nivel de participación e implicación de las empresas, con menor participación relativa de las empresas pequeñas. En este sentido, se ha detectado la asimilación de la filosofía *clúster* por parte de las empresas como el elemento clave que podría acelerar dicho proceso.

Mantener la políticas *clúster*

La primera recomendación que el Informe realiza en torno a la *clusterización* se deriva de la valoración de la actividad de las asociaciones *clúster* y la relevancia de las empresas asociadas. De todo ello se desprende la relevancia de la *clusterización* y su potencialidad para sustentar la política de competitividad. Desde el Instituto se han abordado diferentes estudios para analizar la actitud de los distintos agentes implicados en la política *clúster*, y de ellos se deduce la importancia de mantener esta política que actúa, entre otros aspectos, sobre elementos como el capital social o el interés compartido, considerados críticos para generar las interacciones entre distintos elementos del modelo que el estadio competitivo de la innovación requiere.

Horizontalizar más la política cluster: extenter la filosofía *clúster* a otros departamentos y a otras instancias de la administración

La segunda recomendación está también dirigida al Gobierno Vasco como administración que potencia la política *clúster*, pero podría extenderse a otros departamentos o a otras administraciones si se definieran por ellas políticas orientadas a la *clusterización*. En este sentido, la política de *clúster* podría ser una política horizontal que no solo involucre a los departamentos del Gobierno Vasco directamente involucrados, como los de Industria o Transportes, sino también a otros, como, por ejemplo, el de Educación, lo que facilitaría intensificar la colaboración público-privada. Esta recomendación está basada tanto en el análisis realizado para la detección de *clústeres* como en las lecciones de futuro extraídas del estudio de los orígenes históricos de los *clústeres*.

Se trata de entender la evolución de los *clústeres* como una dinámica, valga la redundancia, dinámica per se, de modo que la política del Gobierno esté continuamente abierta a procesos de *clusterización* variables, que pueden implicar el desarrollo de nuevas iniciativas, la fusión y colaboración entre *clústeres* y, eventualmente, si fuera el caso, su desaparición si alguno mostrase ineficiente su funcionamiento. El análisis de los *clústeres* que actualmente están siendo dinamizados indica que, en general, mantienen su relevancia en la CAPV, destacando algunos como los de Energía, Aeronáutico y el de Equipos marinos por su alto dinamismo. En su evolución al nuevo estadio competitivo, la estructura productiva de la CAPV debe evolucionar hacia actividades de mayor valor añadido y la política *clúster* puede potenciar esta transición estando abierta a apoyar procesos de *clusterización* en actividades tanto ya existentes, pero no clusterizadas, como en otras que no han sido tradicionales en la CAPV, pero que podrían ser actividades emergentes.

Necesidad de profundizar en la cooperación entre los partícipes en el *clúster*

Respecto de las asociaciones *clúster,* uno de los elementos críticos detectados es la necesidad de profundizar en la cooperación entre los agentes que lo forman. Ello requiere, de partida, que se interioricen las ventajas de la cooperación. Esta sería la primera de las recomendaciones a las asociaciones *clúster:* emprender procesos de profundización en la filosofía *clúster* y en el desarrollo de proyectos de interés común. Para ello, tanto la formación como la evaluación participativa, elementos ambos en los que se está trabajando, pueden jugar un papel relevante.

Otro elemento que de los análisis realizados se desprende como recomendación, aunque existen ya iniciativas interesantes al respecto, es la apertura de los *clústeres* para buscar sinergias de colaboración con otros *clústeres*. Esta colaboración se puede trabajar en distintos niveles. En primer lugar, *horizontalmente* entre diferentes *clústeres*, buscando sinergias, competencias y tecnologías comunes que pueden compartir entre varios; o incluso desarrollar conjuntamente nuevas tec-

Desarrollo suprarregional, intrarregional y horizontal de la filosofía *clúster*

nologías, competencias y actividades de la combinación de conocimiento compartido. En segundo lugar, impulsando la *colaboración suprarregional* de los *clústeres* de la CAPV, con *clústeres* ubicados fuera de la región, trabajando las sinergias entre distintas fases de la cadena de valor de cada *clúster* a lo largo de la geografía española y mundial. En tercer lugar, colaborando con redes y *clústeres* que existen a nivel *intrarregional,* cuyo papel para aumentar la capacidad de absorción y facilitar procesos de innovación e internacionalización de las empresas más pequeñas es clave.

El Instituto está llamado a ejercer una labor de facilitación en estos procesos. De hecho, estos espacios de encuentro entre empresas, actores públicos y otras instituciones de innovación son idóneos para ejercer un impacto en la competitividad de la región aplicando metodologías de investigación orientadas a la acción a través de la sinergia de excelencia de las tres íes (Investigación, Instrucción e Interacción).

Interiorizar a nivel de empresa la necesidad y utilidad de la cooperación

No obstante el eventual voluntarismo de las administraciones, desde las instituciones de apoyo pueden potenciarse procesos de *clusterización*, pero si las empresas no ven su utilidad y no interiorizan el potencial de la cooperación no será posible avanzar en este tipo de procesos. Por ello, la principal de las recomendaciones está orientada a las empresas, y se materializa en la importancia de que se aproximen a estos procesos con el objetivo de entender su filosofía y trabajar con una mentalidad abierta en la búsqueda de nuevas oportunidades. Este cambio de mentalidad requiere tiempo, pero se puede trabajar reforzando diferentes actividades de formación, como las que desde hace años se vienen desarrollando desde el Instituto en torno al curso MOC *(Microeconomics of Competitiveness)* y otras actividades de formación diseñadas ya para trabajar sobre las ventajas de la cooperación. Este esfuerzo formativo debería tener un carácter recurrente y desarrollarse según las necesidades de la realidad económica de las empresas de la región; por ejemplo, iniciando programas de formación específicas como las que actualmente se desarrollan en China y en el futuro se podrían desarrollar en otras geografías.

Búsqueda de equilibrios entre competencia y cooperación

Sin embargo, lo anterior no debe entenderse como una apuesta indiscriminada por la colaboración. Como se muestra en el análisis del legado, en el que se analizan los orígenes históricos de diferentes *clústeres* y cómo estos inciden en la competitividad, el objetivo debe radicar en encontrar el equilibrio óptimo entre la competencia y la colaboración. Esta es la capacidad que las empresas deben desarrollar, la de valorar adecuadamente en cada momento cuál es la combinación de cooperación y competencia que puede potenciar su capacidad competitiva individual. De la capacidad que las empresas tengan de interiorizar este principio e impulsar los proyectos en colaboración que entiendan estratégicos dependerá que la *clusterización* sea uno de los elementos diferenciadores en el nuevo estadio competitivo.

Potenciar la sinergia de excelencia de las tres íes (investigación, interacción e instrucción) en el actual contexto de crisis

Por último, el actual contexto de crisis económica va a redefinir el peso relativo de cada una de las actividades económicas y agentes en el espacio de la economía global. Al Instituto le corresponde entender la dinámica subyacente, reflexionar y asesorar a los diferentes agentes en este contexto a través de sinergia de excelencia entre la investigación, la interacción y la instrucción (las tres íes).

Marco para la acción política y gobernanza

Necesidad de articular procesos que den vida a las estructuras además de proveer servicios eficientemente a los partícipes

Como se ha visto, la CAPV se caracteriza por la presencia de una amplia red de agentes que influyen en el diseño y ejecución de las políticas industriales y de competitividad regional. En este contexto, otros dos de los elementos críticos de competitividad planteados por el modelo y analizados en el Informe son, por una parte, el marco para la acción política y los Gobiernos, y por otra, las instituciones para la colaboración, que son los agentes que impulsan la cooperación en y entre los distintos ámbitos. En este sentido, se ha analizado si dicho entramado avanza hacia la asimilación y puesta en práctica de nuevos modos de gobernanza (más participativos y permeables) a través de instituciones para la colaboración. Dicho avance sería un indicio de que se adaptan a los requerimientos del estadio de la innovación, dado que la combinación de la I+D+i que hay que desarrollar en este estadio requiere un concepto de innovación abierta, en el que la innovación no puede depender exclusivamente de unas élites, sino que supone la contribución más amplia posible de las distintas personas. La conclusión es que los últimos años han sido intensos en cuanto a la creación de estructuras (como por ejemplo, Innobasque, Foro de Competitividad 2015, Gipuzkoa Berritzen, etc.) para este nuevo modo de gobernanza.

Se detectan, por lo tanto, indicios de estar avanzando en el nuevo estadio en este sentido. Sin embargo, los próximos años serán críticos para ver si los distintos agentes de competitividad involucrados en ellos, tanto públicos como privados, son suficientemente eficientes, no se producen duplicidades y son capaces de articular los procesos y proyectos que den vida a dichas estructuras. En caso contrario, la racionalización del entramado institucional será una necesidad.

Formar investigadores en investigación-acción

El Informe analiza el papel que la investigación podría jugar en el apoyo a los citados procesos. Una de las recomendaciones directamente derivadas de las reflexiones realizadas es la necesidad de formar a investigadores en el ámbito de la llamada «investigación-acción». Esta metodología consiste en desarrollar una investigación orientada a la acción, para lo que es clave que se haga con la participación de los agentes, de forma que en el proceso se cogenere nuevo conocimiento, que sirva directamente para la acción y enriquezca la investigación. De esta forma, podrá reforzarse el equilibro entre la investigación, la acción y la participación en las redes y plataformas de cooperación presentadas.

Una segunda recomendación, directamente relacionada con la primera, sería la de incorporar a estos investigadores y asesores tanto en el diseño como en la implantación de los procesos de cogeneración de conocimiento. Podrían, de este modo, funcionar como puentes entre el conocimiento de vanguardia en las distintas disciplinas relacionadas con la competitividad, y la realidad de distintos tipos de agentes (empresas, administración pública, asociaciones *clúster*, agencias de desarrollo, centros tecnológicos, etc.) de la región.

El Informe también realiza recomendaciones directamente a las instituciones para la colaboración. Así como en el ámbito de la investigación se ha recomendado capacitar a investigadores con

Desarrollo de metodologías y capacitación de *líderes relacionales*

un perfil orientado a la acción, estas redes requieren la capacitación de líderes relacionales. Estos líderes relacionales son personas que reconocen desde el principio que no lo saben todo y tienen capacidad para activar relaciones y espacios para el intercambio de ideas. Por ello, frecuentemente parecen débiles (tienen que escuchar, ser pacientes, dedicar tiempo y estar dispuestos a aceptar propuestas de los demás), pero pueden ser muy influyentes. No están por encima, sino en medio; no dicen lo que se tiene que hacer, pero articulan e impulsan procesos para que las decisiones se tomen. No son líderes ejecutores, su rol esencial es la intermediación y la promoción. No se basan en planes, sino en algo mucho más importante: el proyecto. Es decir, trabajan con una visión compartida y basándose en acuerdos de mínimos sobre el proceso que hay que llevar adelante. En cualquier caso, han de ser eficaces en la consecución de objetivos y eficientes en la gestión de recursos. De la mano de este liderazgo relacional se podrá avanzar en los procesos de generación de confianza y empoderamiento de los agentes más débiles.

Los mecanismos de cooperación y participación han de ser eficaces y eficientes

Otra de las recomendaciones para estas redes sería la profundización en la participación real de los agentes, lo que implica que los agentes privados asuman responsabilidades además de que las administraciones públicas les cedan el espacio para que puedan finalmente acceder a un poder real. Se trata de un proceso difícil, pero sin esta participación real es imposible avanzar hacia una visión compartida y hacia la materialización en acciones y proyectos del conocimiento generado. Para poder llevar esto a cabo, se recomienda diseñar grupos de reflexión y trabajo de forma que las personas que participen en ellos sean aquellas que tienen el problema más allá de su adscripción institucional y pueden inyectar el conocimiento generado en su actividad diaria.

Los proyectos han de ser compartidos, de manera que involucren más eficientemente a los agentes afectados en los distintos planes y programas

Con objeto de apoyar la eficacia y eficiencia de las estructuras a través de las cuales se articula la política de competitividad e innovación, el Informe también presenta una serie de recomendaciones para las administraciones públicas que potencien la creación de estas redes, y que participen de una forma u otra en ellas. Por una parte, deben asegurarse de que las redes puestas en marcha persiguen solucionar problemas correctamente definidos, de que las personas e instituciones que están participando en los procesos de cogeneración de conocimiento son las que viven dicho problema, y finalmente, de que las personas que están aprendiendo son las que tienen capacidad para decidir sobre las soluciones al problema. Una vez garantizado esto, es importante dar margen a la propia red para que vaya generando niveles crecientes de confianza entre sus miembros, entendiendo que se trata de procesos a largo plazo, cuyos resultados no se ven de inmediato, y a los que se puede responder mejor a parte de los problemas comunes de forma colectiva.

La participación y la cooperación son un reto para la administración y para las empresas

En resumen, la participación y la cooperación son retos para todos los agentes involucrados, sean estos administraciones públicas o empresas privadas. El cambio supone que se abren en estos momentos las puertas a una participación en procesos de decisión que hasta ahora estaban fuera de su ámbito natural de actuación. La participación en estas redes y procesos supone frecuentemente una inversión considerable de tiempo y recursos para las empresas y no siempre se ven claros los resultados de los procesos de cogeneración de conocimiento y cooperación. El aprovechamiento del potencial de estas redes requiere competencias específicas, entendidas no solo como conocimiento, sino también como habilidades y actitudes. La recomendación para todos los partícipes es, por lo tanto, la de invertir en el desarrollo de

estas competencias, que son las que después permitirán que el conocimiento generado en las redes llegue a las empresas y contribuya a mejorar su competitividad particular y la del conjunto de la economía regional.

4. **Conclusiones: mejorar la competitividad en un tiempo de crisis**

Tal y como se expone en este Informe, la CAPV apostó hace tres décadas, en el contexto de una profunda reconversión de su industria tradicional, por la restructuración de su economía en un sentido industrial, en el que, además de reestructurar los sectores tradicionales y acomodarlos a las exigencias de una economía abierta, se buscase su diversificación hacia actividades industriales avanzadas y emergentes. Esta transformación se realizó apoyándose en la demanda industrial y el entorno productivo existentes, y acompañados por un desarrollo relevante del sector de servicios empresariales intensivos en conocimiento.

Transcurridos los años, el impulso y la transformación industrial, aunque exitosos en términos relativos, se encuentran, no obstante, inconclusos. La tipología de regiones europeas que se desarrolla en el Informe muestra que en el transcurrir del desarrollo de las regiones desde una etapa de desarrollo a otra, la senda por la que debiera transitar la economía vasca, la llevaría desde su ubicación actual en el «grupo de regiones centrales de nivel económico y tecnológico intermedio» (acompañada de regiones como Aquitania en Francia, Trento y Toscana en Italia, Walonia en Bélgica y Cataluña en España), hacia un colectivo de mayor exigencia y excelencia de «regiones de alta capacidad económica y tecnológica» (en el que se encuentran, entre otras, Emilia-Romagna en Italia, Niedersachsen en Alemania y Limburgo en Holanda). Expresado en la terminología porteriana (Porter, 1998), la economía vasca está en el tránsito de un estadio competitivo en el que ha primado la búsqueda de eficiencia basada en la inversión, hacia otro estadio en el que las empresas primen la mejora de la productividad basándose en la innovación, la sostenibilidad (eco-innovating) y el desarrollo de proposiciones únicas de valor.

Y como hace treinta años, las transformaciones han de hacerse en medio de una crisis profunda. Afortunadamente, el modelo vasco de crecimiento de los últimos años ha estado basado en menor medida que el español en el sector inmobiliario y en la incorporación de mano de obra inmigrante de baja cualificación. No obstante, aunque los retos que debe afrontar la economía vasca difieren en tal sentido de los que debe afrontar en su conjunto la española, también la economía vasca se ve ante retos en una doble dimensión: por un lado, retos de transformación de su modelo y transición a un estadio superior de desarrollo competitivo; y por otro, retos de hacer frente a la situación de crisis que afecta a las economías española y mundial, a las que se encuentra interconectada.

Con relación a la primera dimensión –la transformación del modelo productivo–, una serie de indicadores pone de manifiesto el relativo agotamiento del modelo de crecimiento seguido hasta el presente. Los buenos resultados alcanzados en términos de *output* económico parecen no ir alineados con los resultados relativamente pobres en los indicadores disponibles de innovación (gasto en I+D, patentes, exportaciones en sectores de nivel tecnológico alto, etc.). Esto es lo que se ha llamado *paradoja de la competitividad,* cuyo análisis se desarrolla en el documento y alumbra la necesidad de profundizar, en coordinación con otras instituciones relevantes, acerca de los indicadores apropiados para capturar estadísticamente la innovación.

Las altas tasas de ocupación alcanzadas previamente a la actual recesión y el marcado envejecimiento de la población regional muestran que en el futuro el crecimiento regional ya no puede descansar en «poner más gente a trabajar». Por otra parte, la ralentización del crecimiento de la productividad desde finales de los noventa, además de la composición y destino de las exportaciones, la limitada penetración de las empresas vascas en los mercados tecnológicamente más exigentes, o la reducida capacidad de inversión extranjera y recursos humanos de alta cualificación, indican que hay que aumentar el grado de innovación.

Buena parte del éxito competitivo e innovador alcanzado hasta ahora por la CAPV –el llamado *modelo vasco de competitividad*– ha consistido en haber combinado competencia con cooperación, y en la estrecha colaboración e imbricación habida entre los sectores público y privado. Un ejemplo paradigmático de todo ello lo tenemos en los procesos de *clusterización* desarrollados con el apoyo del Gobierno Vasco. Pero como antes se ha señalado, el paso a un estadio de desarrollo competitivo superior requiere el avance en otras formas de cooperación e innovación.

Resulta necesario que, junto con la cooperación con otros agentes del *clúster* o del sistema regional de innovación, las empresas y restantes actores del País Vasco incorporen crecientes dosis de conocimiento y se integren en redes internacionales, de modo que el *local buzz* (rumor local) se enriquezca y refuerce con el *global pipeline* (conexión global).

Por otro lado, la innovación y aprendizaje basada en la experiencia (aprender «haciendo», «usando» e «interactuando», el llamado *modelo DUI),* en la que ha descansado buena parte de la competitividad de las empresas vascas, ha de incrementarse mediante la incorporación de formas de organización del trabajo más participativas e impulsoras del aprendizaje.

Y adicionalmente, sin abandonar ese aprendizaje o innovación basados en la experiencia (que, debido a la estructura sectorial y empresarial vasca, seguirá siendo la dominante y caracterizadora del modelo vasco), la economía vasca debe impulsar también los modos de innovación y aprendizaje basados en la Ciencia y la Tecnología, en los que, si no con relación a las restantes regiones españolas, con relación a las regiones de los países del norte y centro de Europa, todavía muestra debilidades notables. Particularmente deberá mejorar la eficiencia de su sistema de innovación, corrigiendo la desfavorable ratio que presentan sus *outputs* tecnológicos (por ejemplo, patentes) con relación a los *inputs* tecnológicos (por ejemplo, gasto en I+D).

Con relación a la segunda dimensión referente a los retos que afronta el País Vasco en el contexto de la crisis, su especialización productiva y su dependencia de los mercados español y europeo, así como de los sectores que en tales mercados están sufriendo una fuerte contracción (especialmente, construcción residencial y automoción), hacen que también, aunque con cierto retraso, los efectos de la crisis se hayan hecho evidentes. Ante tales factores, de carácter muy probablemente estructural y de efectos inmediatos, la propuesta pasa por construir sobre las fortalezas de la estructura productiva vasca y reforzar aquellos elementos de su sistema de innovación, particularmente su desarrollada capacidad de cooperación y el relativamente eficiente sistema de colaboración público-privado en el diseño e implementación de las políticas públicas. Ello habría de permitir construir fortalezas o ventajas competitivas para el futuro.

Ante este reto, afortunadamente, y siempre en términos generales, las empresas vascas han llegado a la crisis en una posición relativamente más favorable: dejando a un lado su menor implicación en el sector de la construcción, sus niveles de endeudamiento son menores que los de las empresas españolas y europeas, y el porcentaje de ellas perteneciente a grupos empresariales es relativamente mayor, lo cual les otorga una mayor flexibilidad financiera para resistir en la crisis.

Asimismo, y más allá de la anteriormente referida limitada penetración de las empresas vascas en los mercados más exigentes tecnológicamente, el hecho de que un número relevante de ellas hayan ya incursionado con éxito en los mercados exteriores y se hayan internacionalizado productivamente puede ayudar a afrontar mejor el estancamiento económico que está teniendo lugar, especialmente en los mercados españoles y europeos.

Como anteriormente se ha señalado, la crisis de la economía mundial incorpora una serie de factores externos y que requieren de una respuesta inmediata a los retos más estructurales que de por sí debía afrontar la economía vasca. Es convencimiento del Instituto Vasco de Competitividad que las respuestas que se planteen en este contexto de crisis no pueden entrar en contradicción con las que requerirían los desafíos más estructurales que debe afrontar la economía vasca o, aun sin entrar en contradicción, plantearse ignorando la posibilidad de incidir sobre aquellos. La crisis es un revulsivo que obliga a actuar y, en este sentido, una oportunidad para avanzar con paso decidi-

do hacia un nuevo estadio competitivo basado en las ganancias de productividad a través de la optimización de la innovación y la sostenibilidad.

Este nuevo estadio se construye sobre los siguientes vectores:

1. Apostando por una I+D suficiente y eficiente, además de por apoyar los aspectos institucionales característicos de la política industrial y el sistema vasco de innovación.
2. Desarrollando aquellos aspectos de la *i* poco desarrollados en el modelo, tales como la comercialización, la organización, etc. En este objetivo es muy relevante el papel de los agentes del conocimiento.
3. Incrementando el tamaño de las empresas vascas para acometer proyectos intensivos en inversión.
4. Desarrollando el emprendizaje, especialmente aquel de base tecnológica.
5. Avanzando decididamente hacia la internacionalización, con el objetivo de penetrar mercados y sectores productivos en expansión.
6. Captando conocimiento e inversiones extranjeras.
7. Allegando los recursos financieros necesarios; desarrollando, si fuera necesario, nuevos instrumentos financieros para (I) la internacionalización productiva de las empresas vascas, particularmente hacia los países más exigentes tecnológicamente y en los sectores de mayor valor añadido; (II) la realización de estudios de viabilidad de implantaciones exteriores en la misma línea anterior; (III) la implantación en la región de inversiones, fundamentalmente de valor añadido, y (IV) las iniciativas emprendedoras de base tecnológica.
8. Dotándose de una institucionalidad apropiada, tanto en términos de acción política como de cooperación.

En términos de su institucionalización, la política de impulso a la competitividad debería construirse sobre los importantes logros alcanzados en la cooperación entre los diferentes agentes, como por ejemplo, los que componen la red de *clústeres*. Es importante, no obstante, actualizar y dinamizar el concepto de *clúster* en una línea que, por motivos de ser sintéticos, podría caracterizarse por su apertura y voluntad de establecer alianzas y desarrollar proyectos transterritorial e intersectorialmente. Las asociaciones *clúster* podrían ser, asimismo, un mecanismo ágil, para la captura temprana de información sobre los sectores económicos, así como para el diseño e implantación de acuerdos y políticas de gobierno. Es relevante señalar que en el contexto actual de incertidumbre, el tiempo para capturar el conocimiento y gestionar el diseño e implantación de políticas es una variable que adquiere particular relevancia. En este sentido, las asociaciones *clúster*, así como otras instancias de generación y facilitación de conocimiento, pueden jugar un papel relevante.

Si se observa la red de agentes de la CAPV, sus conocimientos y competencias, es evidente que la región tiene un enorme potencial de aprendizaje e innovación, siempre y cuando consiga activar los mecanismos para que los distintos agentes de competitividad puedan aprender de la experiencia de los demás. Los elementos que pueden facilitar estos procesos de aprendizaje e innovación, directamente vinculados con la competitividad, pueden agruparse en torno a las dos últimas recomendaciones, claves para la transición al estadio competitivo basado en la innovación. La primera es la integración y coordinación del trabajo de los diferentes agentes para la definición y consecución de la estrategia compartida. En los próximos años será crítico que los distintos agentes (administraciones públicas, empresas, universidad, centros tecnológicos, entidades para la colaboración, entre otros), visualicen con mayor claridad una estrategia compartida que sirva de base para coordinar el trabajo conjunto. La segunda recomendación es garantizar la presencia de entes para la colaboración focalizados y la generación de los instrumentos facilitadores que sean necesarios. Se ha señalado que la CAPV cuenta con un entramado rico en cuanto a entes para la colaboración. El gran reto es que estos sean capaces de impulsar procesos eficientes de cogeneración de conocimiento orientado directamente a la innovación.

En cualquier caso, y ante la dimensión extraordinaria de los retos, un factor que suscita esperanza es la tenacidad mostrada por los empresarios de la región en los últimos treinta años, en los que ha demostrado una enorme capacidad de resistencia en contextos económicos y políticos sumamente difíciles, además de su compromiso social con su entorno.

Euskal Autonomia Erkidegoaren Lehiakortasunari buruzko II txostena: berrikuntzan oinarritutako lehiakortasun aldira

Laburpen exekutiboa

1. **Berrikuntzan oinarritutako lehiakortasun aldira**

Orkestra-Lehiakortasunerako Euskal Institutuak Lehiakortasunaren bigarren Txostena prestatu du. Txosten honen helburua da Euskal Autonomia Erkidegoaren (aurrerantzean EAE) lehiakortasunaren inguruan egindako ikerketen emaitzak aurkeztea, bereziki lurraldeak berrikuntzan oinarritutako lehiakortasun aldi berrirantz egindako ibilbidearen ingurukoak[1]. Eragile sozio-ekonomikoek eta euskal gizarteak, oro har, Institutuan jarri duten konfiantzari erantzun nahi diogu horrela. Eta horretarako, 2007. urtean aurreko txostena argitaratu zenetik gaur egun arte egindako ikerketetatik EAEren lehiakortasuna hobetzeko atera diren ondorio nagusiak aurkeztu ditugu bertan.

Gaur egungo ziurtasun ezak eragina du lehiakortasuna hautemateko moduan

Ezin dugu aipatu gabe utzi lehenengo txostena argitaratu zenetik igaro diren bi urte hauetan, krisiak, nabarmen, bi aldi bereizi dituela: krisiaren aurreko aldia eta krisiaren ondorengoa. Duela bi urte erakusten zen zerumuga "naturala" gaur ziurtasun ezaz beterik azaltzen zaigu. Horrek eragin ukaezina du, modu kontzientean edo inkontzientean, lehiakortasuna hautemateko moduan eta haren aurreko jarreretan. Oso zaila da epe luzeari begiratzea, hainbesteko ziurtasun eza nagusi denean. Paradigmak aldatzen ari diren une honetan, tentagarria izan daiteke pentsatzea zentzurik gabekoa dela ikuspegi bat eraikitzen ahalegintzea, etorkizunerako gidari izango dena. Egia da ezin dugula aurreikusi zer gertatuko den, baina bigarren Txosten honetan iragana ulertu eta, ikasitakoa abiapuntu hartuta, etorkizuneko erronkak aurkeztearen aldeko apustua egin dugu, lehiakortasunaren inguruan pentsamendu sistemikoaren ildoari jarraituz. Horrenbestez, epe luzeko hausnarketa bat da, epe luze hori oso lauso, kezkagarri, azaltzen bazaigu ere. Eta, hain zuzen ere, krisi garai honetan beharrezkoagoa da prospektiba eta etorkizuna pentsatzea eta diseinatzea, etorkizun hori epe luzeko ikuspegiaz soilik eraiki baitaiteke, aldaketarekin konpromisoa hartuz, eta tartean dauden eragile guztien lankidetzaz.

Orkestrak lehiakortasuna hobetzeko egiten du lan

Institutuak, sorreratik bertatik, EAEko lehiakortasun eragileei beren ahaleginetan lagundu die, bi ikuspegitatik. Batetik, ekonomia globalaren dinamika eta horrek gure lurraldeko ekoizpen egituran dituen eraginak ulertzen; eta bestetik, lehiakortasuna hobetzeak aurrean jartzen dizkien erronkei erantzuten. Horrek aukera eman digu lehiakortasuna ulertzen sakontzeko eta Lehiakortasunaren Euskal Eredua egokitzeko aurrerapausoak emateko. Hain zuzen ere, Eredu horren ezaugarri

[1] Txosten honetako sarrerako kapituluan lehiakortasun aldi bakoitzaren ezaugarriak aurkeztu ditugu.

nagusiak aurreko txostenean aurkeztu genituen. Hurrengo grafikoak eredu hori txosten honetan landu ditugun gaietara nola egokitzen den adierazten digu.

EAEko lehiakortasun eredua, txostenerako egokitua

Berrikuntzan oinarritutako lehiakortasun aldi berri batera

Eredua ulertzeko elementu gakoetako bat da jakitea ekonomiak, garapen prozesuaren baitan, lehiakortasun aldi batetik bestera igarotzen direla. Porterri jarraituz (1998)[2], lurralde batek hiru aldi igarotzen ditu lehiakortasunaren bidean. Hasieran, "ekoizpen faktoreen zuzkiduran" oinarritutako ekonomia izango dugu: ekoizpen faktore horiek ematen diote lurraldeari lehiatzeko abantaila. Bigarren etapa "inbertsioan" oinarritutako ekonomia izango da. Kasu horretan, lehiatzeko abantaila kalitate handiko ondasun eta zerbitzu estandarrak ekoizteko gaitasunak ematen du, metodo efizienteak erabiliz, baina ekonomia aurreratuetan baino kostu txikiagoekin. Kostu txikiago horiek nagusiki alokairu kostuak izango dira, baita ingurumenari eta araudiei lotutako beste batzuk ere. Hirugarren aldian, lurralde baten dinamika ekonomikoa "berritzeko" gaitasunean oinarritzen da. Alegia, lehiakortasunaren emaitza ondasun eta zerbitzuak teknologiaren mugan modu efiziente eta iraunkorrean eskaintzeko gaitasunean dago.

[2] Porterren "Lehiakortasun diamantea" deitutakoan (1998) oinarritutako lehiakortasunaren diagnostikoak lurralde batentzat hurrengo alderdiak aztertzen ditu: (1) ekoizpen faktoreen baldintzak, (2) enpresen estrategiarako eta aurkakotasunerako ingurunea, (3) eskariaren baldintzak eta (4) erlazionatutako industriak eta industria laguntzaileak.

Ereduaren arabera, "berrikuntzan" oinarritutako lehiakortasun aldi horren beste ezaugarri batzuk honakoak izango dira: (1) enpresek estrategia bakarrak erabiltzen dituzte lehiatzeko, eta sarritan estrategia horiek irismen globala dute, eta (2) lurraldearen diagnostikoak, **lehiakortasun diamantearen** azterketaren bidez egiten denak, indarguneak ditu diamantearen elementu guztietan. Lehiakortasun aldi horretan, gainera, ekoizpen **kluster** asko daude, sendoak eta nazioartekoak, lurraldearen egitura ekonomikoak zerbitzu aurreratuen kuota handia du eta kanpoko talken aurrean egokitzeko nolabaiteko gaitasuna ere badu.

Une honetan, aipatutako sailkapen horren arabera, EAE "inbertsioan" oinarritutako ekonomia izatetik "berrikuntzan" oinarritutako ekonomia izateko bidean dago. Aldi batetik bestera igarotzeak ez du esan nahi aurreko aldiaren ezaugarri izan ziren elementuak desagertuko direnik, baizik eta aldi berriaren oinarrizko elementuak aldi zaharrekoei nagusituko zaizkiela. Hala ere, "inbertsioan" oinarritutako etaparen ezaugarri izan diren hainbat alderdik, esate baterako, kalitate sistemen garrantziak, esanguratsuak izaten jarraituko dute aldi berrian ere, nahiz eta nagusitasuna aldi berri horren beste ezaugarri batzuek eduki. Gainera, eragile bakoitzak aurrera egiteko bere erritmoa duenez, berrikuntzan oinarritutako aldirako bidean jarriko gaituen estrategiak ezin ditu azpiestrategia osagarriak ahantzi, atzerago gelditzen diren eragileentzat.

Ingurune horretan, txosten honek bi galdera nagusiri erantzun nahi die: lehenengoa, EAE berrikuntzaren lehiakortasun aldi berrirako bidean al doa? eta bigarrena, zeintzuk dira gomendio nagusiak ibilbide hori ahalik eta efizienteena izan dadin? Hasteko, txostenean aztertu dugun elementu kritikoetako bat lurraldeko ekonomiaren lehiakortasunaren emaitza da, horrela jakin baitezakegu EAE lehiakorra den ala ez. Kontuan hartuta benetan merkatuan lehiatzen direnak enpresak direla, EAEren emaitza ekonomiko agregatua aztertzeaz gainera, bertako enpresena ere aztertu dugu. Lehiakortasun ereduaren arabera, lehiakortasun aldi berrian, emaitza horren jatorria berritzeko gaitasuna izango da. Bi parametroen arteko harremana zehazteko helburuarekin eta harreman hori "berrikuntzaren lehiakortasun aldian" dagoen ekonomiaren ezaugarri den ala ez ikusteko, emaitzaren analisia berrikuntzaren kantitatearen eta kalitatearen analisiarekin osatu dugu eta, zenbaitetan, haren ezaugarrien eta erakundeen analisiarekin.

Txosten honetan garatutako ereduan, hainbat elementuk dute eragina lurraldearen lehiakortasunaren emaitzan. Elementu horiek hiru multzotan bildu ditugu: 1) "lehiakortasun diamanteak" eta haiek aztertzetik ondorioztatutako estrategiak, 2) ekoizpen jarduera klusterizatzea eta eragile esanguratsuak (ingurune historikoaren analisia ere barne hartuta) eta 3) ekintza politikorako esparrua eta lehiakortasun eredua erakundetzea.

Txostenak bi zati bereizi ditu. Lehenengoan, hainbat kapitulutan EAEren eta bertako enpresen lehiakortasunaren emaitza neurtzeko ahalegina egin da, eta emaitza hori lurraldeak berrikuntzan duen kokapenari lotu zaio. Bigarrenean, EAEko ekonomiaren lehiakortasunerako faktore kritikoak aztertu dira, gure lurraldea berrikuntzan oinarritutako aldira igarotzeko katalizatzaile izan daitezkeenak.

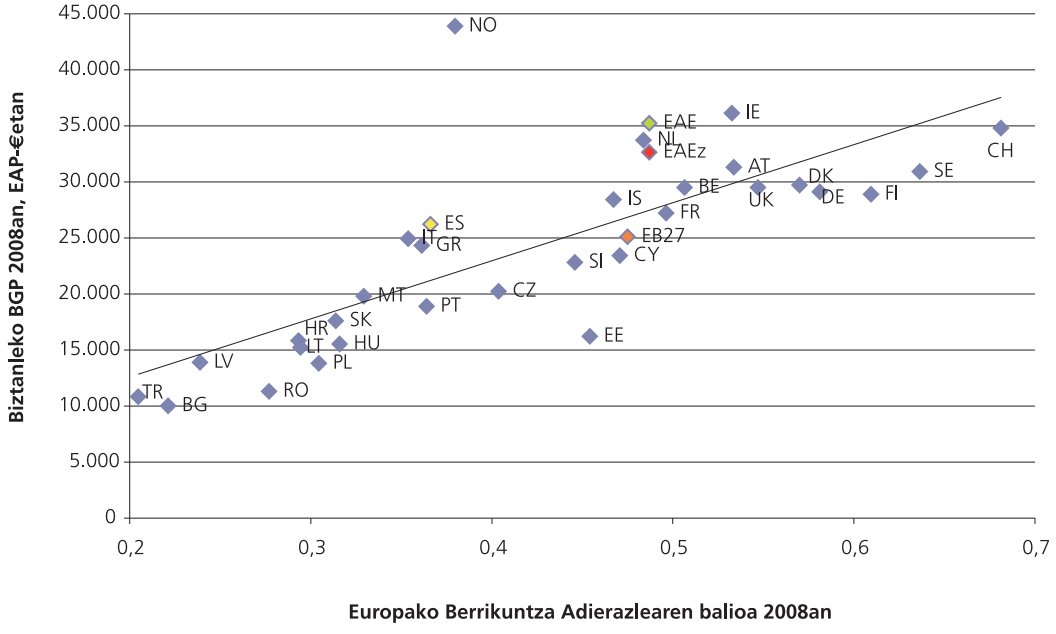
2. **Lehiakortasunaren emaitza eta berrikuntzarekin duen lotura: lehiakortasunaren paradoxa**

Txosten honetan aztertu ditugun elementuen artean lehenengoa aurkezten hasi aurretik, garrantzitsua da EAEko berrikuntza sistema Europako beste eskualde batzuetako sistemekin alderatzea. Egin dugun azterlanak aukera eman digu ikusteko EAE "ekonomi eta teknologia maila ertaineko Europako erdialdeko eskualdeen" multzoaren barruan dagoela, eta egindako ahaleginen emaitza izango litzatekeela "berregituratutako industri eskualdeak, gaitasun ekonomiko eta teknologikokoak" taldera igarotzea. Eta talde horretatik oso hurbil dago. Gertutasun horrek adierazten digu EAE lehiakortasunera berrikuntzaren bidetik hurbiltzeko aldiaren atarian dagoela. Autonomia Erkidegoei dagokienez, lau aurreratuenen artean dago, Nafarroa, Katalunia eta Madrilekin batera. Horrek aurreko ondorioak berresten ditu.

EAEk biztanleko errenta maila handia du

Aztertu dugun elementuetan lehenengoa EAEren lehiakortasunaren emaitza izan da. Ekonomia baten lehiakortasunaren emaitza neurtzeko abiapuntua da baloratzea, bai termino estatikoetan eta bai dinamika tenporalean, output erabakigarriena –biztanleko BPG– egokia izan den eta hazkundeko bide positiboak erakusten dituen. Ildo horretatik, atal honen ondorio nagusia da EAE, hasteko, ongi kokatua dagoela lehiakortasunaren mailan, maila hori biztanleko BPGrekin neurtuta, bai Europako beste herrialdeekin eta eskualdeekin alderatuta (ikus grafikoa) eta bai Espainiako beste autonomia erkidegoekin alderatuta. Horrenbestez, txostenaren abiapuntu esanguratsua da EAE lehiakorra dela, ondasunak eta zerbitzuak ekoitziz, errenta sortzeko duen gaitasunari begiratuta.

Biztanleko BPG (EAP-€etan) eta Europako Berrikuntza Adierazlearen balioa (2008)



Iturria: Eurostat, PRO INNO EUROPE eta Eustat. Egileek egina.
EAP: Erosteko Ahalmenaren Parekotasuna esan nahi du.
TR (Turkia), BG (Bulgaria), LV (Letonia); RO (Errumania); LT (Lituania); HR (Kroazia); PL (Polonia); HU (Hungaria); SK (Eslovakia); MT (Malta); PT (Portugal); IT (Italia); GR (Grezia); ES (Espainia); CZ (Txekiar Errepublika); EE (Estonia); SI (Eslovenia); CY (Zipre); IS (Islandia); NL (Herbehereak); FR (Frantzia); BE (Belgika); IE (Irlanda); AT (Austria); UK (Erresuma Batua); DK (Danimarka); DE (Alemania); FI (Finlandia); SE (Suedia); CH (Suitza)
EAEz: EAEk adierazten duen balioa (biztanleko BPG EAPean), Espainiaren eta EAEren arteko prezioen maila orokorraren aldearekin zuzenduta.
Europako Berrikuntza Adierazlea Europar Batzordeak kalkulatzen duen adierazle sintetikoa da, berrikuntzaren alorreko banakako adierazle bakoitzak (I+Gko gastua, patenteak, esportazioak maila teknologikoen arabera, etab.) berak bakarrik hartuta izango lituzkeen eragozpenak gainditzeko asmoz.

Berrikuntza maila

EAEren berrikuntza maila biztanleko BPGri egokituko litzaiokeena baino txikiagoa da

EAEren lehiakortasun maila, biztanleko errentaren bidez neurtuta, alderatu ondoren, galdera gakoa da jakitea lehiakortasun hori berrikuntzan oinarrituta dagoen ala ez. Azterketa eginda, txostenak Institutuan *lehiakortasunaren paradoxa* deitu duguna ondorioztatu du. Alegia, ditugun biztanleko BPG mailekin, teorian, errealitatean ikusitakoak baino berrikuntza maila handiagoak izan beharko genituzke, Europako Berrikuntza Adierazlea (Europar Batzordeak prestatuta) erabiliz (ikus aurreko grafikoa). Hau da, EAEren kokapena biztanleko BPGn hobea da berrikuntzako adierazleetan baino.

Aipatutako analisiak, Europako beste eskualde batzuekin alderatuta, erakusten digu Europako Berrikuntza Adierazlean EAE 55. tokian dagoela, aztertutako Europako 202 eskualdeen zerrendan. Kokapen hori ez da bereziki txarra, baina biztanleko BPGn dugunarekin alderatuta (30. tokia 202 eskualdeen artean), agerian gelditzen da arestian aipatu dugun lehiakortasunaren paradoxa.

I+Gko gastuaren maila hobetu behar da, baita haren efizientzia ere

Soilik I+Gko gastuaren intentsitateari begiratzen badiogu, EAE 55. tokian dago EB-15eko 146 eskualdeen zerrendan (alegia, batez bestekotik gora). Baina, Espainiako autonomia erkidegoen artean, EAEren aurretik bi besterik ez daude, Nafarroa bata (unibertsitate sistema garatu eta berezia duena) eta Madril bestea (erkidegoaren emaitzetan eragina izan dezake hiriburu eta Espainiako ikerkuntzako erakunde publiko askoren egoitza izateak). Ondorioz, eta I+Gko gastuak Espainian duen atzerapena kontuan hartuta, ikus dezakegu Europako eskualdeak hartzen baditugu lehiakortasunaren paradoxa nabarmena den arren, ez dela hainbestekoa, baizik eta guztiz kontrakoa, Espainiako autonomia erkidegoak hartuta.

EAEren lehiakortasuna esperientziaren eta elkarreraginaren bidez berritzeko gaitasunean oinarritzen da

Euskal ekonomiak Europan azaltzen duen emaitza onaren azalpen bat, jakinik bertako berrikuntza maila ez dela lehenengo mailakoa (I+Gko gastuari eta Europako Berrikuntza Adierazleari begiratuta), izan daiteke enpresa askotan berrikuntza ez dagoela I+Gko gastuari lotuta, baizik eta esperientziaren eta elkarreraginaren bidez ikastetik datorrela. Hori kontuan hartuta eta jakinik berrikuntzaren ohiko adierazle horiek denborarekin hobetu egiten direla, ondoriozta dezakegu lortutako lehiakortasunak EAEn berritzeko izan dugun gaitasunari erantzuten diola. Izan ere, berrikuntzako ohiko adierazleen bidez neurtzen denak ez du islatzen *stricto sensu* euskal enpresen berrikuntzako dinamika. EAEn, berrikuntza prozesuek, funtsean, esperientzian oinarritutako berrikuntza ereduei erantzun izan diete (*DUI-learning by doing, by using and by interacting*, edo eginez, erabiliz edo elkarreraginean ikasiz), eta ez dira hain esanguratsuak Europako Berrikuntza Adierazlean jasotzen diren beste alderdi batzuk, zientzian eta teknologian oinarritutako berrikuntza ereduen (*STI-Science, Technology and Innovation*) dinamika neurri handiagoan islatzen dutenak.

Jarduera ekintzailearen emaitza dinamikoa da

Aipatutako paradoxaren beste azalpen bat EAEko jarduera ekintzailean aurki dezakegu. Alde horretatik, 2008ko GEM (General Entrepreneurship Monitor) txostenetik ondorioztatzen da TEAk (Jarduera Ekintzailearen Adierazlea Guztira) goranzko bidea izan duela 2001az geroztik, enpresa berrien bizirauteari lotutako tasa ere egoera onean dagoela eta kontzentrazio ekintzaile handiagoa dagoela manufakturako sektorean, beste eskualde batzuekin alderatuta. Aurreko guztia horrela izanik ere, eta etorkizunari begira, berrikuntzan oinarritutako garapen aldian, eragin handiko jarduera ekintzailearen sustapenak selektiboa izan beharko luke eta talde desberdinei zuzendute eta haietara egokituta egon beharko litzateke. Taldeak pertsonen/enpresen esperientzia mailen araberakoak eta dibertsifikazio mailaren araberakoak, dela funtzionala dela sektoriala, izango dira.

Etorkizuna: berritzea beharrezkoa da

Biztanleria erlatiboki zahartua

Prospektibari begiratuta, euskal ekonomiak lehiakortasunaren emaitzari eusteko izan dezakeen gaitasunari dagokionez, biztanleko BPGn eragina duten elementuak xehetasun handiagoz aztertzen baditugu, errealitate objektibo batekin egingo dugu topo: gaur egungo biztanleriaren piramideak, lan egiteko adinean dauden pertsonen (15 urtetik 64 urtera) kontzentrazio handia eta 15 urtetik beherako biztanleriaren presentzia erlatiboki txikia (gutxi gorabehera %15) ezaugarri dituenak, biztanleria aktiboa gutxitzeak lehiakortasunean eragin kaltegarria izan dezakeela aurreikusi beharrean jartzen gaitu. Horrek gutxienez bi gomendio egitera garamatza. Alde batetik, biztanleria aktiboaren murrizketa honek oraindik ere larriagoa bihurtzen du berrikuntzan eragiteko eta ekoizkortasuna hobetzeko beharra, etorkizunean ere EAEren lehiakortasun mailari eusteko edo hobetzeko. Bestalde, beharrezkoa da immigrazio politika egokia, gaur egungo lehiakortasun mailari eusteko eta etorkizunean hazteko. Ondorio hori bat dator Euskadi 2015. Lehiakortasunerako Foroaren Profesionalen Defizitari buruzko taldeak 2015 urterako landu duen ikuspegiarekin eta merkatuko erronka estrategikoekin, <www.euskadi2015.net> helbidean ikus daitezkeenak.

Adierazleak hobetuko dituzten benetako aldaketak sustatzea, eta ez adierazleak hobetzea, benetako aldaketarik gabe

Benetan berrikuntza islatuko duten adierazleak definitzea

Bestalde, lehiakortasunaren paradoxaren inguruan egindako hausnarketek azpimarratzen dute, lehenengo, garrantzitsua dela ongi ulertzea zein mekanismoren bidez ikasten eta berritzen duten enpresek. Mekanismo horiek ulertuta bakarrik definitu ahal izango ditugu egiten den berrikuntza benetan islatzen duten adierazleak. Horrenbestez, adierazleak definitzeko prozesuak azterlanez lagundu behar dira, bai kuantitatiboak eta bai kualitatiboak, enpresen berrikuntzaren diagnostikoa egiteko aukera emango dutenak. Txostenak adierazle desberdinek dakartzaten arriskuak aztertu ditu, baita gehienetan onartzen direnenak ere. Horrek aukera ematen digu gomendatzeko kontu handiz ibili behar dugula helburuak ezartzerakoan, adierazleen inguruko kokapena erreferentziatzat hartzen dugunean. Eta adierazleetan lortu beharreko helburuarekin batera, lehiakortasunerako eragileek aurrera eraman behar dituzten benetako aldaketak ongi ulertzen ez badituzte, gerta liteke adierazleen kokapenean hobekuntzak lortzea, baina lehiakortasunaren benetako bideetan aurrera egin gabe.

Euskal enpresen emaitza

Enpresen emaitza ekonomiko-finantzario positiboak

EAEren emaitzaz gainera, enpresen emaitza ere aztertu da, enpresak baitira lehiakortasunean eragile kritikoak. Ildo horretan azpimarratzeko elementuetako bat da analisi ekonomiko-finantzarioak erakutsi dituen emaitza onak. 2007. urtera arteko azterketa egin ahal izan da, aurreragoko datu guztiak ez baitzeuden eskuragarri. Horrela:

1) Manufakturako enpresen errentagarritasuna baliabide propioekiko Europako batez bestekoaren gainetik dago, eta, 2007. urtearen ondoren, baita Espainiako batez bestekoaren gainetik ere.
2) Besteren baliabideen ageriko kostuak eta zorpetze mailak gainerako autonomia erkidegoetakoak baino txikiagoak dira.
3) Epe laburreko finantzaketarekin mendekotasun txikiagoa dute.
4) Zorpetzearen bilakaerari dagokionez, zorpetzearen hazkundea 2005. urtean eten egin zen eta alderantzizko bidea hasi zuen 2007. urtera arte.
5) Ekoizpen jarduera arruntak eta finantza aktiboek ere errentagarritasun ona dutela ikusi da.

Horrenbestez, esan dezakegu euskal enpresaren portaera azken urteetan, egitura ekonomiko-finantzarioari dagokionez, ona izan dela eta, alderapenak eginez, beste eskualdeetako enpresak baino egoera hobean dagoela gaur egungo krisi ekonomikoari eta kanpoko finantzaketa eskuratzeko ziurtasun ezari aurre egiteko.

Euskal enpresaren tamaina oraindik ere txikia da, merkatu globalean lehiatu ahal izateko

Tamainari dagokionez, aurreko txostenean adierazi genuen kritikak oraindik ere indarrean jarraitzen du, alegia, euskal enpresen tamaina txikia, beste toki batzuetakoekin alderatuta, gero eta globalizatuagoa den ekonomian. Nolanahi ere, txosten honetako datuetan antzeman daiteke –nahiz eta oraindik joerari buruzko datuen inguruan ondorio argirik ateratzeko goiz izan, azken urteetako hedapen ekonomikoari lotutako faktore ziklikoen eraginagatik izan baitaiteke– geratu egin dela euskal enpresaren tamaina txikitzeko joera. Lehiatzeko ahultasun hori gainditu ahal izateko, enpresek lankidetzara, itunetara eta eskualdeaz kanpoko enpresen partzuergoetan parte hartzera jo beharko lukete, balio erantsiko proiektuetan parte hartzeko helburuarekin, batez ere bide horretatik teknologiaren ekarpenik eta/edo transferentziarik badago.

Enpresa taldeak sortzea bultzatzea

Euskal enpresaren tamaina erlatibo txikia konpentsatzeko beste estrategia bat enpresa taldeak sortzea izan daiteke. Horrek sinergiak ustiatzeko aukera emango luke hainbat alorretan: I+Gn, merkaturatzean, nazioartekotzean..., eta horiek berrikuntzaren egoeran lehiatzeko abantailaren iturri potentzial garrantzitsuak dira. Ildo horretan, EAEren garapena ona izaten ari da, bi arrazoirengatik: alde batetik, Espainiako autonomia erkidegoen artean, akziodunen artean beste enpresaren bat duten enpresen ehuneko handiena du, eta, beste aldetik, Espainiako autonomia erkidegoen artean beste enpresetan partaidetzak dituzten enpresen ehuneko handiena du. Bestela esanda, euskal enpresek enpresa taldeak garatzeko edo haietan parte hartzeko politikak eraman dituzte aurrera, eta, horregatik, Espainiako autonomia erkidegoen artean buru dira enpresa taldeak sortzeari lotutako adierazleetan. Berrikuntzan oinarritutako egoeran lehiatzeko, garrantzitsua da enpresa taldeen garapena sustatzen jarraitzea.

Esportazioen sofistikazioa hobetzeko bidean aurrera egiten jarraitzea

Euskal ekonomiaren nazioartekotzeari dagokionez, hiru adierazle aztertu ditugu: esportatzeko joera, EAEko inbertsioa atzerrian eta atzerriko inbertsioa EAEn. Lehenengo adierazleari, esportatzeko joerari, dagokionez, kontuan hartuta EAEko ekonomiak, tamainagatik beragatik, ezinbestean irekia izan behar duela, gure lurraldeak areagotu egin behar du esportatzeko joera, nahiz eta bilakaeraren datuek areagotzearen joera hori erakusten zuten, 2008. urtearen bigarren erdialdean krisi ekonomikoaren ondorioak nabaritzen hasi arte. Baina, soilik esportazioen kopurua aztertu beharrean, esportazioen ezaugarriak ere aztertzen baditugu, azpimarratzekoa da euskal enpresak gai izan direla produktuetan eta merkatuetan berritzeko, eta horrela, esportazioko egoera konplexuagoetara igarotzea lortu dute, txosten honetan esportazioen sofistikazio indizeak erakusten digun bezala. Berrikuntzan oinarritutako lehiakortasun egoera berrian, oso garrantzitsua izango da euskal esportazioen sofistikazioaren bide horretan aurrera egitea.

Bigarren adierazleari dagokionez (zuzeneko inbertsioa atzerrian), Espainian hiru autonomia erkidegok dute herrialde horrek atzerrian egindako zuzeneko inbertsioan BPGren ehunekoari begiratuta legokiekeena baino partaidetza handiagoa, eta horietako bat gurea da. Atzerrian egindako inbertsioaren osagaiak xehetasunez aztertuz gero, ikusiko genuke, Espainiaren kasuan bezala, inbertsio hori nagusiki garatzeko bidean dauden herrialdeetara bideratu dela, eta erlatiboki txikia dela herrialde garatuetan egindako inbertsioa, batez ere orain arte Espainiako inbertsioaren norako izan ez diren herrialdeetan edo garabidean doazen hazkunde handiko herrietan egindakoa (Brasil, Errusia, India eta Txina).

Aitzitik, eskualdera etorritako atzerriko inbertsioari dagokionez (hirugarren aldagaia), Espainiara datorren inbertsio guztitik, EAEk BPGren arabera legokiokeena baino ehuneko txikiagoa

Beharrezkoa da atzerritarrek eskualdean egiten duten inbertsioaren fluxua handitzea

Esportazioen eta inbertsioen eskaintza dibertsifikatu beharra, herrialde garatuagoetara

eskuratzen du, bai fluxuari begiratuta eta bai stockari begiratuta. Horrenbestez, ahultasuna izango genuke alor horretan. Ahultasun hori gainditzea are beharrezkoagoa da euskal ekonomiaren lehiakortasuna gero eta gehiago teknologiaren erabileran oinarritzea nahi badugu.

Aurreko analisiaren osagarri, euskal enpresen esportazioen eskaintzaren eta inbertsioen norakoaren azterketa zehatzak argudioak ematen dizkigu esateko esportazioen eskaintza eta inbertsioa dibertsifikatu egin behar direla, sofistikazio maila handiagoa edo balio erantsi teknologiko handiagoa eskatzen duten herrialdeetara. Hori bat dator Porterren azterketarekin, azterketa horrek harreman positiboa definitzen baitu kanpoko eta barneko eskariaren sofistikazioaren eta garapen teknologikoaren mailaren artean.

Ondorio orokor gisa, esan dezakegu, batetik, enpresen artean berrikuntzan oinarritutako ekonomia baten parametroetara hurbiltzea antzematen hasi garela, esate baterako, euskal esportazioen sofistikazioa hobetzea, enpresa taldeak sortzea edo atzerrian egindako zuzeneko inbertsioaren pisua. Bestalde, zer hobetuak ere aurkitu dira, besteak beste atzerriko inbertsioa erakartzeko ahaleginak handitu beharra, esportatzeko joera handitzea eta esportazioen eskaintza eta inbertsioak herrialde garatuagoetara dibertsifikatzea, eta euskal enpresen batez besteko tamaina handitzea.

Eskualdearen erakargarritasuna hobetuko duten elementuetan lan egitea

Atzerriko inbertsioa eta Oinarri Teknologikoko Enpresa Berrien ezarpena sustatzea

Atzerriko kapitala erakartzeko beharrezkoa da, alde batetik, berrikuntza sistemaren erakargarritasuna handitzea eta, bestetik, eskualdearen beraren erakargarritasuna optimizatzea eragozten duten elementu ekonomikoen, azpiegituretakoen, sozialen eta politikoen inguruko eztabaidan sakontzea.

Ildo horretatik, garrantzitsua da herri administrazioek ahalegin nabarmena egitea atzerriko inbertsioa sustatzeko eta finantzatzeko, EAEn eta Espainian dauden baliabideak egoki erabiliz, eta finantza tresna bereziak garatuz, horretarako beharra ikusiz gero. Garrantzi berezia dute, baita ere, EAEn oinarri teknologiko eta berritzailea duten jarduerak ezartzearen aldeko apustu sendoa egiteak edo euskal enpresen eta munduko gainerako herrialdeetakoen artean enpresa *joint-venture*ak egiteak. Horretaz gainera, garrantzitsua da euskal enpresek atzerrian egiten duten inbertsioari ere laguntzea, ez soilik garatzeko bidean dauden herrialdeetan, kostu txikiagoen logikari edo bezeroei jarraituz, baizik eta baita herrialde garatuagoetan ere.

Euskal esportazioen sofistikazioan aurrera egitea

Esportatzeko joera sendotzeari dagokionez, mezua ez dagokio soil-soilik alderdi kuantitatiboari. Bestela esanda, ez da nahikoa gehiago esportatzea. Esportatutako produktuek gero eta sofistikazio handiagoa izan dezaten bideak prestatu behar dira. Bide horiek lagundu behar dute, gaur egun ditugun gaitasunak abiapuntu hartuta, arian-arian gaur egun esportatzen ditugunak baino sofistikazio handiagoa duten produktuetara iristeko, oraindik ere gaitasun horiek indargune izanik. Ildo horretatik, bide horretan lanabes erabilgarria da euskal enpresek partzuergoetan, emakidetan eta lizitazioetan nazioko eta atzerriko enpresekin batera parte hartzea, horrek produktuak eta prozesuak gero eta sofistikatuagoak izatea eskatuko baitie.

Berrikuntza sistema

Eskualdearen eta enpresen lehiakortasunaren emaitza aztertu ondoren, txostenean berrikuntza sistemaren hainbat alderdi aztertu ditugu eta, horren ondoren, gomendioak atera. Lehenengo gomendioa da azken urteetan I+Gren intentsitateari dagokionez egin den ahaleginari eustea, eta,

I+Gren intentsitatean egindako ahalegina indartzea eta eraginkortasuna hobetzea. Bikaintasunaren aldeko apustua

ahal izango balitz, handitzea, adierazleen bilakaerak erakusten baitu bide horretatik emaitzak lortzen ari garela. Nolanahi ere, aurrera egin behar da I+Gko gastuaren eraginkortasunaren inguruko hausnarketan. Zehazki, eraginkortasun hori ebaluatu egin behar da, I+G bikainaren aldeko apustua egin nahi bada. Ahalegin berezia egin beharko litzateke unibertsitatean I+G indartzeko, I+Gko gastua gauzatzen duten sektoreak aztertuz, agerian geratzen baita I+Gko gastuaren ehuneko oso txikia egiten dela unibertsitatean, beste esparru geografikoetan egiten denarekin alderatuta. EAEren desabantaila oraindik nabarmenagoa da ikerketako erakunde publikoen I+Gko gastuari erreparatuz gero, erakunde horien presentzia urria baita gure autonomia erkidegoan.

Egokia izango litzateke eliteko zentro teknologikoen aldeko apustua egitea, ahal bada Europako eta Espainiako lankidetza hitzarmenen babesean. Era berean, sustatu beharko litzateke EAEko unibertsitateek eta zentro teknologikoek nazioarteko eliteko zentroekin harremanak areagotzea, bikaintasuneko programa eta proiektu zehatzetan parte hartzea eta enpresetan teknologoen presentziari laguntzea.

Bigarren gomendioak jakintza sortzen duen eragileetako bakoitzak (eta batez ere unibertsitateek eta zentro teknologikoek) sisteman duen egitekoaren inguruan adostasunean aurrera egin beharra azpimarratzen digu –ez soilik herri administrazioen artean, baizik eta eragile pribatuak ere kontuan hartuta–. Bestalde, eragile horiek sortutako jakintza enpresan berrikuntza bihurtzeko elementu gakoetako bat enpresen bereganatze gaitasuna da, zentro teknologikoak eta unibertsitateak enpresen eskari teknologikora hurbiltzearekin batera. Bereganatze gaitasun hori sortzera bideratutako politiketan aurrera egitea, berrikuntza agendekin irekitako bidean, esate baterako, da beste gomendio bat. Enpresei dagokienez, txostenak azpimarratzen du EAEn nagusi den berritzeko modua osatu behar dela: itxuraz nagusiki esperientzian oinarritzen den berritzeko modua (DUI-*Doing, Using and Interacting* deitutako eredua) osatu, oinarri zientifiko handiagoa duten jarduera berritzaileekin (STI-*Science, Technology and Innovation* ereduan oinarritutakoa). Konbinazio horrek, alde batetik, eragin positiboa izango luke berritzeko gaitasunean eta, bestetik, teknologia edo jarduera zaharkituetan edo garabidean doazen herrien lehiari lotutakoetan mugiezinik gelditzea eragotziko liguke. Azken batean, horrek esan nahi du I+G+b horretako azken atalean, berrikuntzan, aurrera egiten jarraitu behar dugula, baina, aldi berean, I+Gren ahalegina eta efizientzia ere indartuz.

Eragile desberdinen artean elkarreraginaren artikulazioa sakontzea

Logika horrekin bat, egindako analisitik ondoriozta dezakegun beste alderdi bat da I+G hori egiteko egitura nahikoak baditugula, nahiz eta hobetu daitezkeen. Baina hutsuneak ere azaltzen dira, esate baterako, unibertsitateetan, ikerketako erakunde publikoetan eta eliteko zentroetan. EAEko berrikuntza ereduarekin bat, berrikuntzaren outputa hobetzeko gakoetako bat da eragileen arteko elkarreragina artikulatzea. Ildo horretatik, gomendioa oso ideia sinplean oinarritzen da, baina aurrera eramatean ondorio garrantzitsuak ditu: jakintzaren sorrera eta ondorengo transferentziaren osagarri, jakintza batera sortzeko mekanismoak bideratzea. Horrek esan nahi du enpresa unibertsitateko ikertzaileekin eta zentro teknologikoetakoekin talde lanean aritzea, proiektuaren hasieratik bukaerara arte. Lehiakortasunerako Euskal Institutuaren xedea da eragileen arteko elkarrizketa handiagoari laguntzea, haien arteko sintonia "orkestratuz".

Hurrengo gomendioa herri administrazioetako arduradunei eta jakintza sortzeko azpisistemari bideratua da: ikertzaile bakoitzeko baliabide erabilgarriak handitzen joatea eta enpresetan I+Gko jardueretan aritzen diren langileen artean doktoreen kopurua handitzea. Horretarako lanabes egokiak izan daitezke bekadunentzako programak eta doktoretza ondorengo egonaldiak enpresetan, baita enpresetan lan egiten duten zientzialarientzat goi mailako unibertsitateko eguneratzea ere.

Laburbilduz, esan dezakegu berrikuntzan gero eta gehiago oinarritzen den aldira goazela antzeman daitekeela, baina horretarako beharrezkoa izango da trantsizio horren palankak indartzea.

3. Lehiakortasun aldi berrira iristeko katalizatzaileak: lehiakortasun diamanteak, klusterizatzea eta ekintza politikorako esparrua eta lankidetzako erakundeak

Institutuan langai dugun lehiakortasun ereduan garrantzitsua da lehiakortasunaren hurrengo elementu kritikoak hobeto ulertzeko eta efizientzia handiagoa lortzeko ahalegina egitea: (1) Lehiakortasun Diamantea, (2) Klusterizatzea, eta (3) ekintza politikorako esparrua eta lankidetzako erakundeak. Elementu horiek aztertuz, aukera izango dugu berrikuntzan oinarritutako lehiakortasun aldi berrirantz nola goazen jakiteko. Horrenbestez, prozesuaren ikuspegi dinamikoa txertatuko dugu horrela.

Aipatutako analisi eredu horren arabera, berrikuntzan oinarritutako lehiakortasun aldiaren ezaugarrietako bat ikuspegi sistemikoa da, alegia, eragileen multzo osora hurbiltzea eta eragileetako bakoitza zein elkarren arteko eraginen konplexutasuna ulertzea. Jada ez da nahikoa prozesuetako eragileetako bakoitzak, enpresa, herri administrazioa, lankidetzako erakundeak edo ikertzailea, bere egoera ulertzea. Baterako estrategietara eta konpromiso partekatuetara eramango dituen ikuspegi komuna eraikitzeko, beharrezkoa da sistema baten barruko kideek beren burua sistemaren barruan ikusteko lanabesak erabiltzea. Sistema horren baitan, eragile bakoitzaren egitekoa ulertu beharko da eta elkarreraginak agerian jarri. Ikuspegi sistemiko hori modu kuantitatiboan neurtzea oso zaila da, baina aldi berrira hurbiltzeko gakoetako bat da.

Ikuspegi sistemikoa berrikuntzaren egoera berrira aurrera egiteko

Lehiakortasun diamantea

Ikuspegi sistemiko hori sortzeko bidean, lehenengo txostenak EAEren lehiakortasun diamantearen analisia ekarri zuen. Bertan, lurraldearen lehiakortasunerako oinarrizko elementuak jarri ziren agerian eta elementu horien arteko elkarreraginak aztertu. Bigarren txostenak ikuspegi horretan sakontzen du eta diamantea aztertzen du, baina oraingoan EAEko eskualde mota desberdinetarako (eskualde metropolitarrak, portaera teknologiko ertaineko industri aglomerazioak, industri aglomerazio aurreratuak, landako eskualde txikiak eta industri eskualde txikiak). Azterketa horren ondorio nagusia da nabaritzen dela ikuspegi sistemiko hori eskualdeetako diagnostiko eta plangintza prozesuetan txertatzen ari dela, eta, horrela, eskualdeko klusterizatze prozesu batzuk definitu dira, itxaropen handia dakartenak eskualdearen lehiakortasuna hobetzeko.

Eskualdeko klusterrak onuragarriak dira enpresa txikientzat

Dinamika horiek jada badituzte emaitzak, besteak beste, kapilaritate handiagoa Eusko Jaurlaritzako eta Foru Aldundietako berrikuntza politikentzat. Horrela, ikuspegi sistemiko hori eskualdeetan sortzeaz gainera, EAEren barruan lurralde maila desberdinen artean ere sinergiak sortzen ari dira. Daturik ez badugu ere, aztertutako eskualdeetako batzuen barruan antzeman daiteke klusterizatzeak enpresen jarreretan eragina duela –batez ere enpresa txikienetan–, beren estrategiak sofistikatzeko beharrari lotuta. Badirudi, horrenbestez, eskualdea egokia izan daitekeela enpresa txikiak sektore globalizatuen dinamika orokorrean lehiakortasunez txertatzeko.

Nolanahi ere, egindako analisiak aukera ematen du ikusteko EAEko lurralde osoa ez dela homogeneoa lehiakortasun aldi berrira igarotzeko erabil daitezkeen estrategietan. Garrantzitsua da politikak eta ikerketak diseinatzea ikusitako eskualde mota nagusien beharrak estaltzeko. Ildo horretatik, eta aurrekoaren osagarri, biztanlerian, gizartean, politikan eta erakundeetan duen garrantziaz jabetuta, hurrengo urteetako erronketako bat izango da hirien, bere lehiatzeko estrategien eta, berrikuntzako eragile izanik, duten egitekoaren inguruko politikak eta ikerketa indartzea.

Hirien sistemaren egiteko estrategikoan aurrera egitea

Lehiakortasuneko eta berrikuntzako politikak hainbat administrazio mailaren ardura dira

Txostenak hainbat gomendio egiten dizkie herri administrazioei, eskualdeetako lehiakortasun diamanteen azterketaren emaitzak irakurrita. Lehenengo gomendioa udalei eta udalekin elkarrekintzan aritzen diren herri administrazioei zuzendua da. Europako eta Espainiako politikek izan dezaketen eraginaz gainera, lehiakortasuneko eta berrikuntzako politikak EAEn Eusko Jaurlaritzaren eta Foru Aldundien eskuduntzen baitan ikusi izan ditugu beti. Baina, lehiakortasun aldi berriak eskatzen du politika horietan administrazioko maila guztiek zeresanik edukitzea. Sarritan, udalek Eskualdeko Garapen Agentzien esku utzi izan dituzte ekonomiaren sustapenari lotutako alderdi guztiak eta agentziek egin dituzte, horrenbestez, zuzenean, diagnostikoak eta ekintza planak. Nahiz eta plan horiek guztiak uneren batean edo bestean erabaki politikoen esparruetara iritsi, politikariek prozesu horietan duten inplikazio maila asko aldatzen da kasu batetik bestera. Kontuan hartu behar dugu proiektu horiek ez dutela bideragarritasunik, tokiko politikariek inplikazio zuzenik izan ezean. Beraz, udaletako politikariak klusterizatze diagnostikoetan eta ekintza planetan zuzenean inplikatzea izango da herri administrazioei egin beharreko gomendioen artean lehena. Beharrezkoa da tokiko politikariek tokiko zerbitzuak eskaintzeko ohiko egitekoa gainditzea eta bere gain hartzea tokiko garapen ekonomikoan duten egitekoa.

Erakundeen politiken efizientzia maximizatzea, haietara maila askotako hurbiltzearen bidez

Herri administrazioentzako bigarren gomendioari dagokionez, lehenengo, azpimarra dezagu erakundeen garapen maila handia lortu dela. Horren isla da, besteak beste, herri administrazioek lankidetzari laguntzeko hainbat erakunde sortzea, horrela eragile publikoak eta pribatuak proiektu komunetan batera aritzeko. Ildo horretatik, erakunde horien efizientzia eta egitekoen inguruan hausnarketa egiteaz gainera, beharrezkoa da koordinazioko mekanismoak zehaztea, politiketara maila askotako hurbiltzea deitutako ildotik. Horregatik, gomendatzen dugu erakundeen maila desberdinen artean elkarrizketarako guneak irekitzea, horrela dagokien mailetan garatutako ekimenen koherentzia bermatzeko.

Hirugarren, herri administrazioei gomendatzen diegu, egungo krisi ekonomikoaren aurrean egin beharreko berregituratzeen baitan, Espainiako gobernuak eta Europar Batasunak aurrera eramaten dituzten prozesu politikoen eta ekonomikoen gainean egotea. Pentsa dezagun EAEren lehiakortasunerako nolako garrantzia duten ezinbestean maila horretan hartu behar diren erabakiek, besteak beste, automobilgintzaren berregituraketa, energia berriztagarriak edo eliteko nazioarteko zentro teknologikoen kokapena.

Laburbilduz, EAEko lehiakortasun ereduan eskualdeko garapen agentziek hurrengo urteetan egiteko gakoa izan dezakete lankidetzako eta klusterizatzeko prozesuetan, EAEz beheragoko mailetan. “Sakontzeko” ahalegin hori, bestalde, “behetik gorako koordinazioa” bermatzeko ahaleginekin osatu behar da, Espainiako eta Europar Batasuneko administrazioen politikekin eta ekimenekin. Egiteko gako horregatik, hain zuzen ere, zuzenean eragingo diete aurreko lerrokadetan egin ditugun gomendioek.

Hurrengo lerroetan beste gomendio batzuk adierazi ditugu, bereziki esanguratsuak izan daitezkeenak lankidetzari laguntzeko erakundeen sendotze selektiborako.

Garrantzitsua da agentzietako lan taldeen gaitasunak garatzea

Lehenengo gomendioa da agentzietako lan taldeen gaitasunen garapenean lan egitea, lehiakortasun aldi berriko prozesuak, horien artean klusterizatze prozesua, behar bezala kudea ditzaten. Prozesu horietarako beharrezkoa da bai agentzietako zuzendaritzako taldeak eta bai teknikariak zerbitzuen eskaintzaz eta eskualdeko agenteak suspertzeaz arduratzea, eta lidergo politiko eta ekonomiko partekatua bilatzea. Horrek berariazko jakite, trebetasun eta jarrerak behar ditu, haiek gabe oso zaila baita sareek behar duten harremanetako lidergo mota garatzea.

Kluster politika sustatzea eta garatzea

Lehiakortasun aldi berrira igarotzeko beste elementu katalizatzaileetako bat klusterizatzea da, dagoeneko aurreko lerrokadetan lehiakortasun diamanteak aztertzerakoan aipatu duguna. Klusterizatzeak esan nahi du eragile publikoen eta pribatuen arteko lankidetza esparruak sortzea, eta, horretarako, alde batetik, ikuspegi sistemikoa sortzea, eta bestetik, politikak lehiakortasun eredu berri horren eskakizunetara bideratzea. Klusterizatzeak ahalbidetzen du balio kateko enpresen interesak bat etortzea, berrikuntzako eragileenak (enpresak, unibertsitatea, zentro teknologikoak, etab.) eta maila politikoenak, lehiaren dinamikan epe luzera eragina izango duten politika mikro eta makroekonomikoak definituko dituztenak. Ildo horretatik, garrantzitsua da klusterra eta Kluster Elkartea bereiztea. Klusterra balio katean edo bestelako alderdi horizontalen batean (jakintza, teknologia,...) dauden harreman ekonomikoetatik ondorioztatzen den errealitate natural da, eta existituko da politika bat egon ala ez. Kluster Elkarteak kluster errealitatearen sinergiak eta potentzialitateak dinamizatzeko sortutako erakundeak dira, kluster errealitatearen lehiakortasuna hobetzea helburu dutenak. Horrela, Kluster Elkarteak kluster errealitate batzuen administrazioaren isla dira.

Kluster politikak euskal enpresa lehiakorrenen zati oso esanguratsua biltzea lortu du

Txostenean aurkeztutako datuek aukera ematen digute, lehenengo aldiz, politika horri esker sortutako kluster elkarteetan parte hartzen duten enpresek EAEko ekonomian duten pisua neurtzeko. Zehazki, enpleguaren %28 eta industriako balio erantsiaren %32 sortzen dute eta EAEko enpresen batez bestekoak baino lehiakortasun adierazle hobeak aurkezten dituzte. Enpresa elkartuetako salmentek hazkunde maila handiagoak izan dituzte, nazioartera hedatuagoak daude, eta berrikuntzako adierazle hobeak dituzte Kluster Elkarteetan parte hartzen ez duten enpresek baino. Horrek esan nahi du kluster politikak euskal enpresa lehiakorrenen zati oso esanguratsua biltzea lortu duela eta hori, berriro ere, lehiakortasun aldi berrirako ezarritako parametroetan aurrerapenaren seinale da. Klusterizatze prozesuaren aurrerapen mailari dagokionez, ikusi da bilakaera mantsoa dela, parte-hartzaileen buruko eskemetan aldaketa garrantzitsua eskatzen baitu. Enpresa batzuen eta besteen artean parte-hartze eta inplikazio maila asko aldatzen da, zehazki, enpresa txikiek partehartze erlatibo txikiagoa dute. Ildo horretatik, enpresek kluster filosofia bere egitea prozesu hori bizkortzeko elementu gakoa dela esan daiteke.

Kluster politikari eustea

Txostenak klusterizatzearen inguruan egiten duen lehenengo gomendioa kluster elkarteen jarduera eta enpresa elkartuen garrantzia baloratzetik ondorioztatzen da. Hori ikusita, esan dezakegu klusterizatzea garrantzitsua dela eta potentzial handia duela lehiakortasunaren politikaren oinarri izateko. Institutuan hainbat azterlan egin ditugu kluster politikaren inguruan ari diren eragileen jarrera aztertzeko. Azterlan horietatik ondorioztatu dugu garrantzitsua dela politika horri eustea, besteak beste gizarte kapitalean edo interes partekatuan eragiten duelako, eta elementu horiek kritikoak direlako berrikuntzaren lehiakortasun egoerak ereduaren elementu desberdinen artean sortu beharreko elkarreraginak sustatzeko.

Kluster politika horizontalagoa egitea: kluster filosofia beste sailetara eta administrazioko beste maila batzuetara hedatzea

Bigarren gomendioa ere Eusko Jaurlaritzari zuzentzen diogu, administrazio horrek sustatzen baitu kluster politika. Baina beste sail edo administrazio batzuetara ere zabal liteke, horiek klusterizatzera bideratutako politikak definituko balituzkete. Bestela esanda, kluster politika politika horizontala izan daiteke, Eusko Jaurlaritzan zuzenean ukitutako sailez gainera, esate baterako, Industria eta Garraioa, beste sail batzuk ere ukituko lituzkeena, adibidez, Hezkuntza, horrek erraztu egingo bailuke eragile publikoen eta pribatuen arteko lankidetza indartzea. Gomendio hori egiteko, klusterrak aurkitzeko egin-

dako analisian eta klusterren jatorri historikoaren azterketatik ateratako etorkizuneko irakaspenetan oinarritu gara.

Klusterren bilakaera berez dinamikoa den dinamika moduan ulertu behar dugu, eta horregatik, Jaurlaritzaren politikak beti irekita egon beharko du klusterizatze prozesu berrietara. Horrek esan nahi du ekimen berriak gara daitezkeela, gaur egungo klusterrak bat egin edo lankidetzan aritu, eta, hala balegokio, baita klusterren bat desagertu ere, efizientziarik gabe ari bada. Gaur egun dinamizatzen diren klusterren azterketak erakusten digu, oro har, EAEn esanguratsu izaten jarraitzen dutela; bereziki nabarmentzekoak dira Energiakoa, Aeronautikako eta Itsasoko ekipoena, dinamismo handia baitute. Lehiakortasun aldi berrirako bilakaeran, EAEko ekoizpen egiturak balio erantsi handiagoko jardueretara jo beharko luke eta kluster politikak bide horretan lagun dezake, babesa eman baitiezaioke jardueren klusterizatze prozesuei, dela dagoeneko badiren baina oraindik klusterizatu ez diren jardueretan, dela EAEn tradiziorik gabekoak izan arren, garabidean doazen jardueretan.

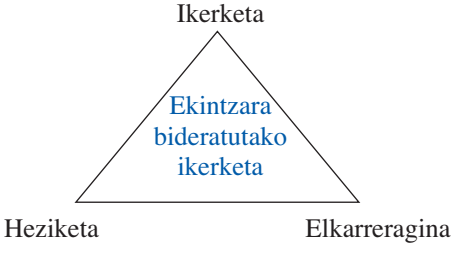
Klusterrean parte hartzen dutenen arteko lankidetzan sakontzeko beharra

Kluster Elkarteei dagokienez, ikusitako elementu kritikoetako bat da hura osatzen duten eragileen arteko lankidetzan sakontzeko beharra. Horrek eskatzen du, hasteko, lankidetzaren abantailez jabetzea. Horixe izango litzateke Kluster Elkarteentzat lehenengo gomendioa: kluster filosofian sakontzeko prozesuei eta interes komuneko proiektuak garatzeari ekitea. Horretan egiteko garrantzitsua izan dezakete prestakuntzak eta ebaluazio parte-hartzaileak, eta biak ari gara lantzen.

Kluster filosofia eskualdeaz gaindi, eskualdearen barruan eta horizontalean garatzea

Egindako analisietatik beste gomendio bat ere atera dugu, eta badira jada horren inguruan hainbat ekimen interesgarri: klusterrak ireki eta beste klusterrekin lankidetzako sinergiak bilatzen hastea. Lankidetza hainbat mailatan landu daiteke. Lehenengo, *horizontalean*, kluster desberdinen artean, sinergia, gaitasun eta teknologia komunak bilatuz, elkarrekin partekatzeko; edo elkarrekin teknologia, gaitasun eta jarduera berriak garatuz, jakintza partekatua konbinatuta. Bigarren, EAEko klusterren *eskualdeaz gaindiko lankidetza* sustatuz, kanpoko klusterrekin, kluster bakoitzeko balio katearen fase desberdinetan Espainian eta munduko beste herrialdeetan sinergiak bilatzeko lan eginez. Hirugarren, *eskualdearen barruan* dauden sareekin eta klusterrekin batera arituz. Horien egitekoa gakoa izan da enpresa txikienek berrikuntzako eta nazioarteko prozesuak bereganatzeko eta ahalbidetzeko izan dezaketen ahalmena handitzeko.

Institutuak prozesu horietan bideratzaile lana egiten du. Hain zuzen ere, enpresen, eragile publikoen eta berrikuntzako beste erakundeen arteko topagune horiek egokiak dira eskualdeko lehiakortasunean eragina izateko, ekintzara bideratutako ikerkuntzako metodologiak erabiliz, Institutuko hiru lan esparruen sinergia bikainaren bidez (Ikerketa, Elkarreragina eta Heziketa).



Administrazioek izan dezaketen borondateaz gainera, laguntzeko erakundeek ere sustatu ditzakete klusterizatze prozesuak, baina enpresek prozesu horiei baliagarritasunik ikusten ez badiete eta

Enpresan lankidetzaren beharra eta baliagarritasuna barneratzea

lankidetzaren indarraz jabetzen ez badira, ezin izango da prozesu horietan aurrera egin. Horregatik, gomendio nagusia enpresei egiten diegu: azpimarratu nahi dugu garrantzitsua dela prozesu horietara hurbiltzea, beren filosofia ulertzeko, eta buru irekiz lan egitea, aukera berriak bilatzeko. Mentalitatea aldatzeak denbora behar du, baina aurrera egin daiteke prestakuntzako hainbat jardueraren laguntzarekin. Horien artean daude, besteak beste, azken urteetan Institutuak eskainitako MOC (*Microeconomics of Competitiveness*) ikastaroa edo prestakuntzako beste zenbait jarduera, lankidetzaren abantailak lantzeko diseinatu direnak. Prestakuntzako ahalegin horrek errepikaria izan behar du eta eskualdeko enpresen errealitate ekonomikoaren beharren arabera garatu. Adibidez, prestakuntzako programa bereziak jar daitezke abian, gaur egun Txinan eskaintzen direnak bezalakoak, eta etorkizunean beste lurralde batzuetan egin daitezkeenak.

Lehiaren eta lankidetzaren artean oreka bilatzea

Nolanahi ere, orain arte esandako guztiarekin ez dugu ulertu behar lankidetzaren alde itsu-itsuan joan behar dugunik. Legatuaren azterketak erakutsi digun bezala –bertan aztertzen dira klusterren jatorri historikoak eta nolako eragina duten lehiakortasunean–, helburua izango da lehiaren eta lankidetzaren arteko oreka onena aurkitzea. Gaitasun hori garatu behar dute enpresek: uneoro, lankidetzaren eta lehiaren arteko konbinazio egokiena zein den behar bezala baloratzea, beren lehiatzeko gaitasuna indartzeko. Enpresek printzipio hori barneratzeko duten gaitasunak eta estrategikotzat dituzten proiektuak lankidetzan bultzatzeak baldintzatuko dute klusterizatzea lehiakortasun aldi berri horretan elementu desberdintzaileetako bat izatea ala ez.

Gaur egungo krisi garaian Ikerketaren, Elkarreraginaren eta Heziketaren sinergia bikaina indartzea

Azkenik, gaur egungo krisi ekonomikoak ekonomia globalean jarduera ekonomiko eta eragile bakoitzak duen pisu erlatiboa alda dezake. Institutuari dagokio horren azpian dagoen dinamika ulertzea, ingurune horretan hausnarketa egitea eta eragileei aholkuak ematea, ikerketaren, heziketaren eta elkarreraginaren sinergia bikainaren bidez.

Ekintza politikorako esparrua eta gobernantza

Egiturei bizitza emango dieten prozesuak artikulatu beharra, partehartzaileei zerbitzuak modu efizientean eskaintzeaz gainera

Ikusi ahal izan dugunez, EAEren ezaugarria da eragileen sare zabala izatea, eskualdeko industri eta lehiakortasuneko politiken diseinuan eta gauzatzean eragiten dutenak. Ingurune horretan, ereduaren barruan lehiakortasunerako beste bi elementu kritiko ere badira, Txostenean landu ditugunak: batetik, ekintza politikorako eta gobernuentzako esparrua, eta bestetik, lankidetzako erakundeak, hainbat esparrutan eta esparruen artean lankidetza sustatzen duten eragileak. Zehazki, aztertu dugu eragileen multzo hori gobernantzako modu berriak (parte-hartze handiagokoak eta iragazkorragoak) bereganatzeko eta erabiltzeko prozesuan ote dagoen, lankidetzako erakundeez baliatuz. Bide horretan aurrera egiteak erakutsiko liguke berrikuntzako egoeraren eskakizunetara egokitzen ari garela. Izan ere, egoera berri horretan garatu behar den I+G+bk berrikuntzaren kontzeptu irekia eskatzen du, alegia, berrikuntza ez da egongo elite batzuen eskuetan; aitzitik, pertsona askoren ahalik eta ekarpenik handiena eskatzen du. Ondorioa da azken urteak oso biziak izan direla gobernantzako modu berri horretarako egiturak sortzeko (besteak beste, Innobasque, 2015 Lehiakortasun Foroa, Gipuzkoa Berritzen, etab.).

Hori guztia ikusita, bide horretatik aldi berrira aurrera goazela esateko zantzuak baditugu. Baina hurrengo urteak kritikoak izango dira ikusteko prozesu horietako lehiakortasuneko eragileek, bai publikoek eta bai pribatuek, eraginkortasunez jokatzen duten, bikoiztasunik ez den sortzen eta egitura horiei bizia emango dieten prozesuak eta proiektuak artikulatzeko gai diren. Horrela egin ezean, beharrezkoa izango da erakundeen multzo hori arrazionalizatzea.

Ikertzaileak Ikerketa-Ekintzan prestatzea

Txostenak ikerketak prozesu horiei laguntzeko egin dezakeena ere izan du aztergai. Gure hausnarketatik ateratzen den gomendioetako bat da ikertzaileak "ikerketa-ekintza" deitutakoaren esparruan prestatzeko beharra. Metodologia horretan ekintzara bideratutako ikerketa lantzen da, eta gakoa da eragileen parte-hartzearekin egitea, prozesuan zehar elkarrekin jakintza berria sortzeko. Jakintza horrek ekintzarako balioko du eta ikerketa aberastuko du. Horrela, ikerketaren, ekintzaren eta dagoeneko aipatu ditugun lankidetzako sareetan eta plataformetan parte-hartzearen arteko oreka indartuko litzateke.

Bigarren gomendioak zuzeneko lotura du lehenengoarekin: ikertzaile eta aholkulari horiek jakintza elkarrekin sortzeko prozesuen diseinuan eta ezartzean txertatzea izango litzateke. Horrela, zubi lanak egin ditzakete lehiakortasunari lotutako diziplinetako abangoardiako jakintzaren eta eskualdeko eragileen (enpresak, herri administrazioa, kluster elkarteak, garapen agentziak, zentro teknologikoak, etab.) errealitatearen artean.

Metodologiak garatzea eta *harremanetako liderrak* gaitzea

Lankidetzako eta parte hartzeko mekanismoek eraginkorrak eta efizienteak izan behar dute

Txostenak lankidetzako erakundeei ere egiten dizkie gomendioak zuzenean. Ikerketaren esparruan gomendatu berri dugu ikertzaileak prestatu behar direla ekintzara bideratzeko; era berean, sare horiek harremanetako liderrak gaitzea eskatzen dute. Harremanetako lider horiek hasiera-hasieratik onartzen dute ez direla orojakile eta gaitasuna dute harremanak aktibatzeko eta ideiak trukatzeko espazioak sortzeko. Horregatik, sarritan ahulak dirudite (entzun egiten dute, pazientzia handiarekin, denbora eskaini eta besteen proposamenak onartzeko prest egon), baina oso eragin handikoak izan daitezke. Ez daude besteen gainean, baizik eta erdian; ez dute esaten zer egin behar den, baina erabakiak hartzeko prozesuak artikulatzen eta bultzatzen dituzte. Ez dira lider exekutatzaileak, haien funtsezko rola bitartekaritza eta sustapena dira. Ez dira planetan oinarritzen, baizik eta garrantzi handiagoko zerbaitetan: proiektuan. Alegia, ikuspegi partekatua dute eta aurrera eraman behar den prozesuaren inguruan gutxieneko adostasunetan oinarritzen dira lan egiteko. Hala eta guztiz ere, eraginkorrak izan behar dute helburuak lortzeko garaian eta efizienteak baliabideak kudeatzerakoan. Harremanetako lidergo horren eskutik egin ahal izango da aurrera konfiantza sortzeko prozesuetan eta eragile ahulenei ahalmena ematekoetan.

Sare horientzako beste gomendio bat da eragileen benetako parte-hartzean sakontzea. Horrek esan nahi du, batetik, eragile pribatuek ere erantzukizunak bere gain hartzea eta, bestetik, herri erakundeek tokia egitea, azkenean benetako boterea izan dezaten. Prozesu zaila da, baina benetako parte-hartze hori gabe ezinezkoa da ikuspegi partekatura iristea eta sortutako jakintza ekintzetan eta proiektuetan gauzatzea. Helburu horrekin, hausnarketako eta lanerako taldeak diseinatzea gomendatzen da; talde horietan parte hartuko dute benetan arazoa bizi duten eta sortutako jakintza beren eguneroko lanean txertatu dezaketen pertsonek, dauden erakundean egonik ere.

Lehiakortasuneko eta berrikuntzako politika artikulatzeko erabiltzen diren egitura horien eraginkortasuna eta efizientzia handitzeko, txostenak hainbat gomendio egiten ditu herri administrazioek sare horien sorrera bultza dezaten eta modu batera edo bestera haietan parte har dezaten. Alde batetik, ziurtatu behar dute abian jarritako sareen helburua behar bezala definitutako arazoei irtenbidea ematea dela, jakintza elkarrekin sortzeko prozesu horietan benetan arazo hori bizi duten pertsonak eta erakundeak direla, eta, azkenik, ikasten ari diren pertsona horiek arazoaren irtenbidearen inguruan erabakiak hartzeko gaitasuna dutela. Hori bermatu ondoren, garrantzitsua da sareari berari tokia ematea, kideen artean gero eta konfiantza maila handiagoak sortzeko, jakinik epe luzeko prozesuak direla eta emaitzak ez direla berehalakoan ikusiko, baina horiekin arazo komun batzuei elkarrekin hobeto erantzun diezaiekegula jakinik.

Proiektuak partekatuak izan behar dute eta, horrela, modu efizienteagoan arituko dira plan eta programa desberdinetako eragileak

Parte-hartzea eta lankidetza erronka dira administrazioarentzat eta enpresentzat

Laburbilduz, parte-hartzea eta lankidetza erronkak dira tartean dauden eragile guztientzat, izan herri administrazioak izan enpresa pribatuak. Aldaketa horrek esan nahi du une hauetan erabaki prozesuetan parte hartzeari ateak irekitzen zaizkiola, orain arte jarduteko esparru arruntetik kanpo zeuden tokietan. Sare eta prozesu horietan parte hartzeak sarritan enpresei denbora eta baliabide garrantzitsuak inbertitzea eskatzen die, eta beti ez dira argi ikusten jakintza elkarrekin sortzeko eta lankidetzako prozesuen emaitzak. Sare horien potentzialari etekinik handiena ateratzeak berariazko gaitasunak eskatzen ditu, alegia, jakiteez gainera, trebetasunak eta jarrerak. Parte-hartzaile guztientzat gomendioa da, horrenbestez, gaitasun horiek garatzean inbertitzea, gaitasun horiek ahalbidetuko baitute aurrerago sareetan sortutako jakintza enpresetara iristea eta enpresen eta EAEko ekonomia osoaren lehiakortasuna hobetzen laguntzea.

4. **Ondorioak: lehiakortasuna hobetzea krisi garaian**

Txosten honetan aurkeztu dugun bezala, EAEk orain dela urte batzuk bere ekonomia berregituratzearen aldeko apustua egin zuen, industriaren berregituratze prozesu sakonean. Orduan, sektore tradizionalak berregituratzeaz eta ekonomia irekiaren eskakizunetara egokitzeaz gainera, industriaren dibertsifikazioa bilatu zuen, jarduera industrial aurreratuetara eta garabidean zeudenetara irekiz. Eraldaketa hori industri eskarian eta orduko ekoizpen ingurunean oinarrituta egin zen, eta, horrekin batera, jakintzan intentsiboak diren enpresentzako zerbitzuen sektorea garatzeari garrantzi berezia eman zitzaion.

Ordudanik hainbat urte igaro dira, eta industriaren bultzada eta eraldaketa, termino erlatiboetan arrakastatsua izan bada ere, oraindik amaitu gabe dago. Txostenean Europako eskualdeen tipologia bat aurkeztu dugu eta ikusi dugu garapen aldi batetik bestera igarotzeko bideari begiratuta, euskal ekonomiak nondik joan beharko lukeen: gaur egun "maila ekonomiko eta teknologiko ertaineko Europako erdialdeko eskualdeen" taldean egotetik (Frantziako Akitaniarekin, Italiako Trento eta Toskanarekin, Belgikako Waloniarekin eta Espainiako Kataluniarekin batera) "gaitasun ekonomiko eta teknologiko handiko eskualdeen" taldera igaro beharko luke (besteak beste, Italiako Emilia-Romagnarekin, Alemaniako Behe Saxoniarekin eta Herbehereetako Linburgorekin batera), eskakizun eta bikaintasun handiagokoa, hain zuzen ere. Porterren terminologia erabiliz (Porter, 1998), euskal ekonomia inbertsioa oinarri duen eta efizientzia bilatzea lehenesten duen lehiakortasun alditik berrikuntzaren bidetik ekoizkortasuna hobetzea eta balio proposamen bakarra garatzea lehenesten duen aldira igarotzen ari da.

Eta, orain dela hogeita hamar urte bezala, gaur ere eraldaketak krisi sakon baten erdian egin behar dira. Zorionez, azken urteetan EAEko hazkundearen eredua ez da Espainiakoa bezainbeste oinarritu higiezinen sektorean eta kualifikazio txikiko etorkinen eskulana erabiltzean. Nolanahi ere, bi alderdi horiek kontuan hartuta, Espainiako ekonomiak eta EAEkoak aurrean dituzten erronkak berdinak ez badira ere, EAEko ekonomiaren erronkak dimentsio bikoitza du: alde batetik, bere eredua eraldatzearen erronka eta lehiakortasunaren garapenean goragoko aldietara igarotzea; eta, bestetik, Espainiako eta munduko ekonomiei eragiten dien krisi egoerari aurre egiteko erronka, gainerako ekonomiekin ezinbesteko lotura baitu.

Lehenengo dimentsioari dagokionez –ekoizpen eredua eraldatzea–, hainbat adierazlek uzten dute agerian orain arte jarraitutako hazkunde eredua agortzen hasia dela. Output ekonomikoetan lortutako emaitza onak ez datoz bat berrikuntzako adierazleetan lortutako emaitza erlatiboki apalekin (I+Gko gastua, patenteak, teknologia maila handiko sektoreetako esportazioak, etab.). Egoera horri lehiakortasunaren paradoxa deitu izan zaio. Hain zuzen ere, horixe aztertu dugu Txostenean eta agerian utzi digu berrikuntza estatistikekin neurtzeko adierazle egokietan sakondu beharra dagoela, beste erakundeekin batera.

Gaur egungo atzeraldiaren aurretik lortutako okupazio tasa handiek eta gure autonomia erkidegoko biztanleriaren zahartze nabarmenak adierazten digute etorkizunean erkidegoaren hazkun-

dea ezin izango dela oinarritu "jende gehiago lanean jartzean". Bestalde, hainbat adierazlek berrikuntza maila handitu behar dugula adierazten digute: laurogeita hamarreko hamarkadaren amaieratik aurrera ekoizkortasunaren hazkundea moteltzea, esportazioen osaera eta norakoa, euskal enpresek teknologian eskakizun zorrotzagoak dituzten merkatuetara izan duten sarbide mugatua, edo atzerriko inbertsioa eta kualifikazio handiko giza baliabideak erakartzeko gaitasun txikia, besteak beste.

EAEk orain arte lehiakortasunean eta berrikuntzan lortu duen arrakastaren –lehiakortasunerako euskal eredua deitutakoa– zati handi baten funtsa lehia eta lankidetza uztartzea izan dela esan daiteke eta, horrekin batera, sektore publikoaren eta pribatuaren arteko lankidetza eta lotura estua. Horren guztiaren adibide paradigmatikoetako bat Eusko Jaurlaritzaren laguntzarekin aurrera eraman diren klusterizatze prozesuetan aurkituko dugu. Baina arestian aipatu denez, goragoko lehiakortasun aldirako urratsak lankidetzako eta berrikuntzako beste modu batzuetan ere aurrera egitea eskatzen du.

Beharrezkoa da, klusterretako beste eragile batzuekin edo berrikuntzako eskualdeko sistemako eragileekin lankidetzan aritzeaz gainera, EAEko enpresek eta gainerako eragileek jakintza gehiago barneratzea eta nazioarteko sareetan sartzea, horrela *local buzz* hori *global pipeline*rekin aberastu eta indartuko da.

Bestalde, esperientzian oinarritutako berrikuntza eta ikaskuntza ("eginez", "erabiliz" eta "elkarreraginean" ikastea, DUI deitutako eredua), euskal enpresen lehiakortasunaren zati handi baten oinarria, areagotu egin behar da, eta, horretarako, lana antolatzeko modu parte-hartzaileagoak eta ikaskuntza bultzatuko dutenak erabili behar dira.

Horretaz gainera, eta esperientzian oinarritutako ikaskuntza edo berrikuntza hori baztertu gabe (EAEko sektore eta enpresa egitura dela eta, oraindik ere gure ereduan nagusi eta ezaugarri izaten jarraituko duena), euskal ekonomiak zientzian eta teknologian oinarritutako berrikuntzako eta ikaskuntzako moduak ere indartu behar ditu. Izan ere, berrikuntzako eta ikaskuntzako modu horietan ahultasun nabarmenak ditu, ez Espainiako gainerako autonomia erkidegoekin alderatuta, baina bai Europako iparraldeko eta erdialdeko eskualdeekin alderatuta. Bereziki, berrikuntza sistemaren efizientzia hobetu beharko du, eta output teknologikoek (adibidez, patenteak) input teknologikoekin (adibidez, I+Gko gastua) alderatuta erakusten duen ratio desegokia zuzendu.

Bigarren dimentsioak Euskal Autonomia Erkidegoak krisiaren aurrean dituen erronkak aipatzen zituen. EAEko ekonomiaren ekoizpen espezializazioaren eta Espainiako eta Europako merkatuarekiko duen mendekotasunaren eraginez, baita merkatu horietan uzkurtze handia jasan duten sektoreekiko duen mendekotasunaren eraginez ere (bereziki etxebizitzen eraikuntza eta automobilgintza), krisiaren eraginak nabaritzen ari gara, nahiz eta nolabaiteko atzerapenez iritsi. Faktore horien aurrean, ziur aski egiturazkoak izango direnak eta berehalako eraginak izango dituztenak, proposamena da EAEko ekoizpen egituraren indarguneetan oinarritzea eta berrikuntza sistemako elementuak indartzea, bereziki lankidetzako gaitasun nahiko garatua eta politika publikoak diseinatzerakoan eta ezartzerakoan eragile publikoen eta pribatuen arteko lankidetzako sistema nahiko efizientea. Horrek aukera eman beharko liguke etorkizunerako indarguneak edo lehiatzeko abantailak eraikitzeko.

Erronka horren aurrean, zorionez, eta beti orokorrean hartuta, euskal enpresak erlatiboki egoera hobean iritsi dira krisira: eraikuntzaren sektorean pisu txikiagoa izatea alde batera utzita, zorpetze mailak Espainiako eta Europako enpresenak baino txikiagoak dira, eta enpresa taldeen barruan daudenen ehunekoa handixeagoa. Horrek finantza sendotasun handiagoa ematen die krisian bizirik irauteko.

Era berean, eta lehendik aipatu dugun mugapena ahantzi gabe –euskal enpresek sarrera txikia izan dutela teknologiaren ikuspegitik merkatu zorrotzenetan–, enpresen kopuru garrantzitsua jada hasia da kanpoko merkatuetan arrakastaz sartzen eta ekoizpena ere nazioartekotu dute. Hori lagungarri izango zaie bereziki Espainiako eta Europako merkatuetan gertatzen ari den geldialdiari hobeto aurre egiteko.

Lehen ere aipatu dugunez, berez euskal ekonomiak aurrean zituen egiturazko erronkei munduko ekonomiaren krisiak kanpoko faktore batzuk erantsi dizkio, eta erronka horiek berehalako erantzuna eskatzen dute. Lehiakortasunerako Euskal Institutuak zinez uste du krisi garai honetan ematen diren erantzunak ezin direla kontraesanean egon euskal ekonomiak aurrean dituen egiturazko desafioek eskatzen dituzten erantzunekin, edo kontraesanean egon gabe ere, ezin direla erantzunak eman egiturazko erronka horietan eragiteko aukerak aintzat hartu gabe. Krisiak pizgarri izan behar du eta jardutera behartzen gaitu. Horregatik, aukera bat izan daiteke, urrats sendoz berrikuntza optimizatzearen bidetik ekoizkortasuna irabaztean oinarritutako lehiakortasun aldira iristeko.

Aldi berri hori hurrengo bektoreen gainean eraikiko da:

1. I+G nahikoaren eta efizientearen aldeko apustua egitea –eta, horretaz gainera, industri politikaren alde instituzionalek eta berrikuntzako euskal sistema babestea–.
2. Berrikuntzaren alorrean, ereduan gutxi garatu diren alderdiak garatzea, besteak beste, merkaturatzea, antolaketa, etab. Helburu honetan oso garrantzitsua izango da jakintzaren eragileen egitekoa.
3. Euskal enpresen tamaina handitzea, inbertsioan intentsiboak diren proiektuei heldu ahal izateko.
4. Ekintzailetza garatzea, bereziki oinarri teknologikokoa.
5. Nazioartekotzera urrats sendoz hurbiltzea, hedatzen ari diren merkatuetan eta ekoizpen sektoreetan sartzeko helburuarekin.
6. Atzerriko jakintza eta inbertsioak erakartzea.
7. Beharrezko finantza baliabideak biltzea, eta, behar izango balitz, finantza tresna berriak garatzea, hurrengo egitekoetan laguntzeko: (i) euskal enpresen ekoizpenaren nazioartekotzea, batez ere teknologiaren aldetik zorrotzagoak diren herrialdeetara eta balio erantsi handiagoko sektoreetara; (ii) aurrekoaren ildo beretik, atzerrian ezartzeko proiektuen bideragarritasun azterketak egitea; (iii) gure autonomia erkidegoan inbertsioak ezartzea, nagusiki balio erantsikoak; eta (iv) oinarri teknologikoko ekimen ekintzaileak.
8. Erakundetze egokia antolatzea, bai ekintza politikoari begiratuta eta bai lankidetzari begiratuta.

Erakundetzeari begira, lehiakortasuna bultzatzeko politika eragileen arteko lankidetzan, esate baterako klusterren sarearen barruan, eskuratutako lorpen garrantzitsuen gainean eraiki beharko litzateke. Nolanahi ere, garrantzitsua da kluster kontzeptua eguneratzea eta dinamizatzea, ezaugarri nagusitzat irekiera eta itunak egiteko borondatea izan ditzan eta lurraldeaz haraindiko proiektuak eta sektoreen artekoak gara daitezen. Kluster Elkarteak, era berean, lanabes arinak izan daitezke sektore ekonomikoen inguruko informazioa garaiz eskuratzeko, eta gobernu akordioak eta politikak diseinatzeko eta ezartzeko. Garrantzitsua da azpimarratzea ziurtasun eza nagusi den gaur egungo egoeran, jakintza eskuratzeko eta politiken diseinua eta ezarpena kudeatzeko garaian denborak garrantzi berezia hartzen duela. Ildo horretatik, Kluster Elkarteek, jakintza sortzeko eta bideratzeko beste erakunde batzuekin batera, egiteko garrantzitsua izan dezakete.

EAEko eragileen sareari, haien jakintzari eta gaitasunei erreparatuz gero, agerikoa da eskualdeak ikasteko eta berritzeko izugarrizko potentziala duela, beti ere lehiakortasuneko eragileek besteen esperientzietatik ikasteko behar diren mekanismoak aktibatzea lortzen bada. Ikaskuntzako eta berrikuntzako prozesu horiek lehiakortasunarekin zuzeneko lotura dute eta haien bideratzaile izan daitezkeen elementuak azken bi gomendioen inguruan bil ditzakegu, gakoak berrikuntzan oinarritutako lehiakortasun egoerara igaro nahi badugu. Lehenengo gomendioa da eragile desberdinen lana integratzea eta koordinatzea, estrategia partekatua definitzeko eta lortzeko. Hurrengo urteetan kritikoa izango da eragile desberdinek (herri administrazioak, enpresak, unibertsitatea, zentro teknologikoak, lankidetzako erakundeak, besteak beste) estrategia partekatu hori argiago ikustea, horixe izango baita elkarrekiko lana koordinatzeko oinarria. Bigarren gomendioa da lankidetzako era-

kunde ardaztuen presentzia bermatzea eta behar diren lanabes bideratzaileak sortzea. Dagoeneko adierazi dugu EAEk lankidetzako erakundeen multzo aberatsa duela. Erronka nagusia izango da erakunde horiek jakintza elkarrekin sortzeko prozesu efizienteak bultzatzeko gai izatea, zuzenean berrikuntzari begira.

Nolanahi ere, eta erronken dimentsioa hain apartekoa izanik, itxaropentsua da lurraldeko enpresaburuek azken hogeita hamar urteotan erakutsi duten irmotasuna. Izan ere, erresistentziarako gaitasun ikaragarria eta gizarte konpromisoa erakutsi dute ingurune ekonomiko eta politiko benetan zailetan.

Second Report on the Competitiveness of the Basque Country: Towards an innovation-based competitive stage

Executive summary

1. **Towards an innovation-based competitive stage**

The second Orkestra Competitiveness Report presents the results of the Basque Institute of Competitiveness's research into competitiveness in the Basque Country. More specifically, the report deals with the way the Basque economy has evolved towards a new stage of innovation-based competition[1]. This report is the Institute's response to the trust placed in it by social and economic agents in the region and Basque society as a whole. The report sets out the main conclusions of research conducted since 2007, when the last report, on ways and means of improving the region's competitiveness, was published.

Current uncertainty affects perceptions of competitiveness

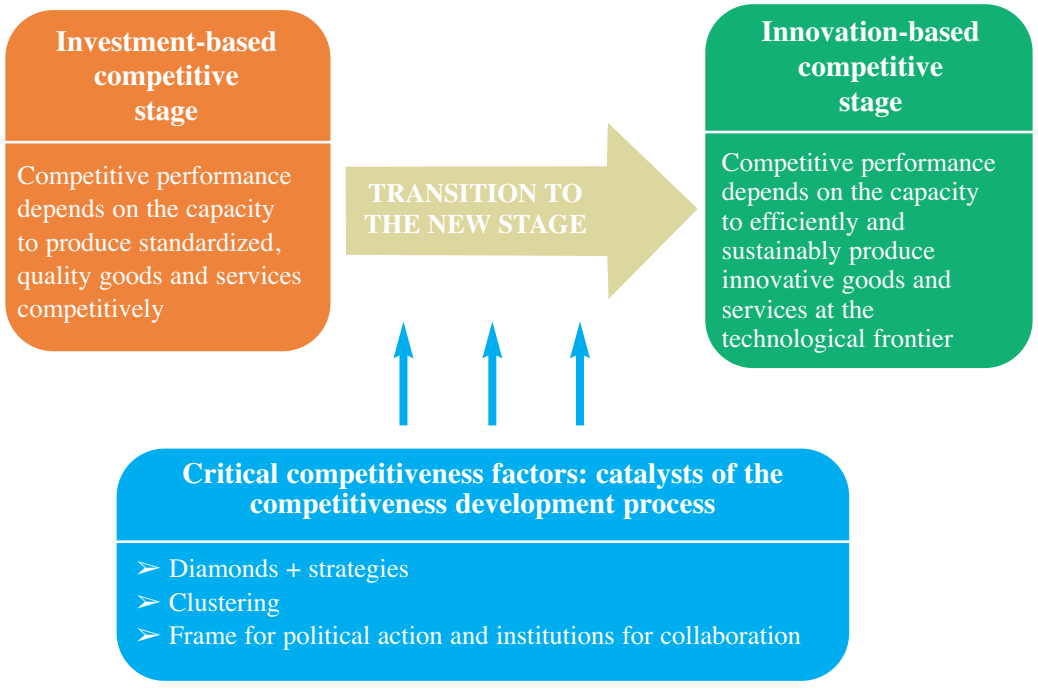
The economic crisis that has dominated the two years since the last report clearly marks a turning point. Prospects that seemed "natural" then are today clouded with uncertainty. Consciously or otherwise, this has affected perceptions and attitudes regarding competitiveness. It is difficult to think in the long term when the here and now is so uncertain. We may even be tempted to believe that, in a time of shifting paradigms, there is no point in trying to build a vision that will guide us toward the future. Of course we do not know what is going to happen, but in this second report we take the view that we can tackle the challenges of the future by understanding and learning from the past, through a systemic analysis of industrial competitiveness. This report is therefore an exercise in long-term thinking at a time when the long term seems disturbingly vague. It is precisely in times of crisis that prospective thinking is most needed: imagining and designing a future that can only be built on the foundations of a long-term vision, with a commitment to change and with the active involvement of all concerned.

Orkestra works to improve Basque competitiveness

Since it was created, the Institute has worked to support the efforts of Basque competitiveness agents to understand the dynamics of the global economy and its impact on the region's productive structure. Facing the challenges of enhancing regional competitiveness has been another permanent goal. This has contributed to a fuller understanding and further adaptation of the Basque model of competitiveness, the main characteristics of which were presented in the previous report. The following figure shows the model as adapted to the subject of this report.

[1] The characteristics of each competitive stage are described in the introductory chapter of this report.

Basque Model of Competitiveness adapted for this report



Towards a new stage of innovation-based competition

To understand the model, we need to understand the transitions economies undergo as they evolve from one competitive stage to another. According to Michael Porter (1998)[2], economies go through three stages of competitiveness. Initially, competitive advantage comes from a country's or region's "factor endowment." The second stage is investment driven: competitive advantage comes from having the capacity to produce standardized, high-quality goods and services relatively efficiently, while having lower costs (mainly wage costs but also environmental and regulatory costs) than more advanced economies. In the third stage, an economy thrives on its ability to innovate. In other words, its competitive advantage lies in efficiently and sustainably producing innovative goods and services at the technological frontier.

According to this model, other characteristics of innovation-driven competition are: (1) companies compete on the basis of unique strategies, often with global reach, and (2) when analyzed using the **diamond model**, the economy displays strengths in all facets of the diamond. At the innovation-driven stage there is usually also a large number of well established, internationally active industrial clusters and the regional economy includes a high proportion of advanced services. Moreover it is able to withstand external shocks and prioritize social and environmental sustainability.

At present, the Basque Country is evolving from an "investment-driven" economy to an "innovation-driven" economy. When an economy makes the transition to a new stage, the characteristics of the previous stage do not simply disappear; rather, the principal characteristics of the new stage

[2] Competitive analysis using Porter's (1998) "competitive diamond" considers: (1) factor conditions, (2) firm strategy, structure and rivalry, (3) demand conditions and (4) related and supporting industries.

predominate. In other words, the main features of the investment-driven stage, such as quality systems, remain relevant in the new stage, but other characteristics specific to the new stage are dominant. Also, as actors advance at different speeds, any strategy for moving toward the innovation-based stage of competition must include complementary sub-strategies for the broad spectrum of players involved.

The main question the report addresses is whether the Basque Country is making the transition toward the innovation-driven stage and how it can do so most efficiently. The report therefore analyzes Basque competitive performance to determine whether the Basque Country is competitive or not. Bearing in mind that companies, not regions, actually compete in the marketplace, we have analyzed the performance of the Basque Country as a whole as well as Basque business. According to Porter's model of competitive advantage, competitive performance in the new stage should stem from innovation capacity. To determine the relationship between competitive performance and innovation capacity and assess whether the Basque economy is indeed "innovation-driven," we analyzed regional competitive performance and the quantity and quality of innovation in the region and, where appropriate, the specific type of innovation and the institutions involved.

In the model used in this report, competitive performance is influenced by certain factors, which we have grouped under three headings: 1) "competitive diamonds" and the strategies derived from analysis of competitive diamonds, 2) the clustering of production and the main agents involved in clustering (including an analysis of the historical context) and 3) the framework for political action and the institutions embodying the competitive model.

The report is divided into two parts. The first contains a series of chapters focused on measuring the competitive performance of the Basque Country and its companies and linking the region's performance to its competitive positioning as regards innovation. The second part contains analyses of the critical competitiveness factors of the Basque economy, which are the catalysts for the transition to innovation-based competition in the region.

2. **Competitive performance and how it relates to innovation: the competitiveness paradox**

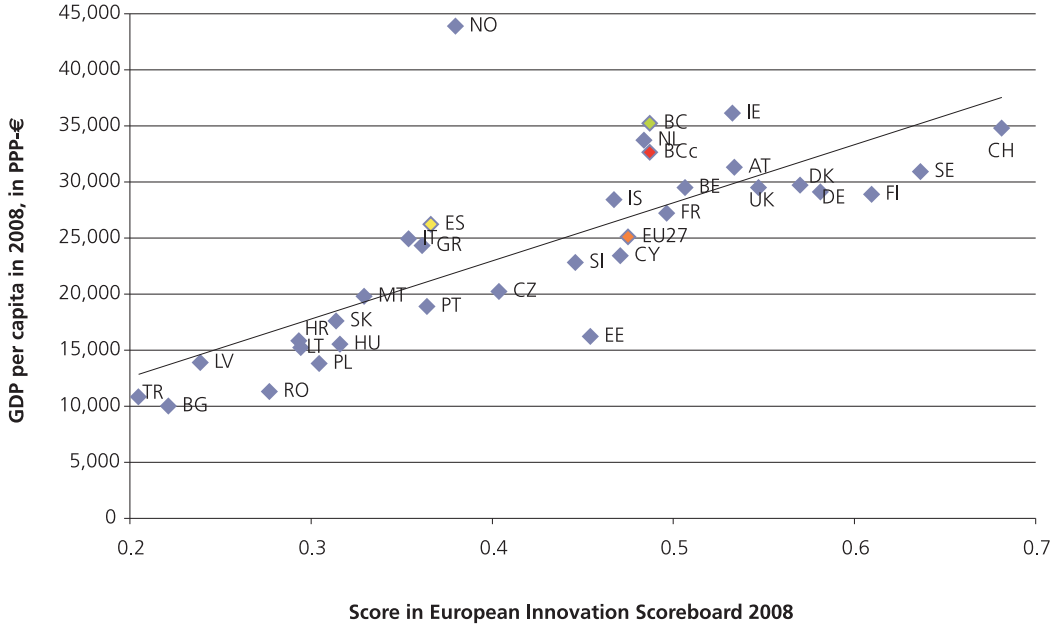
Before we introduce our analysis of competitive performance, we need to position the Basque Country's innovation system relative to those of other European regions. Our study shows the Basque Country belongs to a group of "central regions with medium prosperity and technological sophistication." Progress would mean migrating to the group of "restructured industrial regions with financial and technological capacity," which it is already close to achieving. This suggests the Basque Country is about to enter a stage in which competitiveness comes primarily through innovation. Along with Navarra, Catalonia and Madrid, it is one of the four most advanced regions in Spain. This confirms the previous conclusions.

Regional performance

To begin with, the report looks at the competitive performance of the Basque Country. An obvious starting point for measuring the competitive performance of an economy is to assess whether growth rates for its main output, i.e., per capita GDP, are appropriate and positive. The overall conclusion of this section is that Basque competitiveness, as measured by GDP per capita, compares favorably with other European countries (see figure below) and regions and also with the rest of Spain's regions. The report therefore starts from the premise that the Basque Country is competitive in terms of its ability to generate income through the production of goods and services.

The Basque Country has a high level of per capita income

Per capita GDP (in PPP-€) and score in the European Innovation Scoreboard 2008



Source: Eurostat, PRO INNO EUROPE and Eustat. Prepared by the author.
PPP: Purchasing power parity
TR (Turkey), BG (Bulgaria), LV (Latvia); RO (Romania); LT (Lithuania); HR (Croatia); PL (Poland); HU (Hungary); SK (Slovakia); MT (Malta); PT (Portugal); IT (Italy); GR (Greece); ES (Spain); CZ (Czech Republic); EE (Estonia); ST (São Tomé and Príncipe); CY (Cyprus); IS (Iceland); NL (Netherlands); FR (France); BE (Belgium); IE (Ireland); AT (Austria); UK (United Kingdom); DK (Denmark); DE (Germany); FI (Finland); SE (Sweden); CH (Switzerland)
BCc: The value represented by BC (GDP per capita at PPP) adjusted for the price differential between Spain and the Basque Country.
The European Innovation Scoreboard is a composite indicator developed by the European Commission in an effort to overcome the disadvantages of individual innovation indicators (R&D expenditure, patents, exports by technology level, etc.) taken separately.

Innovation level

The Basque Country is less innovative than expected given its GDP per capita

Having measured Basque competitiveness in terms of per capita income, the second key question is whether this competitiveness is based on innovation. Our conclusion in the report is that the Basque Country is something of a *competitive paradox*: the level of innovation, measured using the European Commission's European Innovation Scoreboard, is lower than might be expected from current per capita income (see previous figure). In other words, the Basque Country scores significantly higher in per capita income than it does in innovation.

In the European Innovation Scoreboard the Basque Country ranks 55th out of 202 European regions. Although this is not a particularly bad position, the competitive paradox becomes apparent when we compare it with the region's GDP per capita placing (30th out of 202).

As regards R&D expenditure considered on its own, the Basque Country comes 55th out of 146 EU-15 regions (i.e., above average). Compared to Spain's other regions, however, it is second only to Navarra (which has a unique, highly developed university system) and Madrid (which probably

Need to boost R&D expenditure and spend more efficiently

benefits from being the capital and home to a large proportion of Spain's public research institutes). Given the general shortfall in R&D spending in Spain, although the Basque competitiveness paradox is evident in comparison to the rest of Europe, it ceases to apply within Spain.

One explanation for the Basque economy's relatively strong GDP performance compared to Europe despite relatively low innovation performance (in terms of R&D spending and its place on the European Innovation Scoreboard) is that many Basque firms innovate through experiential learning and interaction rather than R&D expenditure. Taking this explanation and the upward trend in the usual innovation indicators into account, there is evidence that the level of competitiveness achieved to date is a fair reflection of the region's capacity to innovate. This is because conventional innovation indicators do not strictly measure the innovation dynamic of Basque firms. Innovation in the Basque Country has been driven mainly by experience (DUI: learning by Doing, Using and Interacting). Other factors in the European Innovation Scoreboard, which gives more importance to science and technology-based innovation (STI, i.e., Science, Technology and Innovation), have been less important in the Basque Country.

Basque competitiveness derives from a capacity to innovate through experience and interaction

An alternative explanation of the competitive paradox focuses on Basque entrepreneurial activity. According to the GEM (Global Entrepreneurship Monitor) 2008 report, the Basque Country has had a steadily rising TEA (Total early-stage Entrepreneurial Activity) rate since 2001; the early-stage survival rate is good; and the concentration of entrepreneurial activity in manufacturing industry is higher than in other regions. Nevertheless, in the innovation-based competitive stage, efforts to promote high-impact entrepreneurial activity should be selective and should be targeted and tailored to specific groups, depending on individuals' and companies' experience and functional and industrial diversification.

Startup activity reveals entrepreneurial drive

The future: the Basque Country needs to innovate

Looking to the future and the need to maintain the Basque economy's competitive performance, a more profound analysis of the factors affecting GDP per capita reveals a simple fact: given the current population pyramid, with its high concentration of working-age people (aged 15-64) and relatively small proportion (approximately 15%) of under-15s, the Basque Country needs to prepare for a situation in which competitiveness may be adversely affected by a decline in the labor force. This prospect prompts at least two recommendations. First, population aging makes it even imperative to stimulate innovation and improve productivity in order to maintain and improve Basque competitiveness in the future. Second, immigration policy will have to be adapted to maintain and improve on current levels of competitiveness in the future. This conclusion coincides with the one reached by the "Déficit de Profesionales" (Labor Shortage) group at Foro de Competitividad Euskadi 2015, whose view of the strategic challenges facing the Basque labor market over the period to 2015 can be accessed at <www.euskadi2015.net>.

A relatively old population

On the other hand, in light of our discussion of the competitiveness paradox, it is important to fully understand the mechanisms by which companies learn and innovate. Only then will we be able to define indicators that give a true reflection of the innovation that is

Promote real changes that improve indicators, rather than improving indicators without real changes

actually taking place. To define such indicators, therefore, quantitative and qualitative studies of innovation by companies are needed. The report presents the dangers associated with various commonly used indicators. This suggests that caution is needed when setting goals defined in terms of indicator positions. If the agents of competitiveness do not fully understand the real changes required, they may simply improve their positioning relative to the chosen indicators, without achieving any real gain in competitiveness.

Define indicators that reflect real innovation

Performance of Basque firms

Positive business and financial performance by companies

Besides the performance of the Basque Country as a whole, the report also analyzes the performance of firms, as key agents of competitiveness. The results of our analysis of the business and financial performance of Basque companies in the period to 2007 are positive. For example:

1) Return on equity of manufacturing companies is above the European average and, after 2007, also above the Spanish average.
2) Apparent borrowing costs and levels of borrowing are lower than in other Spanish regions.
3) Basque companies are also less dependent on short-term financing.
4) The trend in borrowing increased until 2005, when it leveled out and even declined slightly until 2007.
5) Operating profits and return on investments are also good.

In other words, Basque companies have performed well financially in recent years and are comparatively better placed than companies in other regions to cope with the crisis and the uncertainty regarding access to external funding.

Basque companies are still too small to compete in the global market

As noted in our previous report, Basque companies are relatively small in today's increasingly globalized economy. Nevertheless, the data in this report shows that the tendency for the average size of Basque companies to decrease has halted (though it is too early to draw definite conclusions, as cyclical factors deriving from economic expansion in recent years may be at work). To overcome this competitive weakness, Basque companies have had to enter into cooperation agreements and alliances and participate in consortia with companies from outside the region to gain access to value-added projects, particularly those involving a contribution or transfer of technology.

Drive to create groups of companies

Another strategy to compensate for the relatively small size of Basque companies is to create groups of companies. This allows firms to exploit synergies in R&D, marketing, internationalization, etc., all of which are important potential sources of competitive advantage in the innovation stage. The Basque Country has progressed in this respect, currently being the Spanish region with the highest percentage of companies that have other companies as shareholders, and also the highest percentage of companies with stakeholdings in other companies. In other words, Basque companies have pursued a policy of creating or participating in groups of companies, so that the Basque Country is now the leading Spanish region as regards the creation of corporate groups. In the innovation-based stage of competition it is important to continue to promote the development of business groups.

As regards the internationalization of the Basque economy, the report analyzes three indicators: export intensity, inward foreign investment and outward foreign investment. Considering that the Basque economy, given its size, cannot afford to ignore foreign trade and despite the positive trend in exports until the second half of 2008, when the economic crisis start-

Continue to increase the sophistication of exports

ed to bite, we detected a need for a substantial increase in the region's export intensity. A positive feature, however, if we consider the nature, rather than the quantity, of Basque exports, is that Basque companies have innovated in products and markets and so have evolved toward more complex export scenarios, as the export sophistication index described in the report shows. In the new stage of innovation-based competition it is very important that Basque companies increase the sophistication of their exports.

As regards outward foreign direct investment (FDI), the Basque Country is one of three autonomous communities whose share of total Spanish investments abroad is greater than its share of the Spanish GDP. Detailed analysis of outward FDI shows that for the Basque Country, as for Spain as a whole, investments are targeted mainly at developing countries. The level of investment in developed countries, especially in countries that are not traditional destinations for Spanish foreign investment, and in the BRICs (Brazil, Russia, India and China) is relatively low.

Need to increase inward foreign direct investment flows

Conversely, the Basque Country's share of the flow and stock of inward FDI is less than its share of Spanish GDP, which in this case can be considered a weakness. And if the competitiveness of the Basque economy is to be built on increasing use of technology, this weakness needs to be overcome.

Need to diversify exports and investments towards more developed countries

As a complement to the above analysis, detailed examination of the kinds of goods and services that Basque companies export and the countries they invest in reveals a need to diversify, in exports and investments, towards countries that demand greater sophistication or technological value-added. This is consistent with Porter's analysis, which establishes a positive correlation between the sophistication of domestic and foreign demand and the level of technological development.

Our general conclusion is that there are signs that the Basque economy is evolving towards parameters more characteristic of an innovation-based economy, such as increased sophistication of exports, creation of corporate groups and share of outward FDI. Scope for improvement lies in attracting inward FDI, boosting export intensity, diversifying exports and investments to more developed countries and increasing the average size of Basque companies.

Work on aspects that will make the region more attractive

To attract foreign capital, the innovation system needs to be made more attractive and the economic, infrastructure-related, social and political factors that make the region less attractive need to be debated and addressed.

Nurture outward FDI and technology startups

All levels of government must make an effort to foster and finance foreign investment by making good use of national and regional resources and possibly also by developing financial instruments specifically for this purpose. In particular, they should provide decisive support for the development of innovative, high technology businesses in the Basque Country and to establish joint ventures between Basque firms and foreign companies. In addition, they need to support investment by Basque companies abroad in both developing countries (with the aim of exploiting low costs or following their customers) and in the more developed economies.

Increase the sophistication of Basque exports

As regards reinforcing export intensity, the report's message goes beyond purely quantitative considerations. It is not enough merely to export more. Basque companies need to draw a road map towards greater sophistication in the products and services they export. Building on existing competencies, these road maps should help companies gradually evolve toward new, more sophisticated products in which their existing competencies are still a strength, but which are more sophisticated than the ones they export at present. A useful plan for this purpose would be to encourage Basque companies to partner with other

Spanish and foreign companies in consortia, concessions and projects that force them to develop more sophisticated products and processes.

The innovation system

Having analyzed regional and business competitive performance, the report turns to the innovation system and makes a number of recommendations. The first recommendation is to maintain or even increase R&D intensity, as the indicators show that R&D investment is producing good results. To make further progress towards R&D excellence, however, the effectiveness of R&D expenditure needs to be assessed. A special effort is required to promote R&D in universities, as our analysis of R&D investors indicates that universities account for a relatively small percentage of R&D spending. The Basque Country's relative disadvantage is even more apparent in its share of R&D expenditure by public research bodies, which are poorly represented in the region.

Increase R&D intensity and efficiency. Invest in excellence

The Basque Country needs to develop elite technology centers, preferably in the context of European and national collaboration agreements, and to encourage Basque universities and technology centers to build closer ties with elite international institutions, to participate in specific programs and excellence projects and to support the presence of technicians in companies.

The second recommendation is to build a consensus, not only between local, regional and national governments but also among private actors, as to the role that each knowledge-producing agent (especially universities and technology centers) has to play in the system. To transform the knowledge generated by these players into business innovations, companies simply must have the capacity to absorb it. Likewise, technology centers and universities must make an effort to understand companies' technology needs. Another recommendation is to continue to pursue policies aimed at generating the necessary absorption capacity, along the lines of the innovation agendas. The report stresses the need for individual Basque firms to combine their predominantly DUI-based (Doing, Using and Interacting) approach to innovation with more STI-based (Science, Technology and Innovation) innovation activities. Having the right mix of approaches will enhance companies' innovation capability and prevent them from getting tied to technologies and activities that have become obsolete or that are more vulnerable to competition from emerging countries. Essentially, this means working hard at the "i" of R&D+i (innovation), while at the same time putting more effort and efficiency into the "RD."

Create mechanisms that stimulate interaction between innovation agents

Consistent with this logic, another of our findings is that, although sufficient, the Basque Country's R&D infrastructure could be improved and has several gaps, notably in universities, public research bodies and elite research centers. In line with the Basque innovation model, however, one of the best ways to improve innovation output is by providing the means for the agents of innovation to interact. Our recommendation is based on a simple but potentially very effective mechanism: establishing knowledge co-generation mechanisms as a complement to existing knowledge generation and transfer systems. This means establishing arrangements that allow company employees to work on projects with university and technology center researchers as a team from start to finish. The mission of the Basque Institute of Competitiveness is precisely to "orchestrate" such arrangements between players.

A final recommendation, this time addressed to policymakers and the knowledge-generation subsystem, is to steadily increase the funding available to researchers and the number of PhD holders among R&D staff in firms. This could be done by including internship programs and postdoctoral work experience in companies, or high-level university courses for company scientists to update their knowledge.

To conclude, there are signs that the Basque economy is evolving towards a more innovation-based competitive stage and steps should be taken to manage this transition.

3. Catalysts of the shift towards the new competitive stage: competitive diamonds, clustering, and the frame for political action and institutions for cooperation

The model of competitiveness used by the Institute in this report indicates that the following critical factors of competitiveness need to be more widely and fully understood and made more efficient: (1) the competitive diamond, (2) clustering and (3) the framework for political action and institutions for cooperation. By analyzing these factors, the report looks at the way the Basque Country is advancing towards the new stage of innovation-based competition. This provides a more dynamic view of the process.

Need for systemic view to advance towards the new innovation stage

According to the model, one of the characteristics of the innovation-based competitive stage is a systemic view, i.e., an approach that sees the agents and their interactions as a system, and which seeks to understand each agent individually and also the complexity of their interactions. At this stage of competition it is no longer enough for each agent (company, government agency or collaboration or research organization) to understand its own situation. To build a common vision that leads to joint strategies and shared commitments, agents need tools that enable them to see themselves as part of a system, understand the roles of the other participants and visualize their interactions. This systemic view is very difficult to measure quantitatively, but it is crucial in order to progress toward the new stage.

The competitive diamond

Our first report helped establish this systemic view by analyzing the Basque economy in terms of Porter's diamond model, identifying the various building blocks of regional competitiveness and analyzing their interactions. In this second report we further develop the systemic view by analyzing the competitive diamond for the different types of counties (*comarcas*) within the Basque Country (metropolitan counties, medium-technology industrial clusters, advanced industrial clusters, small rural counties and small industrial counties). Our main conclusion is that there are clear signs that the systemic view is starting to be adopted in county planning processes and that it is leading to some local clustering that holds promise for improvements on Basque competitiveness.

Local clusters benefit small firms

These trends have already produced results in terms of delivering Basque government and provincial government innovation policies at the local level. This indicates not only that the systemic view is taking hold at the county level, but also that synergies are being exploited between different levels of government in the Basque Country. We have no quantitative data, but in some of the counties we analyzed we found signs that clustering is affecting attitudes in companies, especially the smaller ones, about the need to develop more sophisticated strategies. The county thus appears to be the ideal level at which small companies can adapt to the general trend of globalized industries.

Explore the strategic role of the system of cities

Nevertheless, we also found that the strategies adopted in relation to the new competitive stage varied across the Basque Country. Government policy and research therefore needs to be designed to cover the requirements of the main types of counties identified in the report. Given the relative demographic, social, political and institutional predominance of cities, a complementary challenge is to reinforce government policy and research on cities, their competitive strategies and their role as agents of innovation.

Responsibility for competitiveness and innovation policy is shared by different levels of government

In the report, we make recommendations to government based on the results of our analysis of the counties' competitive diamonds. The first recommendation is aimed at local councils and all government agencies that interact with them. Though influenced by European and national policies, competitiveness and innovation policy in the Basque Country has traditionally been seen as the responsibility of the Basque regional government and the three provincial councils. In the new competitive stage, however, all levels of government have a role to play. Many town and city councils have delegated economic promotion issues to county development agencies (*agencias de desarrollo comarcal*), which produce their own assessments and action plans. Although all these plans are subject to political decision making at some stage, the level of policy-maker involvement varies considerably. Yet these projects will be unworkable unless local policy-makers are directly involved. Accordingly, our first recommendation to local and regional authorities is that municipal policy-makers should be involved in making assessments and formulating action plans for industrial clustering. Municipal and county politicians must rise above their traditional role of delivering local services for local people and take an active role in economic development.

Maximize the efficiency of government policy at different levels through a multilevel approach to policy

As regards the second recommendation to government, the high level of institutional development achieved to date needs to be acknowledged. Local and regional authorities have created a variety of institutions for collaboration to bring private and public sector actors together to carry out common projects. Besides assessing the efficiency and functions of the various agencies, it is important to establish coordination mechanisms for what is known as the multilevel approach to policy. Our recommendation is to maintain spaces for dialogue between different levels of government to ensure consistency in multilevel initiatives.

Third, in the context of the restructuring undertaken in response to the current economic crisis, regional and local governments are advised to monitor the political and economic developments emanating from Spanish central government and the European Union. The competitiveness of the Basque Country may be significantly affected by decisions made at these higher levels concerning, for example, the restructuring of the automotive industry, renewable energy or the location of elite international technology centers.

To sum up, there are signs that over the next few years, in the context of the Basque model of competitiveness, county development agencies could play a central role in cooperation and clustering at the local level in the Basque Country. This effort to drive decision making down to lower levels must be combined with measures to coordinate local decision making with the policies and initiatives of central government and the European Union. Because county development agencies play such a central role, the recommendations given in the previous paragraphs concern them directly.

The following recommendations are aimed specifically at selectively strengthening institutions for cooperation, particularly those such as the county development agencies.

The development agency teams need to acquire the necessary competencies

The first recommendation is to develop the competencies of agency teams, so that they are properly able to manage the processes associated with the new competitive stage, including the clustering process. The agency management and technical teams need to deliver a range of services, while at the same time mobilizing county-level actors and exercising shared political and economic leadership. Doing this requires specific knowledge, skills and attitudes, without which the type of relational leadership the networks require is unlikely to develop.

Strengthen and deploy the cluster philosophy

Another catalyst of the transition towards innovation-based competition is clustering, mentioned earlier in the context of our competitive diamonds analysis. Clustering involves creating areas of public-private cooperation and entails generating a systemic view and policies designed to satisfy the requirements of the new competitive stage. Clustering creates points of confluence between companies throughout the value chain, innovation agents (companies, universities, technology centers, etc.) and the varied levels of government that define micro- and macroeconomic policies affecting the competitive dynamic in the long run. The Basque government's cluster policy is an example of this type of process. It is important to distinguish between a cluster (which is a natural phenomenon arising from economic relationships within the value chain or from other horizontal factors—knowledge, technology, etc.—and existing independently of whether or not there is a cluster policy) and cluster associations (which are institutions set up to help actual clusters exploit synergies and realize their full potential, thus enhancing their competitiveness). Cluster associations are therefore a response by public institutions to the existence of industrial clusters.

The cluster policy has brought together a substantial proportion of the most competitive Basque companies

Data presented in the report show, for the first time, the relative weight in the Basque economy of businesses in cluster associations created under the Basque government's cluster policy. Such companies account for 28% of employment and 32% of industrial added value and have competitiveness scores above the average for Basque companies as a whole. Cluster association member companies have higher sales growth, are more internationalized and have better innovation indicators than the rest. This shows that the Basque government's cluster policy has brought together a very substantial proportion of the most competitive Basque companies, which again is a sign of progress towards the new competitive stage. Cluster formation is slow because it requires a major change of mindset from the participants. The degree of participation varies between companies, with small firms being least involved. To accelerate the process, companies must assimilate the cluster philosophy.

Continue to implement cluster policy

The first recommendation in our report derives from our assessment of the work done by cluster associations and the relative importance of their member companies. Our analysis indicates that clustering plays an important role and has great potential for sustaining the Basque competitiveness policy. The Institute has undertaken various studies to analyze the attitude of the actors affected by cluster policy. Our conclusion is that cluster policy should be maintained, as it affects factors such as social capital and joint interests, which are crucial for generating the interactions between agents that the innovation-based competitive stage requires.

Extend the cluster policy horizontally to other departments and other levels of government

The second recommendation, also directed at the Basque government, is to extend the cluster policy to other government departments or levels, which could also formulate policies to stimulate clustering. Cluster policy could then become a horizontal policy involving not only the government departments directly concerned, such as Industry and Transport, but also others, such as Education, thus helping to intensify public-private collaboration. This recommendation is based both on our cluster detection analysis and on the lessons learned from our study of the historical origins of clusters.

Cluster development needs to be understood as a dynamic process, so government policy should be permanently open to new types of clustering, mergers and collaborations between clusters and, where necessary, dissolution of clusters that prove inefficient. Our analysis suggests that

clusters currently being developed and promoted are still highly relevant to the Basque Country, notably the fast-developing Energy, Aerospace and Marine Equipment clusters. In the transition to innovation-based competition, the productive structure of the Basque Country needs to evolve towards higher value-added activities. Cluster policy can help drive the transition by being ready to support clustering processes in existing but still-unclustered businesses and in emerging new business activities.

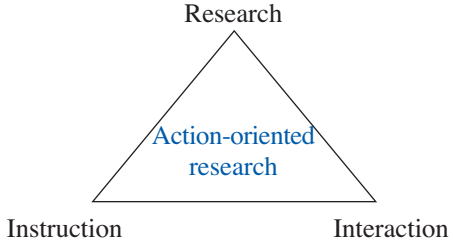
Need to strengthen cooperation between cluster members

With respect to cluster associations, closer cooperation between association members is crucial. This requires that members become more fully convinced of the advantages of cooperation. This is our first recommendation to cluster associations: take steps to reinforce the cluster philosophy and implement projects of common interest. Training and participatory evaluation, both of which are already under way, should play an important role here.

Supraregional, intra-regional and horizontal development of cluster philosophy

Another recommendation (although interesting initiatives in this respect have already been undertaken) is that clusters should seek opportunities to work with other clusters. Cooperation can take place on different levels. First, clusters can cooperate *horizontally*, by exploiting synergies and sharing competencies and technologies, or even by jointly developing new technologies and competencies and engaging in knowledge-sharing activities. Second, clusters can collaborate at a *supraregional* level, i.e., clusters in the Basque Country with clusters elsewhere, exploiting synergies between different stages of each cluster's value chain throughout Spain and the rest of the world. Third, collaboration between networks and clusters at an *intraregional* or local level can play a crucial role in boosting the capacity of small businesses to absorb innovation and expand internationally.

The Institute's task is to act as facilitator in these processes. In fact, these meeting points for companies, public agencies and other innovation institutions are ideal for enhancing Basque competitiveness through the use of action-oriented research methods aimed at achieving synergies of excellence between research, teaching and interaction.



Companies must fully accept the need for and usefulness of cooperation

Despite the efforts of government and institutions for cooperation, no progress will be made unless companies appreciate the usefulness of clustering and believe in the potential of cooperation. Our main recommendation, therefore, targets companies, which should approach clustering with a willingness to understand the cluster philosophy and with an open mind in the search for new opportunities. Changing mindsets takes time, but it can be done through training activities such as those offered by the Institute (the *Microeconomics of Competitiveness* course) and others designed to raise awareness of the advantages of cooperation. This training effort should be ongoing and adapted to meet the real needs of Basque companies. One example is the training programs currently being implemented specifically for this purpose in China, which in the future could be started in other countries.

Strike a balance between competition and cooperation

What we are recommending is not indiscriminate collaboration. Our analysis of the cluster legacy, in which we consider the historical origins of various clusters and how the clusters have affected competitiveness, shows that the goal must be to strike the right balance between competition and cooperation. This is an ability companies must develop: the ability to judge the mix of cooperation and competition that is most appropriate at any given time and that will strengthen companies' individual competitive capacity. Whether clustering becomes a distinctive feature of the new competitive stage or not will depend on the ability of companies to internalize this principle and cooperate on projects they consider strategic.

Foster the synergy of excellence between research, teaching and interaction in the current crisis

Finally, the current economic crisis will redefine the relative importance of each economic activity and each actor in the global economy. The Institute's mission is to understand the underlying dynamic and advise the various actors in their pursuit of a synergy of excellence between research, teaching and interaction.

Framework for political action and governance

Need to give the new institutions a real purpose and to deliver services efficiently to members

As we have seen, the Basque Country has an extensive network of agents that influence the design and execution of regional industrial and competitiveness policies. Two other critical factors in our model of competitiveness are the framework for political and government action and the institutions for cooperation that drive cooperation in and between areas. In our report we analyze whether this framework and the organizations involved are in fact assimilating and putting into practice new (more participatory and more permeable) forms of governance through institutions for cooperation. Movements in this direction would be a sign that they are adapting to the requirements of the innovation-driven stage, as the combination of R&D+i for this stage requires an open concept of innovation, i.e., one in which innovation does not depend exclusively on elites but demands the broadest possible involvement of all concerned. Our conclusion is that recent years have seen intense efforts to create new structures (such as Innobasque, Foro de Competitividad 2015, Gipuzkoa Berritzen, etc.) for this new mode of governance.

So there are signs of progress in the right direction. However, the next few years will decide whether the public and private agents of competitiveness involved in these institutions are efficient enough, there is no duplication, and the agents are capable of articulating processes and projects to flesh out these institutional structures. Otherwise, a rationalization of the network of institutions will be inevitable.

Train researchers in action research

The report analyzes the role that research could play in supporting these processes. One of its recommendations is that researchers be trained in "action research." Action research is research carried out with the participation of the agents concerned, so as to co-generate new knowledge that leads directly to action and actually enriches research. This will strengthen the balance between research, action and participation in the cooperation networks and platforms discussed in the report.

A second recommendation, directly related to the previous one, is that researchers and consultants be involved in designing and implementing these knowledge co-generation processes. They could thus act as bridges between cutting-edge knowledge in the various competitiveness-related research disciplines and the agents of competitiveness (companies, regional and local authorities, cluster associations, development agencies, technology centers, etc.) in the Basque Country.

The report also contains recommendations directly targeting institutions for cooperation. Just as research needs researchers who have been trained to be more action-oriented, collaboration net-

Develop methods for training relational leaders

works need leaders trained in relational leadership. Relational leaders acknowledge that they do not know everything and are skilled at building relationships and creating spaces for the exchange of ideas. Although they may often seem weak (because they have to listen, be patient, give time to others and be willing to accept their proposals), they can in fact be very influential. Rather than being above everyone else, they are in the middle; they do not tell others what to do, but articulate and drive processes to ensure that things get done. They are not executive leaders; their role is essentially as brokers and promoters. They do not rely on plans, but on something much more important: a shared project. In other words, they work with a shared understanding of what needs to be done and seek bottom-line agreement on how to do it. Above all, they must be effective in achieving objectives and efficient in managing resources. Relational leaders build trust and empower the weaker players.

Cooperation and participation mechanisms must be effective and efficient

Another recommendation for these networks is that they should facilitate genuine participation by the agents, which means that private agents must assume real responsibilities and the authorities must grant them space to exercise real power. This is a difficult process, but without real participation it will be impossible to establish a shared vision and translate knowledge into actions and projects. Our recommendation is to form discussion and working groups made up of the people most directly concerned, regardless of their institutional affiliation, as they will be able to contribute the knowledge generated in their daily activities.

The projects must be shared, so that the agents affected by the different plans and programs can be involved more efficiently.

To improve the effectiveness and efficiency of the institutional structures through which competitiveness and innovation policy is articulated, the report also offers recommendations to government agencies entrusted with the task of promoting these networks and participating in them. They must ensure that the networks correctly define the problems they address, that the people and institutions involved in knowledge co-generation are the ones that deal with the problems firsthand, and that the people who are learning are the ones with the power to decide on the solutions to the problems. Once this is established, network members should be given the time and scope to build trust, on the understanding that these are long-term processes which do not yield immediate results and which are best tackled collectively.

Participation and cooperation are a challenge for government and business

In short, participation and cooperation are challenges for all involved, whether public authorities or private companies. The purpose of the change is to allow agents with no previous say to take part in decision processes. For companies, such participation often demands time and resources, and management is not always convinced of the benefits of knowledge co-generation and cooperation. To exploit the potential of these networks, participants need the right competencies, knowledge, skills and attitudes. Our recommendation to all participants, therefore, is to invest in acquiring the necessary competencies, which are the same competencies that will later enable them to put the knowledge generated in these networks to work in companies, so as to improve the competitiveness of individual firms and of the Basque economy as a whole.

4. **Conclusions: improving competitiveness in a time of crisis**

As the report makes clear, in the context of a far-reaching restructuring of its traditional industry undertaken three decades ago, the Basque Country chose to restructure its economy by adapting traditional industries to the demands of an open economy and also by diversifying towards

advanced and emerging industrial activities. This transformation was carried out on the basis of the existing industrial demand and production environment and was accompanied by a significant growth in knowledge-intensive business services.

Despite industrial renewal and transformation having been relatively successful, it remains unfinished. Our analysis of the types of European regions shows that the Basque economy needs to evolve from its current location in the group of "central regions with medium prosperity and technological sophistication" (which includes Aquitaine in France, Trento and Tuscany in Italy, Wallonia in Belgium and Catalonia in Spain) toward a group of "regions with high financial and technological capacity" with higher demands and higher standards (which includes Emilia-Romagna in Italy, Lower Saxony in Germany and Limburg in the Netherlands). In terms of Porter's model (Porter, 1998), the Basque economy is in transition from a competitive stage focused on improving efficiency through investment to a stage focused on improving productivity through innovation, sustainability (eco-innovating) and the development of unique value propositions.

Like the one thirty years ago, the transition will have to be made in the middle of a serious crisis. Fortunately, growth in the Basque Country in recent years has been less dependent on the property industry and low-skilled immigrant labor than the rest of Spain. Although facing different challenges from the Spanish economy as a whole, the Basque regional economy nevertheless has to meet challenges on two fronts: first, the challenges of transforming its growth model and transitioning to a higher stage of competitive development; second, the challenges of dealing with the crisis currently affecting the Spanish and world economies, to which the Basque economy is closely connected.

On the first point, certain indicators show that the existing growth model is exhausted. The Basque Country's strong GDP figures are out of synch with its relatively poor innovation performance (R&D spending, patents, exports in high-technology industries, etc.). This "paradox of competitiveness," analyzed in our report, highlights the need to search for more appropriate indicators of innovation, in coordination with other relevant institutions.

High employment rates prior to the current recession, combined with the aging of the Basque population, show that regional growth in the future can no longer come from "getting more people into work." At the same time, the slowdown in the growth of productivity rates since the late nineties, the composition and destination of Basque exports, the limited penetration of Basque companies in technologically more demanding markets, the region's limited foreign investment capacity and the shortage of highly qualified human resources indicate that what is needed is an increase in innovation.

Much of the Basque Country's competitive and innovative success to date (what we have termed the Basque model of competitiveness) was the result of combining competition with cooperation and of close collaboration and networking between public and private sectors. A case in point is clustering, which has taken place with the support of the Basque government. As pointed out earlier, however, the shift to a higher stage of competitive development requires an advance in other forms of cooperation and innovation.

Besides cooperating with other members of the cluster or the regional innovation system, companies and other actors in the Basque Country need increasingly to absorb knowledge from, and become integrated in, international networks, so that the "local buzz" is enriched and strengthened with the "global pipeline."

The experience-based model of innovation and learning (the DUI model: Doing, Using and Interacting), which has been the main driver of competitiveness at Basque firms, must be complemented by more participatory, learning-intensive forms of work organization.

Without abandoning the DUI model (which, given the region's sectoral and business structure, will continue to dominate and characterize the Basque model), the Basque economy must start to promote science and technology-based modes of innovation and learning (STI model), where it is still weak in comparison to the regions of Northern and Central Europe, although not where other

Spanish regions are concerned. In particular, it needs to improve the efficiency of its innovation system and correct the unfavorable ratio of technology output (e.g., patents) to technology input (e.g., R&D spending).

Given its production specialization and its dependence on the Spanish and European markets (and on industries that are suffering a sharp contraction in those markets, notably residential construction and the automotive industry), the Basque Country is starting to feel the effects of the current crisis, albeit after a delay. In view of these (very likely structural) factors that have immediate effects, our recommendation is to build on the strengths of the Basque productive structure and consolidate the region's innovation system, especially its well-developed capacity for cooperation and the relatively efficient system of public-private collaboration in policymaking. This should allow the Basque Country to build competitive strengths or advantages for the future.

Fortunately, Basque companies in general approach the crisis from a relatively strong position: apart from being less involved in the construction industry, their levels of borrowing are lower than those of other Spanish and European companies and the proportion belonging to corporate groups is relatively higher, which gives them greater financial strength in the face of present adversity.

At the same time, beyond the limited penetration of Basque companies in the most technologically demanding markets, the fact that a significant number of them have successfully established themselves in foreign markets and have internationalized their production may help overcome the economic stagnation affecting the Spanish and European markets in particular.

To the structural challenges already facing the Basque economy, the world economic crisis adds the impact of certain external factors that require immediate response. The Basque Institute of Competitiveness is convinced that the responses chosen must not contradict, or even be chosen without taking into account, what is required in order to meet the more structural challenges of the Basque economy. The crisis is a call to action and, in that sense, an opportunity to take a decisive step forward, towards a new competitive stage based on productivity gains achieved by optimizing innovation and sustainability.

This new stage is built on the following vectors:

1. Promoting adequate, efficient R&D and supporting institutions involved in Basque industrial policy and the innovation system.
2. Developing the aspects of innovation that remain underdeveloped in the Basque model of competitiveness, such as marketing, organization, etc. Knowledge agents have a very important role play in this respect.
3. Increasing the size of Basque companies, so that they can take on investment-intensive projects.
4. Developing entrepreneurship, especially technology-based entrepreneurship.
5. Taking decisive steps to internationalize, with the aim of penetrating expanding markets and industries.
6. Attracting foreign know-how and investment;
7. Raising the necessary finance, if necessary by creating new financial instruments for (i) the internationalization of Basque companies, particularly toward technologically more demanding countries and higher value-added industries, (ii) feasibility studies for Basque companies seeking to set up abroad, (iii) new value-added investments in the Basque Country itself; and (iv) technology-based entrepreneurship.
8. Creating the appropriate institutional structures for political action and cooperation.

At the institutional level, competitiveness policy should build on the significant achievements in agent-to-agent cooperation, as in the cluster network. At the same time, the cluster concept needs to be updated and opened up, so as to encourage alliances and joint projects across regions and industries. Cluster associations could be a channel for early detection of trends in industry and for

the design and implementation of private-public agreements and government policies. Speed in capturing knowledge and designing and implementing policies is particularly important in today's uncertain environment. Cluster associations and other knowledge-generating and knowledge-mediating bodies could play an important role here.

Given its network of agents and their knowledge and competencies, the Basque Country clearly has enormous potential for learning and innovation, provided it activates the mechanisms for agents of competitiveness to learn from the experience of others. Our last two recommendations, which are key for the transition to innovation-based competition, concern these learning and innovation processes, which directly affect competitiveness. The first is that agents' efforts to define and implement the shared strategy need to be integrated and coordinated. Over the next few years, local and regional authorities, companies, universities, technology centers, institutions for collaboration and others must establish a clear joint strategy as a basis for coordinating their efforts. The second recommendation is to ensure that focused institutions for cooperation are in place and that the necessary facilitating instruments are available. The Basque Country has a rich fabric of institutions for cooperation. The major challenge now is to ensure that they are capable of driving efficient knowledge co-generation processes targeted directly at innovation.

In any case, given the extraordinary scale of the challenges, the tenacity of Basque entrepreneurs over the last thirty years is a good sign: they have shown great resilience in extremely difficult economic and political circumstances and a powerful commitment to Basque society.

1. Introduction

1.1. **Presentation**

The purpose of this second Competitiveness Report generated by Orkestra-Basque Institute of Competitiveness, is to convey the Institute's message regarding competitiveness in the Basque Country. Our message is open to all those interested in the subject, though it is particularly aimed at those agents whose activities influence competitive performance in this territory. We are referring to companies, public authorities, agents in the areas of science, technology, and educational systems, institutions for collaboration, and other organizations used by the social and economic agents in the Basque Country to channel their activities. This report is a response to the trust that the social and economic agents, and Basque society as a whole, have placed in the Institute. It sets out the main conclusions for improving competitiveness in the Basque Country, drawn from the research performed since the last report was published.

Current uncertainty affects perceptions of competitiveness

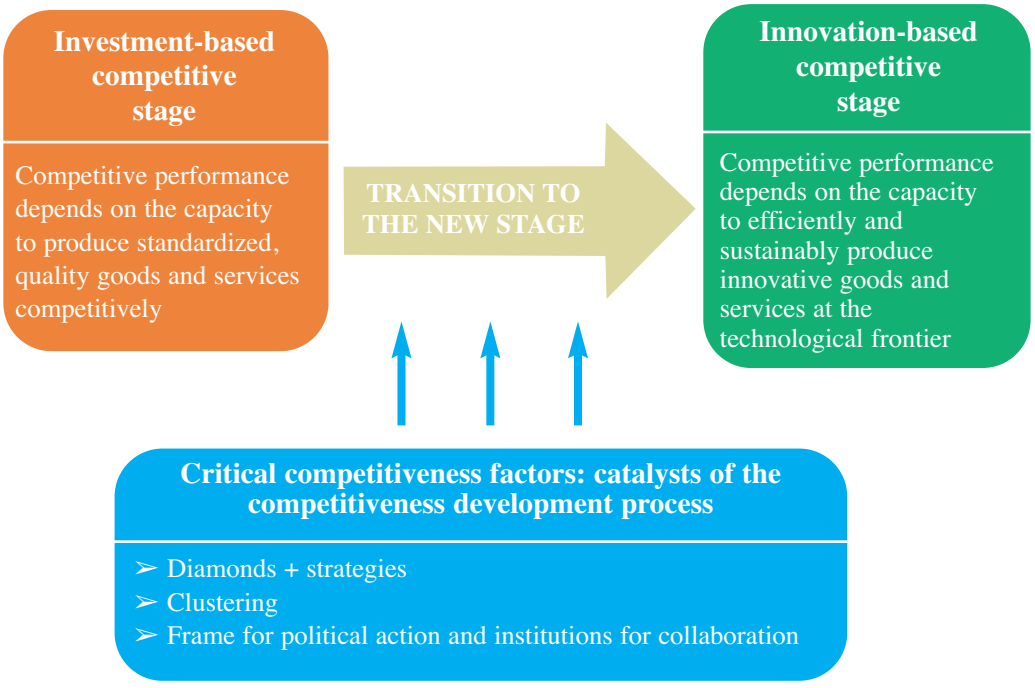
The first Competitiveness Report, generated in 2007, was based on the Institute's Model of Competitiveness. Among other aspects, that report included an assessment of the Basque Country's strengths and weaknesses, which was used as a basis for generating a series of recommendations for moving on toward the new stage of innovation-based competition. The first report examined the status of competitiveness in the Basque Country based on the model proposed by Orkestra. It also strove to analyze the status of the art of competitiveness and to examine its underlying variables and core elements. In addition, it mentioned the research, teaching, and mediating resources to be developed as part of the efforts to improve the level of well-being in the Basque Country.

Since then, the Institute has focused on supporting the various agents of competitiveness in the Basque Country in their efforts to meet these challenges. It has done so on several fronts, one of which involved further exploring the Basque Model of Competitiveness. The model was adapted for this report, providing a framework for its contents. Graph 1.1 shows how the model was adapted for this purpose.

Orkestra works to improve Basque competitiveness

One of the elements in the model is the transition of economies from one competitive stage to the next. According to M. Porter, economies go through three stages of competitiveness. Initially, competitive advantage comes from an economy's resources, or "factor endowment." The second stage is investment driven: In this case, the competitive advantage is based on the ability to provide standard, high-quality products and services using efficient methods, but offering lower salaries than in

Graph 1.1 Basque Model of Competitiveness adapted for this report



Source: Prepared by the Authors

Change towards the third competitive stage of the model: the Innovation-based competitive stage

advanced economies. In the third stage, an innovation-driven economy, the competitive advantage stems from the ability to deliver innovative, leading-edge technology goods and services. During this stage, companies compete on the basis of unique strategies, often global in their scope, where the national diamond (clarified further on in this section) shows strengths in all these areas. In addition, it shows solid clusters. The economy includes a high proportion of services and is able to withstand external shocks.

At present, the general assumption is that the Basque Country is moving from an efficiency-driven to an innovation-driven economy. In this new stage, innovation is a key factor for competitiveness, albeit not the only one. However, the fact that an economy may be moving toward a new stage does not imply that all the actors in its system are advancing at the same pace. During the transition, companies, institutions, and players exhibiting typical efficiency-stage behavior coexist with others that are closer to the innovation stage. When an economy transitions to a new stage, the characteristics of the previous stage do not simply disappear; rather, the main characteristics of the new stage gradually start prevailing over earlier ones. Certain aspects that are typical of the efficiency stage, such as quality, continue to be relevant in the new stage. Also, as the different actors advance at different speeds, any strategy for advancing toward the innovation-based stage must include complementary sub-strategies for the different actors.

The main question answered in the report is whether the Basque Country is making the transition toward the innovation-driven stage, and how it can do so more efficiently. The report analyzes Basque competitive performance in order to determine whether the Basque Country is competitive or not. Bearing in mind that it is companies, not regions, that actually compete in the marketplace, we have analyzed not only the performance of the Basque Country as a whole, but also that of its companies. According to Porter's model of competitive advantage, competitive performance in the new stage should stem from the capacity for innovation. Therefore, analyzing performance is complemented by analyzing innovation, in order to identify the interactions between the progress of both these parameters and determine whether the relationship is typical of an economy in the innovation-driven stage.

Are we moving toward a new competitive stage?

In the model used for this report, there are several elements influencing a territory's competitive performance, which in the version that was adapted for the report were grouped under three headings: competitive diamonds and the strategies derived from analyzing competitive diamonds; clustering (including historical context analysis), and the framework for political action and organizations for collaboration. These elements are in keeping with the Institute's underlying concept of competitiveness: socially responsible microeconomic competitiveness. This concept emphasizes the importance of factors related to microeconomic rather than macroeconomic competitiveness[1]. Understanding socially responsible competitiveness also calls for integrating economic and social policies.

Socially responsible competitiveness integrates economic and social policies

These elements are critical, regardless of the competitive stage a given territory is in, but their way of influencing competitiveness differs in each one of the stages. Specifically in the Basque Country, these elements can be the catalysts for the transition toward a new innovation-driven stage. In the future, they could help to consolidate competitive positioning in this stage. We will now describe the meaning of each one of these elements.

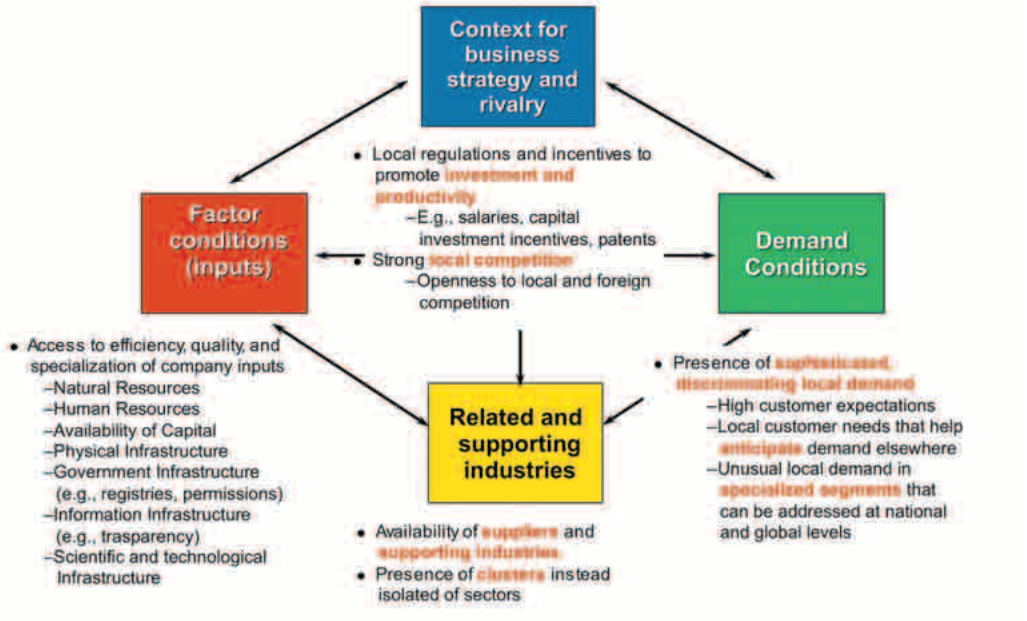
The first catalysts we analyzed were competitive diamonds and the strategies drawn from diamond analysis. According to Porter, economic performance is determined by a series of microeconomic factors, which he groups into four major categories, configuring what is referred to as the "competitive diamond."

The first major category includes a series of factors or inputs whose presence is necessary for companies: available skilled labor, capital, and physical, knowledge-related, and technological infrastructures. The next major category groups all the factors that configure the context for firm strategy and rivalry: competition, entrepreneurial spirit, firm size, degree of cooperation and association between firms, and focus on R&D. The third category refers to the existence of related and supporting industries that enable local access to suppliers and skilled, competent service providers, and of clusters that generate outsourcing which in turn improves competitiveness within each cluster's firms. The last category concerns the existence of sophisticated, discriminating local demand that makes it possible to anticipate demand elsewhere and that is particularly unusual in certain segments. Government can influence each one of these areas through different kinds of

[1] During the present crisis, appeals to global and macroeconomic solutions are constant. Nonetheless, a balance between global and local concerns is what will mark the difference between a crisis that will have different impacts, solutions, directions, and exit times, however widespread it may be.

interventions. Analyzing this diamond in different areas (the Basque Country, counties, clusters) allow us to generate competitive assessments which in turn enable us to define competitive strategies for those areas.

Graph 1.2 The competitive diamond



Source: Porter (2008), *On Competition.* Harvard Business Review Book, Boston

Clustering, the second catalyst, involves moving beyond an entrepreneurial or sectoral focus to integrate the different agents who share a unique connection that enables them to create value. For companies, this involves understanding that part of their competitive advantage actually lies beyond the company itself and even beyond the sector, and that they have to manage this aspect proactively. For governments, clustering implies a significant change in policy design, increasing their focus on microeconomic policies and on developing specific assets. For agents involved in regional and local development, this view implies moving from providing services to generating social capital and networks supporting collaboration. One of the advantages of clustering is that it makes it possible to pursue opportunities for cooperation and improvement in areas of mutual interest without damaging competition or rivalry.

Clustering is often implemented in the form of public-private networks whose mission is to achieve competitiveness and, consequently, develop a territory. This requires analyzing the third catalyst for competitiveness: public authorities and institutions for collaboration. These play a relevant role in all stages, but their role must be partially based on partnership models during the current transition process. This partnership, which often involves broader models for participation than those used to date, has been analyzed in the context of the

changes underway in governance. Governance is a broader concept than that of partnership relationships, involving balances in the ways the different players relate to one another, and aids in understanding the effects of the new modes of interaction on competitiveness.

The work performed by the Institute based on this model revolves around the three areas that configure the Institute's unique value proposition: an excellent synergy of research, interaction, and instruction. It has made it possible to further develop research methods that can be helpful for optimizing the Institute's contribution to the agents in the Basque Country for real gains in competitiveness. Specifically, there has been progress in the search for research methodologies capable of bringing on change.

The Institute's contribution to a real gain in competitiveness

In the first section of this report, the reader will find a series of chapters that focus on measuring the competitive performance of the Basque Country and its companies, linking this performance to Basque positioning in terms of innovation. This makes it possible to analyze whether the Basque Country is competitive and whether it is reaching its level of competitiveness based on innovation, as would be expected according to the new competitive stage shown in the model. These results were drawn from the research in conceptualizing and measuring competitiveness performed at the Institute. The next section offers a series of chapters with in-depth views of each one of the critical factors for competitiveness, which according to the model can act as catalysts for the transition process. These allow us to further determine whether the transition process is being approached efficiently, aside from the actual results. These last chapters provide the clearest reflection of the Institute's contribution toward increasing efficiency in the transformation process, influencing the catalysts through research that is capable of bringing on change. This involves long-term transformation processes.

The next section provides further detail on each part of the report, highlighting the competitive performance element or the catalyst for transition that is analyzed in each case. Ultimately, the narrative thread that enables the reader to understand the role of each section in the report is an adaptation of the model for this report, which is shown in the first graph.

1.2. **Presentation of the specific contents**

We will now list the different sections in the report, which provide a deeper understanding of the model of competitiveness introduced in the previous section.

Performance: Is the Basque Country competitive?

The first element that is analyzed is ***competitive performance***, which reveals the degree to which competitiveness objectives have been fulfilled. Therefore, it answers the question: **Is the Basque Country competitive?** It is the point of departure for this report, since good competitive performance is the main indicator of progress toward the new innovation-driven stage. Specifically, the section on performance has been broken down into two parts:

1. First, **regional competitive performance** is analyzed using the most widespread indicator, per capita GDP. To perform an in-depth analysis of the implications of the Basque Country's competitive level and offer recommendations, we proceeded to break that per capita GDP down into its main influencing components. To consider whether the level of competitiveness is that of a region that is advancing in the innovation-driven stage, we compared per capita GDP with the European Regional Innovation Scoreboard, analyzing and assessing its degree of accuracy and/or

appropriate and universal representation of innovation beyond technology. This involves analyzing what has been referred to as the competitive paradox, and conclusions are drawn as to where to take action in order to maintain the positive development of per capita GDP.

2. After analyzing regional performance, we proceeded to analyze **company performance** so as to come up with an assessment of the situation of companies in the Basque Country.

Given that the question this report strives to address is whether progress is being made toward the new innovation-driven stage, we considered it relevant to complement the performance analysis with a ***more in-depth analysis of innovation***, a critical element for competitiveness in this new stage. For this purpose, there is a specific section focusing on two elements.

First of all, we took into account that a systemic approach is one of the main contributions provided by the Institute's model of competitiveness. Consequently, we first approached innovation according to two typologies that enable us to determine where we stand in relation to other European and Spanish regions. In this context, and despite the fact the concept of innovation is much broader and requires many other indicators, we proceed to assess innovation in the Basque Country by means of R&D-related data. All of this offers food for thought about how the innovation system is being positioned and what the challenges and recommendations may be for moving ahead in this new stage. This closes the first section in the report in which we analyze the Basque Country's competitive level and determine whether it fulfills its potential for innovation, as one would expect of a territory that is advancing toward the new competitive stage.

The diamonds define the current positioning

The remaining chapters focus on the catalysts in the transition process presented in the model of competitiveness. One of the catalyst elements highlighted in the model as critical for competitiveness is that of ***diamonds and strategies drawn from diamond analysis***. As we mentioned earlier, at each moment the diamonds show the position in terms of factor conditions, the context of company strategy and rivalry, related supporting industries, and demand conditions.

The first Competitiveness Report presented the diamond model applied to the Basque Country. The second Report moves along the same lines, but adds a critical aspect to the model: the importance of analyzing the diamond at different territorial levels. Therefore, in this report we also applied the diamond model to counties. Given that creating a diamond for each county would be excessive, we chose to present a typology for counties based on criteria for competitiveness, innovation, and entrepreneurial activity, dividing the counties in the Basque Country into five groups. Next, a diamond model was created for each one of the county groups. This is the groundwork for posing the question of how each county is positioned in terms of its progress towards the new stage and the appropriate recommendations are offered to facilitate this transition.

As critical elements for competitiveness, the diamonds are directly linked to defining strategies, since the assessment performed with the diamond is used to define a unique value proposition upon which a strategy is then built. In this second report, the strategy element has also focused on the county level, presenting the results of reflections shared with county-level actors about their county diamonds (obtained as part of the clustering process that the Institute is working on with these players). To close, we offer recommendations concerning strategies and other elements (shown in the diamond) that are being defined in the different counties to move into the new innovation-driven stage.

The diamonds as diagnostic tools for defining new strategies

Clustering as a catalyst for competitiveness

Clustering processes, defined earlier on, are another one of the catalyst elements of competitiveness presented in the model, and are covered in a specific section in this second Competitiveness Report.

In this case, the analysis has focused on the landmark experience there has been with cluster associations in the Basque Country. This section is broken down into three parts:

1. On the one hand, we offer an assessment of the existing clusters in the Basque Country, namely business clusters that may be eligible for coordination processes. In addition to acknowledging the importance that the clusters detected in the early 1990s still have, this makes it possible to detect potential clusters that have not yet been provided with a dynamizing link. This leads to a reflection on new clustering processes that could be reinforced to move ahead in the innovation-driven stage.
2. We then present an assessment of cluster associations, highlighting their challenges for advancing efficiently in their clustering processes.
3. All of this enables us to raise the issue of whether the clustering processes launched in the Basque Country do or do not fulfill the requirements of the new competitive stage and to offer recommendations for moving ahead in this respect.

The importance of historical context for building strengths

The studies performed on the legacy of a series of clusters has enabled us to complete this section about clustering, highlighting the importance of historical context and of understanding the impact of history on the present situation, and how what has been passed down from former competitive stages can be managed creatively to build up current strengths.

Lastly, we analyzed the third catalyst element, the ***framework for political action*** and ***organizations for collaboration***. The first Competitiveness Report outlined the network of institutions in the Basque Country and pointed out that it could become one of the strengths in the real competitive model. The second report suggests that one of the major challenges faced by governments (both city councils and provincial councils in the case of the Basque Country) for moving towards the new innovation-driven stage is developing partnership models viewed in the broader context of the transition towards new modes of governance.

Moving towards new modes of governance

Hence this section begins by describing a series of projects carried out at these three levels of government. It appears that progress is being made along these lines as the different governments are creating structures for public-private cooperation that can be considered as organizations for collaboration. However, moving towards the new stage not only calls for structures, but also for efficient processes. With this goal in mind, we also consider the degree to which the processes being designed are appropriate for moving towards the new stage. In the final section, we point out the obstacles for moving ahead with these partnership models and provide recommendations for streamlining the transition.

Final conclusions and recommendations

The report comes to a close with a section of ***final conclusions and recommendations***, which, rather than repeat the conclusions and recommendations offered in the previous sections for each one of the types of competitiveness players, highlights a series of general recommendations for them all, conveying the main messages about current challenges for consolidating the transition towards the new competitive stage.

2. Competitive performance of the Basque Country

2.1. **Introduction**

Per capita GDP as a competitiveness indicator

Competitive performance is the first aspect we analyzed to determine whether the Basque Country was undergoing a transition towards the new innovation-driven stage. The performance indicators are the ones that measure the level of competitiveness. Although the Institute has several projects that focus on defining other kinds of competitiveness indicators, **per capita GDP continues to be the most broadly accepted indicator for assessing a region's competitiveness**. Therefore, the focus of this section is to provide a detailed analysis of this indicator.

The objectives in pursuing a further analysis of per capita GDP are:

1. To analyze whether the Basque Country's performance is that of a region that is making a transition into the new innovation-driven stage.
   To answer this question, we analyze per capita GDP along with the European Innovation Scoreboard, offering what has been referred to as the **competitive paradox**.
2. To break down the per capita GDP into its different components. That is the only way to determine which factors can be acted upon in an attempt to streamline efforts towards maintaining the competitive performance level.

Although the analysis performed was structural, before pursuing the objectives listed above we must place this section within the context of the current crisis. The available data go as far as 2008, and therefore do not include an analysis of the turn the economy has taken from this year on. Given the events are so recent, we are unable to have enough of a perspective to provide this section with a consideration of whether the Basque Country has had more or less difficulties in coping with the crisis than other regions. Therefore, this section presents an analysis with the latest available data, analyzed according the paradigm that has prevailed in competitiveness analyses to date.

2.2. **The relationship between competitiveness and innovation**

2.2.1. *Analysis of the current situation*

In relation to other territories, the Basque Country shows a very favorable position in terms of per capita GDP, expressed in purchasing power parities (PPPs, the ultimate indicator of a territory's competitiveness). However, this favorable position is not directly related to the

available indicators for innovation, which, according to the theory, is the decisive factor for competitiveness in advanced countries.

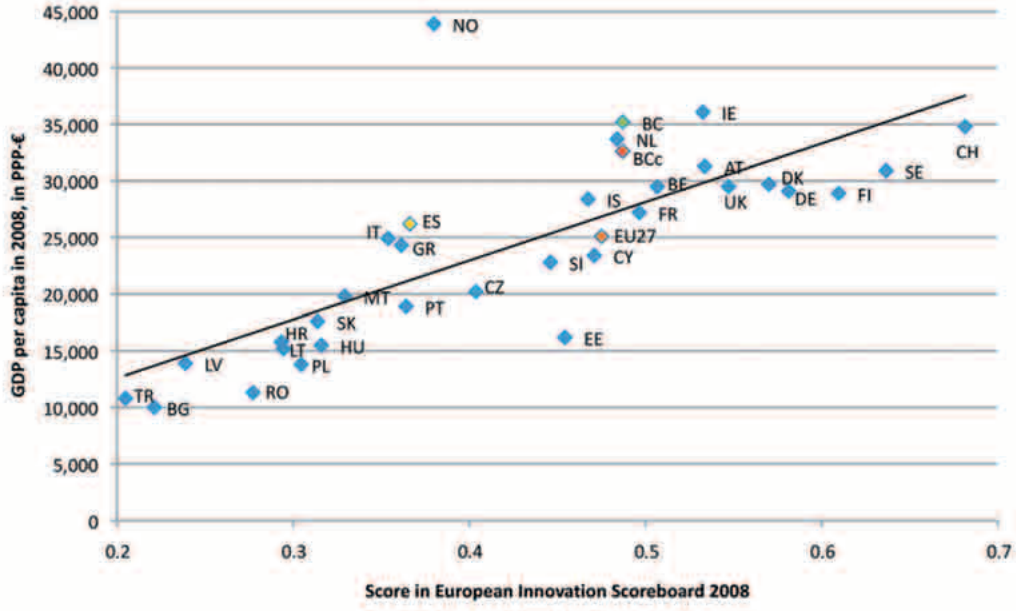
The competitive paradox:

The relationship between competitiveness and innovation can be determined by the relationship between per capita GDP and the European Regional Innovation Score (see Graph 2.1). However, this purported link between competitiveness and innovation does not always occur, as in the Basque Country, where the level of innovation is lower than expected for its per capita GDP. In other words, the Basque Country scores significantly higher in per capita income than it does in innovation.

This lack of correspondence between competitiveness and innovation is referred to as the competitive paradox, and occurs not only in the Basque Country, but also in other countries, particularly in Norway (see the graph below).

The competitive paradox is represented in Graph 2.1, where the vertical axis shows per capita GDP value expressed in purchasing power parities for the EU-25 countries and other advanced countries in the OECD, and the horizontal axis shows the rating for these countries on the European Innovation Scoreboard[2].

Graph 2.1 Per capita GDP (in PPP-€) and score in the European Innovation Scoreboard 2008



Source: Eurostat, PRO INNO Europe and Eustat. Prepared by the authors.
BCc: the value represented by BC (Capita GDP in PPP-€) adjusted for the price differential between Spain and the Basque Country.

[2] The European Innovation Scoreboard is a composite indicator developed by the European Commission in an effort to overcome the disadvantages of individual innovation indicators (R&D expenditure, patents, exports by technology level, etc.) taken separately.

PPP compensates price differentials between countries.

For example, with 1,000 euros it is possible to buy a few things in the Nordic countries, a bit more in Spain and even more in China. That is why welfare cannot be measured correctly using common currencies, such as euros or dollars and in consequence, they must be translated to PPP (a unit used by international organizations such as Eurostat or the OECD).

Due to the fact that national statistics institutes do not often publish regional data in PPP, when they have to do, it they apply the available value of the country. But, as is the case between the countries, there is a difference in prices between regions of the same country.

The Institute has made a contribution and has calculated per Capita GDP in PPP, adjusted for the price differential between Spain and the Basque Country, using the data published annually in "Cuadernos de Información Económica."

The Basque Country: higher per capita GDP scores than expected according to the European Innovation Scoreboard

As is clearly shown in Graph 2.1, in terms of per capita GDP, the Basque Country ranks high above the line of fit that would be expected for its European Innovation Scoreboard value, without that difference apparently being due to an extraordinary availability of natural resources capable of enabling the country to achieve higher income in the short or mid-range (as is the case of Norway, for instance) or to an exceptional contribution of foreign productive factors contributing to the territory's GDP (as is the case of cross-border workers in Luxembourg, for instance; in the case of the Basque Country, there are 30,000 people working inside the territory and residing outside it-).

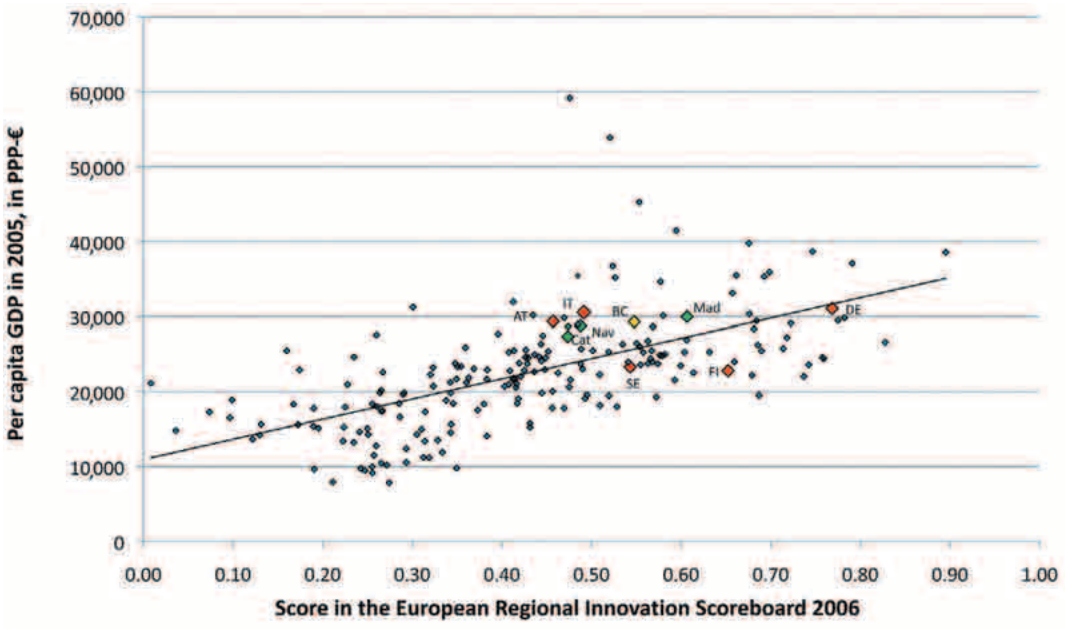
In terms of per capita GDP, expressed in purchasing power parities, the Basque Country only has 7 countries ahead of it (Luxembourg, Norway, USA, Ireland, Iceland, Switzerland, and Holland) and ranks not only above average for Europe, but also above countries as technologically advanced as Sweden, Finland, or Germany. Meanwhile, the European Innovation Scoreboard includes 16 countries ranking higher than the Basque Country, whose value is right below that of the EU-27.

One could claim that this paradox stems from comparing data from areas that are not entirely comparable: a region (the Basque Country) with data from countries or states. Given that economic and innovation-related activity is concentrated in certain regions within each country, it would be inappropriate to compare the data for an advanced region with those for a country as a whole (which, ultimately, is the average of all its regions): if the region being compared concentrates a large part of a country's economic and innovation-related activity, then its results are bound to be higher than the average for other countries. However, it would be different if the data for this region were compared with those for the most advanced regions within each country. In order to assess this as accurately as possible, Graph 2.2 shows the value for EU-25 regions in terms of per capita GDP (expressed in purchasing power parities) and in terms of the European Regional Innovation Scoreboard[3].

Graph 2.2 shows that, in fact, out of the 202 regions examined, 29 outrank the Basque Country in terms of per capita GDP and 54 rank higher on the European Regional Innovation Scoreboard. Therefore, although the Basque Country almost ranks in the first quartile as a

[3] Like the European Innovation Scoreboard, it is a composite indicator, yet it differs in the sense that, with less available innovation indicators for regions than for countries, it only includes seven individual innovation indicators.

Graph 2.2 Per capita GDP (in PPP-€) and score in the European Innovation Scoreboard 2006



Source: Eurostat, PRO INNO Europe and Eustat. Prepared by the authors.
The European regions marked with a red diamond are Baden-Württemberg (DE), Vorarlberg (AT), Länsi-Suomi (FI), Småland med Öarna (SE), and Lombardy (IT). The autonomous communities marked with green diamonds are Madrid, Catalonia, and Navarra.

The competitive paradox also appears in the regional analysis

region in terms of per capita GDP and regional innovation score, its relative position continues to be more favorable in terms of per capita GDP than in terms of innovation. When the Basque Country is compared to the series of regions within Europe and within Spain, chosen by industrial sectors and by their good per capita GDP performance, it also appears that although overall the Basque Country ranks in the middle within this reference group, it rates somewhat better for per capita GDP than for innovation.

Therefore, the initial impression is that the Basque Country shows a **favorable competitive positioning in terms of per capita GDP.** When we pose the question of whether this positioning is due to its innovation capacity—as would be expected in a region that is moving into an innovation-driven stage—we encounter the competitive paradox, which, as we will be seeing in the following sections, may have more to do with how competitiveness and innovation are measured than with a real imbalance between these elements.

Innovation indicators may explain the paradox

Although several elements that may shed light on this paradox through a deeper understanding of per capita GDP will be offered below, we must advance a consideration regarding innovation indicators that will later be elaborated upon in the Recommendations section. Not all companies innovate in the same way, and **current innovation indicators show biases** in favor of the technology-based modes of innovation.

Given the type of production activity prevailing in the Basque Country, it could be assumed that innovation in companies has focused on experience and interaction, which is only marginally picked up by the innovation indicators that were applied. It thus appears that the paradox could be due to companies developing the kind of innovation that is not picked up by the indicators.

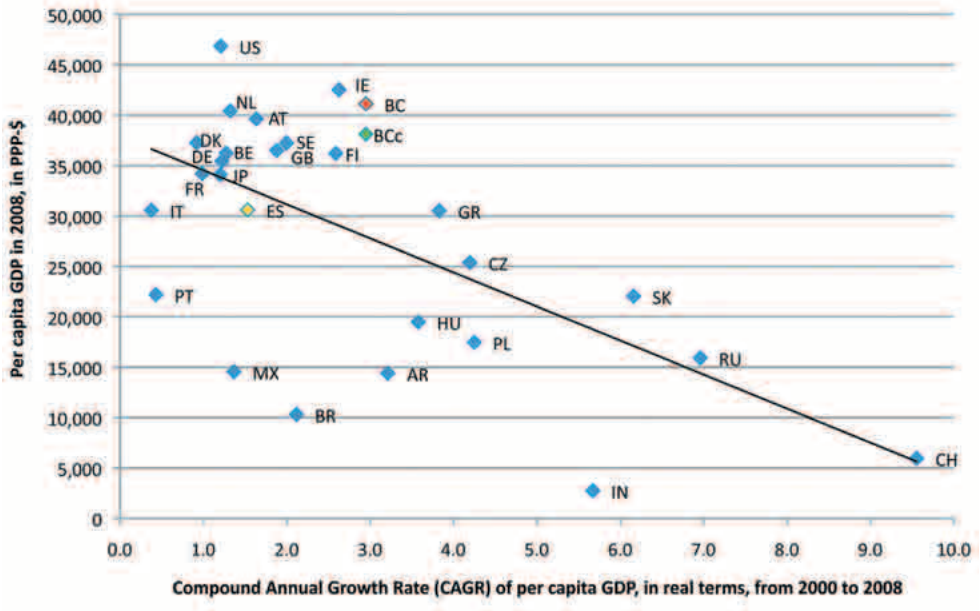
2.2.2. *Trends*

After having presented the Basque Country's relative competitive positioning for the past year with the available data, we briefly discuss the changing trend observed over this decade. In this case, the dynamic analysis focuses exclusively on the development of per capita GDP, since given that the methodology for calculating the European Innovation Scoreboard has changed every year, it is impossible to offer a homogeneous indication of its progress over a long enough period of time.

The Basque Country's GDP behavior stands out among advanced countries

Graph 2.3 shows that there has been some convergence in terms of per capita GDP in the countries included in the graph: its increase is greater in countries whose income was lower at the outset (emerging countries or countries who recently joined the EU) than in higher-income countries (Japan, EU-15, or USA). Among advanced countries, **the Basque Country's position is very salient:** among those countries whose per capita GDP is higher than 30,000 PPP-$, no country shows a growth rate higher than the Basque Country.

Graph 2.3 Per capita GDP in 2008 (in PPP-$) and Compound Annual Growth Rate (CAGR) of per capita GDP, in real terms, from 2000 to 2008



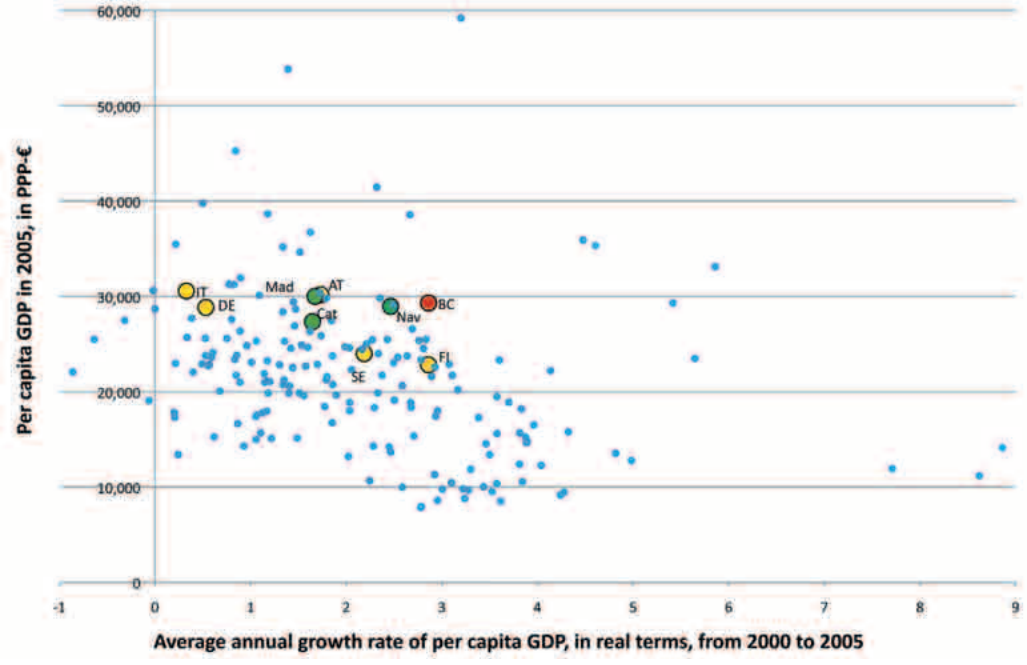
Source: IMF and Eustat. Prepared by the authors
BCc: the value represented by BC (Capita GDP in PPP-€) adjusted for the price differential between Spain and the Basque Country.

It is important to note that although differences between a country's regions are considerable in terms of per capita GDP (the regional effect being very important), in terms of per capita GDP growth these differences are weaker (the country effect being more relevant in terms of variation). Therefore, the difference in per capita GDP growth for the Basque Country as compared to Spain as a whole is more striking.

Growth in the Basque Country was higher than in other regions with similar per capita GDPs

Graph 2.4 allows for a similar comparison, in this case among regions. The outstanding position that the Basque Country showed for per capita GDP growth is somewhat moderated when compared to other regions: out of the 188 regions included in the graph, 50 show higher growth than the Basque Country. As is shown in the graph, most of these regions have lower per capita GDP levels, which leads one to believe that this is the logical outcome of a convergence process. However, if we compare the Basque Country's per capita GDP growth with that of regions with similar or higher per capita GDPs, or with the group of regions selected for comparison purposes, we see that very few achieve the Basque Country's growth rate. Specifically, among the group of regions in reference, only one region in Finland matched the Basque Country's level, and that was because it began with a far lower per capita GDP level at the outset. Therefore, the Basque Country's performance level was far higher than that of the group of selected regions.

Graph 2.4 Per capita GDP in 2005 (in PPP-$) and average annual growth rate of per capita GDP, in real terms, from 2000 to 2005



Source: Eurostat. Prepared by the authors
The European regions highlighted in yellow are Baden-Württemberg (DE), Voralberg (AT), LänsiSuomi (FI), Smaland mer öama (SE) and Lombardy (IT). The autonomous communities highlighted in green are Madrid, Catalonia and Navarra.

Positive progress of per capita GDP in the Basque Country

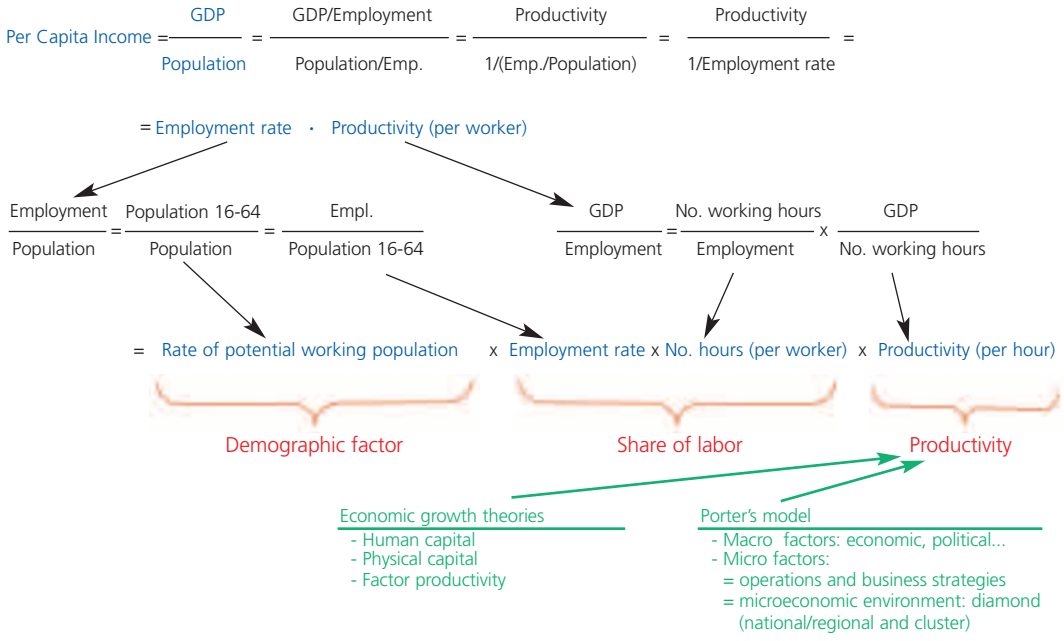
This section may lead to the conclusion that in terms of its progress over time, the Basque Country also shows a favorable behavior of its per capita GDP when compared to countries as well as to regions.

2.3. **Per capita GDP breakdown**

To further explain this high level of per capita GDP in the Basque Country, we will proceed to break down the underlying factors of per capita GDP.

The breakdown is shown in the box below, and in the following sections we will examine the Basque Country's position in terms of some of its main variables. In order to analyze each variable, we will examine the situation for the last year for which data are available and the progress shown for the same variable over the past ten years. Lastly, the per capita GDP will be analyzed according to sectors.

Per capita GDP breakdown



2.3.1. *Employment rate analysis*

As seen in the diagram above, per capita GDP for a country is based on:

- The percentage of the population that is employed (and, therefore, generating income), or employment rate.
- Apparent productivity obtained for each person employed, or productivity.

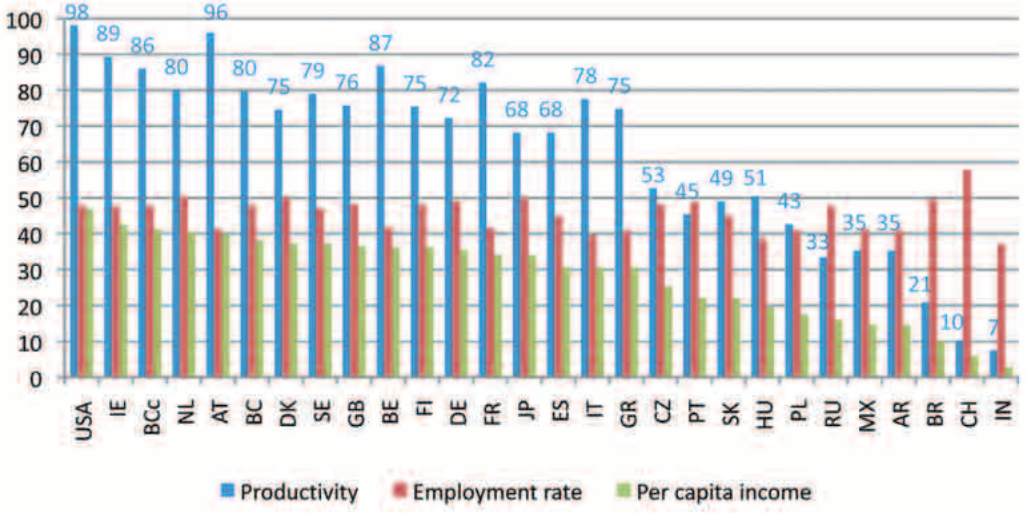
As far as the **employment rate** is concerned, there are physical and social limits for its rising above certain level. Obviously, there is the actual 100% limit (in other words, there cannot be more people employed than those existing in the country), but in addition, there

The Basque Country's employment rate holds an intermediate position among other countries

are ages when productive activity is not possible (childhood or old age), persons with disabilities who are unable to work, etc. Whereas in countries such as China, with a weak social and educational system (no retirement plans, a low percentage of the population with access to a college-level education) the employment rate reaches 58%, for an advanced country it may be more realistic to consider the limit as similar to that of Denmark or Holland, at 52%. The Basque Country, with a 47.7% employment rate, ranks in the middle among the countries considered in the Graph 2.5: position 15 out of the 28 countries included.

The Basque Country' has a better score **in terms of apparent productivity** for employees: at 79,000 PPP-$, it ranks 6th among the 28 territories in the graph.

Graph 2.5 Per capita income (thousands of PPP-$), employment rate (%) and productivity (thousands of PPP-$) in 2007



Source: IMF, Economic Outlook Database, April 2009; The Conference Board & Groningen Growth and Development Centre, Economy Database, September 2008; and Eustat.

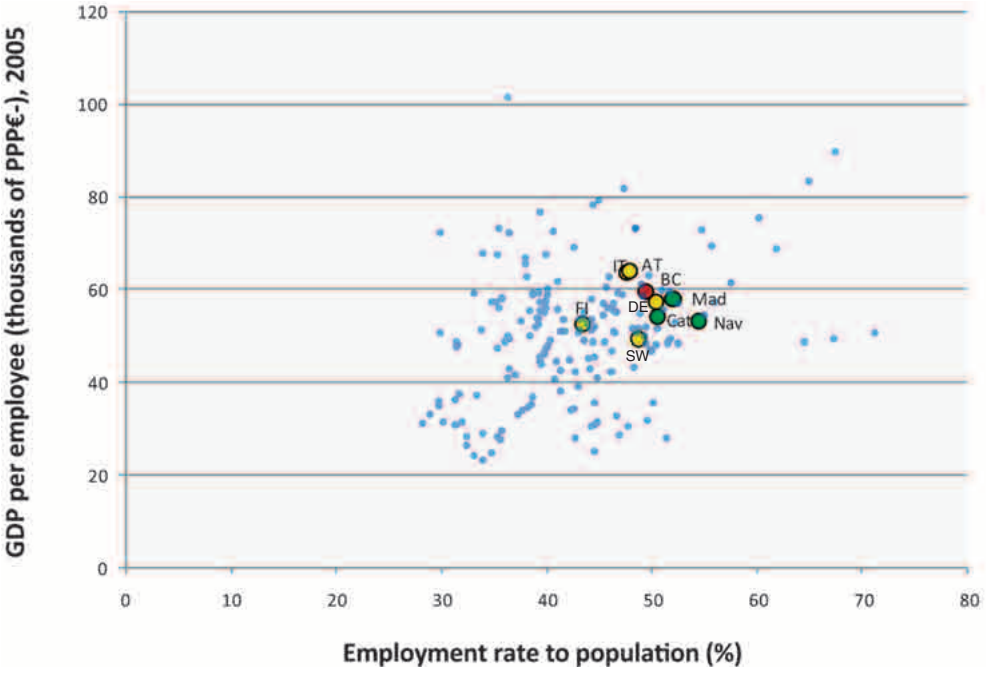
The Basque Country's productivity ranks high among European regions

If instead of comparing countries we compare the available date with those for **other European regions** (See Graph 2.6) we see that the Basque Country ranks fairly well, similarly for both variables as compared to the total of 188 regions: it has 34 and 33 regions ahead of it in terms of employment rate and productivity respectively. In relation to the group of regions referred to earlier, it also ranks somewhere in the middle, although the only regions ahead of it in terms of employment rate are the advanced autonomous communities in Spain.

Essentially, the Basque Country's favorable position in terms of per capita GDP stems from its good score in terms of its two primary components: apparent labor productivity and, in a somewhat lesser degree, employment rate. However, if we delve deeper into examining the

underlying factors that contribute to those favorable results in employment rate and apparent labor productivity, there are occasionally certain factors upon which it is important to act in order to maintain the current favorable positioning.

Graph 2.6 Productivity (thousands of PPP) and employment rate (%) in EU-25 regions



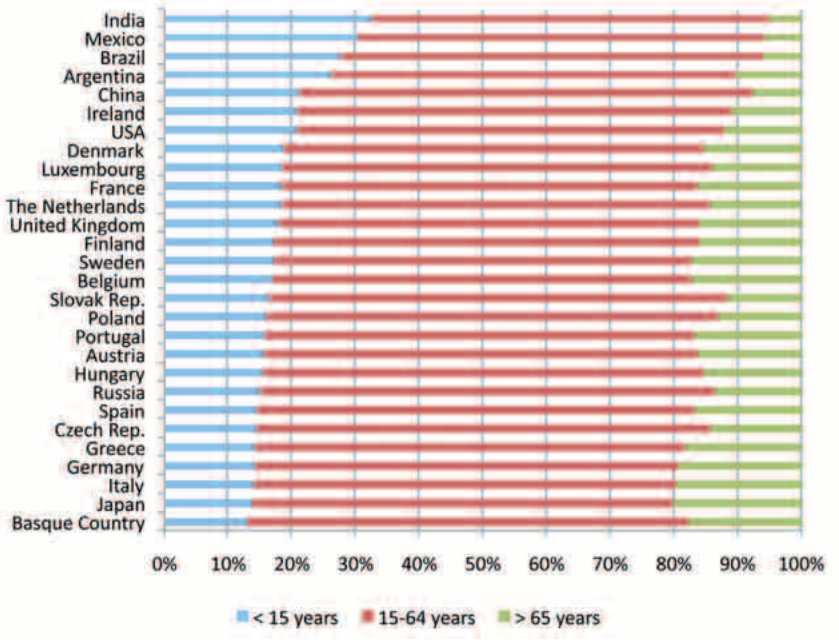
Source: Eurostat and the authors
The European regions highlighted in yellow are Baden-Württemberg (DE), Voralberg (AT), LänsiSuomi (FI), Smaland mer öama (SE) and Lombardy (IT). The autonomous communities highlighted in green are Madrid, Catalonia and Navarra.

Beginning with employment rate, Graph 2.7 shows that it is relatively high because the Basque Country exhibits a higher **concentration of working-age population** (ages 15-64) and a lower percentage under the age of 15. Although in the short term having a higher working-age population is positive for per capita GDP purposes, in the mid- and long-term the **aging process** can have a negative effect in the Basque Country, due to the size of the future work force, spending on pensions and health care, innovative and entrepreneurial spirit, etc.

Aging population poses a challenge for the Basque Country

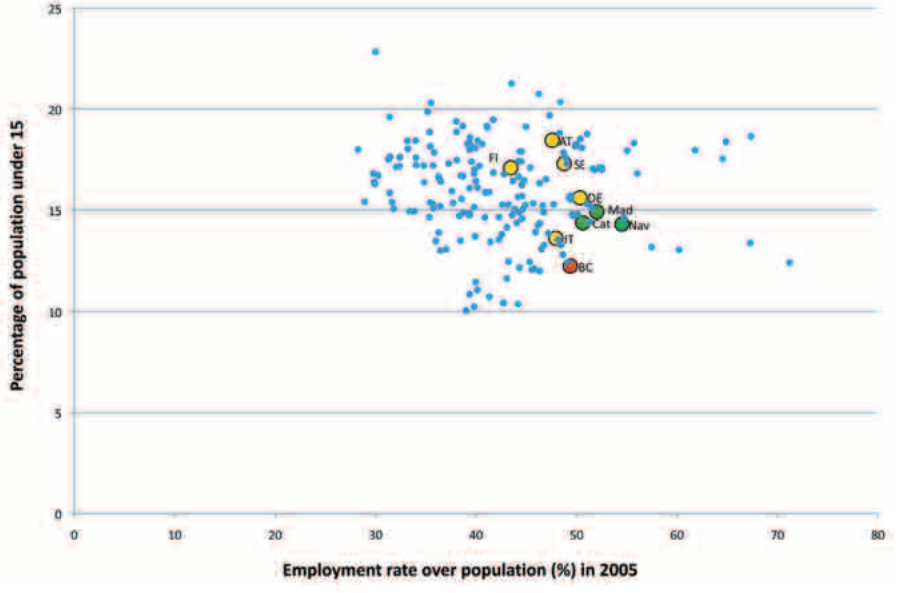
Again, compared to other regions, the Basque Country has a very low proportion of under-15s, and therefore a striking population aging process (See Graph 2.8). This percentage is lower than that of other advanced autonomous communities in Spain and of the relevant industrial regions in Europe. In addition to this low population growth, the Basque Country has a lower immigration rate than other autonomous communities.

Graph 2.7 Population distribution by age groups in 2006 (%)



Source: World Bank, World Development Indicators 2008. Eustat.

Graph 2.8 Employment rate and percentage of the population under 15 in European regions



Source: Eurostat and the authors.

The European regions highlighted in yellow are Baden-Württemberg (DE), Voralberg (AT), LänsiSuomi (FI), Smaland mer öama (SE) and Lombardy (IT). The autonomous communities highlighted in green are Madrid, Catalonia and Navarra.

Therefore, another one of the considerations that will be addressed again in the Conclusions and recommendations section is the need to take into account the population pyramid in terms of maintaining the percentage of working-age population.

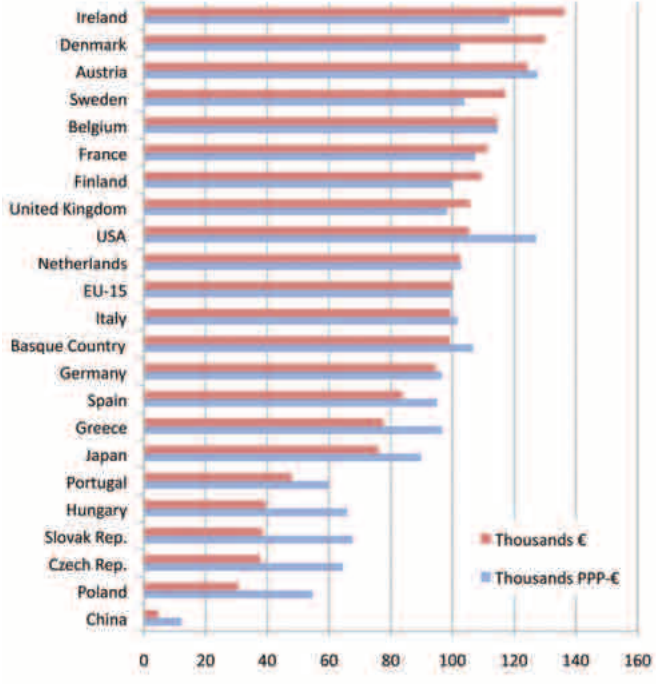
2.3.2. *Productivity analysis*

As far as productivity is concerned, Graph 2.9 shows that the Basque Country's favorable level drops 7% if productivity is calculated in euros instead of PPPs. Therefore, whereas the Basque Country's productivity level ranked sixth among the 23 territories included in Graph 2.9 when it was calculated in PPPs, it moved down to twelfth when it was calculated on the basis of euros. Again, this would indicate an area to be improved.

PPPs (Purchasing Power Parities) are used as an improved measurement of the degree of well-being or wealth created, whereas euros or dollars are a better indication of a country's market positioning, thus indicating its products' level of competitiveness in competitive markets.

Therefore, there is room for improvement in increasing product competitiveness in the Basque Country.

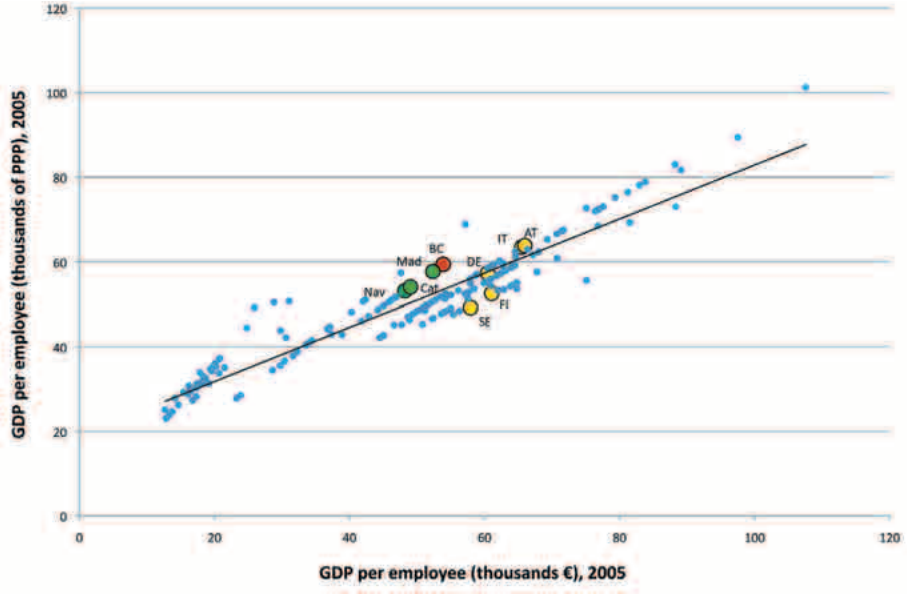
Graph 2.9 Comparison of apparent labor productivity measured in PPP-$ and in euros in 2007



Source: IMF Economic Outlook Database 2008; Eustat.

At the **regional level**, the positioning of both the Basque Country and of the other Spanish autonomous communities drops when productivity is compared in euros instead of PPPs (see Graph 2.10). Compared to the other industrial regions in Europe, the Basque Country appears to be the one with lowest productivity in euros, whereas in PPPs it held an intermediate/high position.

Graph 2.10 Comparison of productivity, measured in euros and PPPs, in 2005, in European regions



Source: Eurostat. Prepared by the authors
The European regions highlighted in yellow are Baden-Württemberg (DE), Voralberg (AT), LänsiSuomi (FI), Smaland mer öama (SE) and Lombardy (IT). The autonomous communities highlighted in green are Madrid, Catalonia and Navarra.

The main challenge: to close the gap between productivity measured in PPPs and in euros

The main challenge identified in this section, which we will revisit under Conclusions and recommendations, is the difference between productivity measured in purchasing power parities and in euros. Product market value has made it possible to maintain a standard of living that would have been lower in other countries to which it was compared, because living in the Basque Country is relatively cheaper than in those other countries. Therefore, we must focus on improving our products' competitiveness in order to ensure the current standard of living in the long term.

2.3.3. *Analysis by sectors*

The industrial sector is the most productive

Last of all, productivity of the economy as a whole may be higher or lower depending on the sectoral breakdown, given that productivity does vary from one sector to the other, while this sectoral breakdown also varies across different countries or regions.

As shown in Table 2.1, all the territories included in the table indicate that the productivity is **highest in the industrial sector**, and it is the lowest by far in the agricultural and livestock sector; services and construction are in between these two (construction showing somewhat lower productivity than services).

In the case of the Basque Country, productivity in the industrial and service sectors (the two strongest areas in the economy) are very similar to the average for the EU-14, which is not the case for Spain as a whole.

Table 2.1. Percentage distribution of GVA and employment in the four basic sectors, and apparent labor productivity (2006)

	GVA (percentage distribution)				Employment (percentage distrib.)				GVA/Employment (thousands €)			
	Basque Country	Spain	EU-14	US	Basque Country	Spain	EU-14	US	Basque Country	Spain	EU-14	US
Agriculture	0.9	2.9	1.8	1.0	2.5	4.7	4.1	1.5	19.7	26.6	23.4	43.3
Industry	29.4	18.2	20.4	16.9	25.5	16.3	17.2	10.9	64.2	48.9	64.2	106.4
Construction	9.0	12.2	6.2	4.8	9.8	12.7	7.5	6.4	51.3	41.8	45.0	51.2
Services	60.8	66.7	71.5	77.4	62.3	66.3	71.2	81.3	54.4	44.0	54.2	65.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	55.7	43.7	54.0	68.2

Source: OECD, STAN Base, and Eustat, TIO. Prepared by the authors.
EU-14: data not available for UK, and data for Sweden are from 2005.

To further explore the differences in productivity for the economy as a whole (seen in Table 2.1, we performed a shift-share analysis, breaking down the economy into 26 sectors.

Shift-share analysis

Shift-share analysis is used to break down the difference in productivity (GVA/Employment) between two territories into three components: one sectoral component, one concerning the differences between productivity in each sector, and one concerning the interaction between the first two components.

The results of the shift-share analysis, shown in Table 2.2, lead to the conclusion that the somewhat higher productivity of the Basque Country's economy as a whole in relation to the EU-14 is due to:

1. Higher productivity which, compared across sectors, the Basque Country shows in relation to the EU-14 (particularly true in the energy and water sectors, health social work, non-metal industry, hotels & restaurants, transportation, and communications sectors).
2. Certain degree of specialization in the Basque Country's economy in the sectors with highest productivity.

Table 2.2. GVA per employee in all sectors and results of a shift-share analysis with a breakdown of the differences in the economy as a whole (2006)

	NACE Rev1	Basque Country	Spain	EU-14	US
Farming/Fishing	01-05	19.7	26.6	23.4	43.3
Extractive industries	10-14	154.0	50.3	180.1	326.5
Food, beverage and tobacco	15-16	55.4	39.5	49.2	74.7
Textiles, Clothing, Leather and Footwear	17-19	30.0	23.3	31.8	41.3
Wood	20	40.3	28.3	38.6	50.4
Pulp, paper and graphic arts	21-22	54.1	49.6	59.3	93.4
Chemicals and plastics	23-25	76.4	83.5	94.6	165.6
Nonmetal industry	26	80.0	49.0	57.5	81.7
Metallurgy	27-28	57.0	45.0	55.1	75.3
Machinery and equipment	29	55.9	46.3	61.4	81.6
Electrical and optical materials	30-33	51.1	42.4	66.1	84.1
Transportation material	34-35	64.1	46.0	68.9	84.0
Other manufacturing	36-37	42.8	30.4	37.8	60.7
Energy and water	40-41	435.3	171.4	183.1	395.9
Construction	45	51.3	41.8	45.0	51.2
Trade	50-52	43.2	30.8	40.3	55.8
Hotels & restaurants	55	40.0	45.7	34.4	24.4
Transportation and communications	60-64	76.2	50.4	64.2	88.5
Financial intermediation	65-67	165.3	105.1	100.9	132.7
Business services	70-74	74.9	79.0	96.6	114.0
Government and defense	75	47.7	38.6	49.5	61.8
Education	80	35.8	40.2	42.1	40.0
Health and social work	85	56.0	37.7	40.2	43.8
Other personal and social services	90-93	32.5	22.3	36.8	39.2
Domestic economies with employees	95	9.0	0.0	9.6	9.5
Total sectors	01-99	55.7	43.7	54.0	68.2
Difference between country and EU		1.8	-10.3	0.0	14.2
Productivity effect		2.5	-8.4	0.0	14.6
Effect of sectoral composition		0.8	-2.5	0.0	1.4
Effect of interaction		-1.5	0.6	0.0	-1.7

Source: OECD, STAN Base, and Eustat, TIO. Prepared by the authors.
EU-14: data not available for UK, and data for Sweden are from 2005.

It is particularly advisable to analyze the differences in productivity in the manufacturing industry, where the influence of external competition is stronger. The chart below shows that the Basque Country's advantage over the EU-14 in terms of productivity for the manufacturing industry as a whole is solely due to its specialization in higher productivity sectors, given that the productivity component (which provides a sector-by-sector measurement of which of the two territories has a greater advantage) is negative for the Basque Country. In other words, when we focus exclusively on the manufacturing industry, the Basque Country is specialized in high productivity sectors, although some of its sectors exhibit slightly lower levels than those of the EU-14.

Table 2.3. GVA per employee in manufacturing sectors and results of a shift-share analysis with a breakdown of the differences in productivity in the manufacturing industry as a whole (2006)

	NACE Rev1	Basque Country	Spain	EU-14	US
Textiles, Clothing, Leather and Footwear	15-16	55.4	39.5	49.2	74.7
Food, beverage and tobacco	17-19	30.0	23.3	31.8	41.3
Wood	20	40.3	28.3	38.6	50.4
Pulp, paper and graphic arts	21-22	54.1	49.6	59.3	93.4
Chemicals and plastics	23-25	76.4	83.5	94.6	165.6
Nonmetal industry	26	80.0	49.0	57.5	81.7
Metallurgy	27-28	57.0	45.0	55.1	75.3
Machinery and equipment	29	55.9	46.3	61.4	81.6
Electrical and optical materials	30-33	51.1	42.4	66.1	84.1
Transportation material	34-35	64.1	46.0	68.9	84.0
Other manufacturing	36-37	42.8	30.4	37.8	60.7
Total sectors	01-99	55.7	43.7	54.0	68.2
Difference between country and EU		1.8	-10.3	0.0	14.2
Productivity effect		-0.4	-2.1	0.0	4.2
Effect of sectoril composition		5.5	-0.7	0.0	-3.6
Effect of interaction		-0.2	0.2	0.0	-1.5

Source: OECD, STAN Base, and Eustat, TIO. Prepared by the authors.
EU-14: data not available for UK, and data for Sweden are from 2005.

Industrial specialization in the Basque Country and lower productivity than other regions

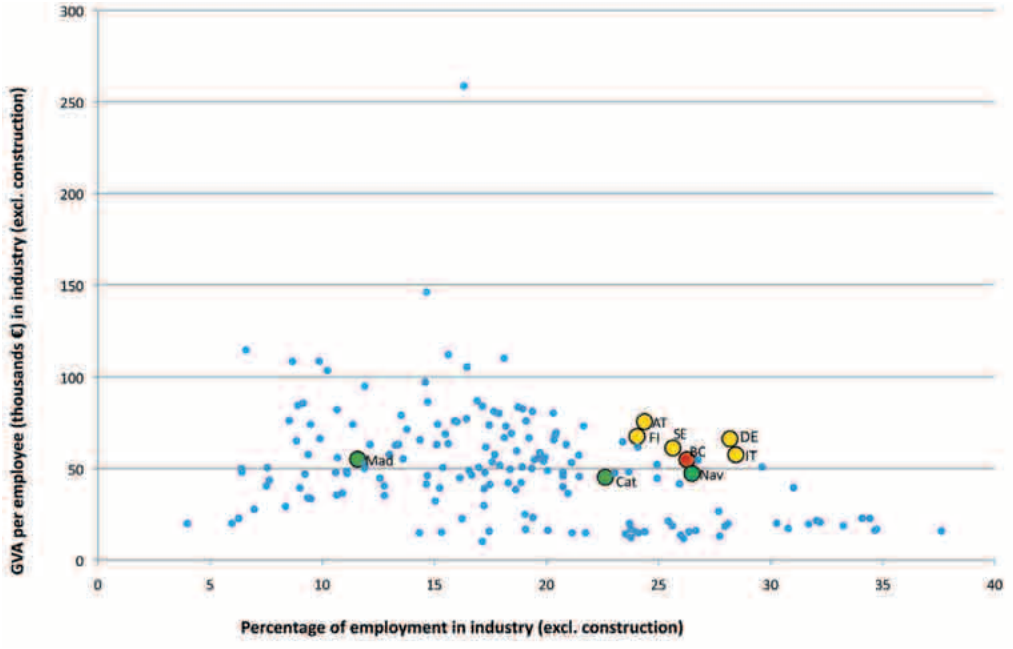
We could also consider a sectoral breakdown of the economy at the regional level, although in this case with less sectoral disaggregation, given that fewer data are available for that level. For the purpose of brevity in our analysis, we only considered the relative weight of employment and productivity in the industrial sector (not including construction) given that it is the one of the four major sectors with highest productivity.

Graph 2.11 shows that the Basque Country is markedly specialized in this sector: in only 24 regions out of 188 is the industrial employment rate higher than in the Basque Country. Even compared to the groups of European industrial regions and advanced autonomous communities considered in this section, the Basque Country shows a markedly industrial profile, second only to Lombardy, Baden-Württemberg, and Navarra. In terms of productivity in this sector, the Basque Country ranks below all the industrial regions considered, although it does rise above the values for advanced autonomous communities in Spain.

The challenge of improving productivity

Although the Basque Country does have appropriate sectoral specialization, it seems necessary to persevere in the attempt to improve productivity in the manufacturing industry as a key element for competitiveness. Understanding how innovation can facilitate productivity is one of the critical elements for advancing towards the new competitive stage.

Graph 2.11 Relative weight of employment (% of total) and apparent labor productivity (thousands of €) in industry (w/o construction) in European regions (2005)



Source: Eurostat. Prepared by the authors.
The European regions highlighted in yellow are Baden-Württemberg (DE), Voralberg (AT), LänsiSuomi (FI), Smaland mer öama (SE) and Lombardy (IT). The autonomous communities highlighted in green are Madrid, Catalonia and Navarra.

2.4. **Conclusions and recommendations**

The overall conclusion for this section is that the Basque Country shows a **favorable competitive positioning** in terms of per capita GDP. When we posed the question of whether this competitive performance was based on innovation, we encountered what is referred to as the competitive paradox. After breaking down the per capita GDP into its different components and considering the current competiveness indicators, we observed that this paradox could be the result of how the facts were being measured rather than a real contradiction.

In this context, we have grouped our recommendations and conclusions into those aimed at universities and research institutions, at public authorities, and at institutions for collaboration.

2.4.1. *Recommendations for universities and research institutions*

Developing more accurate measurements to be applied internationally

In the short run, the weaknesses of the available measurements must always be taken into account. In the mid- and long term, we perceive a considerable challenge in working towards developing more accurate measurement systems. This leads to two main recommendations:

1. First, to ***continue searching for competitiveness indicators*** to complement those currently available by integrating new elements, such as social and environmental considerations, as well as other forms of innovation , in keeping with the notion of competitive sustainability.
2. Second, to make this effort in the context of ***international alliances***, so that when new indicators are defined in the future, they can be taken on by enough countries and regions to allow meaningful comparisons to be drawn. In further sections we will be presenting typologies that may be useful in focusing these efforts towards the most appropriate regions and institutions and in searching for appropriate mechanisms and instruments for collaboration.

2.4.2. *Recommendations for public authorities*

The per capita GDP breakdown enabled us to detect areas that call for a sustained effort to ensure the future competitive level. This makes it possible to offer a series of recommendations to public authorities.

The need for an appropriate immigration policy

Given the current population pyramid, with its high concentration of working-age people (aged 15-64) and relatively small proportion of under-15s, the Basque Country needs to prepare for a situation in which competitiveness may be adversely affected by a decline in the labor force. As has been noted in the past, an ***appropriate immigration policy*** is necessary for maintaining the current level of competitiveness[4].

Boosting innovation policies

Meanwhile, the different measurements performed indicate that, although the current standard of living is favorable, an ongoing effort is necessary to improve product competitiveness in the marketplace and manufacturing productivity in euros. Given the competitive stage ahead, this requires boosting innovation policies geared towards improving the degree to which companies are capable of transforming new elements into market value.

2.4.3. *Recommendations for institutions for collaboration*

The Basque Country's efforts towards defining appropriate indicators for measuring competitiveness and innovation have not focused exclusively on the areas on public authorities and research. Support is currently being provided by the institutions for collaboration around which these agents are grouped. Therefore, in this section we must include recommendations for these institutions for collaboration, assuming that in doing so these recommendations will be aimed at public authorities and researchers alike, as well as at the private agents with whom they work on these projects.

The need for a thorough understanding of how companies learn and innovate

Our considerations concerning the competitive paradox stress the need for, first and foremost, a thorough understanding of the mechanisms companies use to learn and innovate. This understanding is essential for defining indicators that truly reflect the innovation that is under way. Therefore, the processes for defining indicators must include both quantitative and qualitative studies that make it possible to assess innovation at the company level.

[4] The group working on the Professional Deficit in the Basque Competitiveness Forum 2015 defined a vision and strategic market challenges for 2015, available at www.euskadi2015.net.

The risks involved in the different indicators—even those most widely used—have also been presented throughout this section. This allows for a final recommendation. Setting objectives based on positioning according to indicators is necessary, but can sometimes be misleading. If the different players involved in competitiveness do not consider the indicator-based objective within the context of a thorough understanding of the real changes that need to be done, they could bring on better indicator positioning that did not actually involve progress along the real road to competitiveness. Hence the messages about indicators must be conveyed alongside shared learning processes, co-generating new knowledge that can enable the new players to have an indicator-oriented vision that is also capable of being critical about those indicators.

Real changes that improve indicators vs. improved indicators without real changes

3. Competitive performance of companies in the Basque Country

3.1. **Introduction**

In the section above we analyzed regional performance for the Basque Country as a whole. In this section, we will consider **competitive performance in companies**. The purpose of this section is to present the results for companies in the Basque Country. The overall conclusion is positive, and the resulting recommendations focus on elements that ought to be reinforced so that, bearing in mind the global situation, the future course may continue to be so.

While we considered that the main performance indicator for regions was per capita GDP, for companies it is **profitability**. Therefore, this section offers:

1. First, a **business and financial analysis** of the companies in the Basque Country as a whole.
2. Next, this analysis is completed with a study of the three other elements that were highlighted as basic in the Basque Competitiveness Forum 2015: **company size**, creating **groups of companies**, and **internationalization**.
3. Entrepreneurial activity in the Basque Country and companies' early-stage performance are also analyzed.
4. Lastly, this group of elements leads to a section with **conclusions and recommendations**.

As occurred when we analyzed regional performance, current data do not yet accurately reflect the effects of the crisis on our business environment. Therefore, although this section is based on the latest available data, it does not reflect the situation experienced over the past months, except in some isolated instances.

3.2. **Economic and financial analysis of Basque companies**

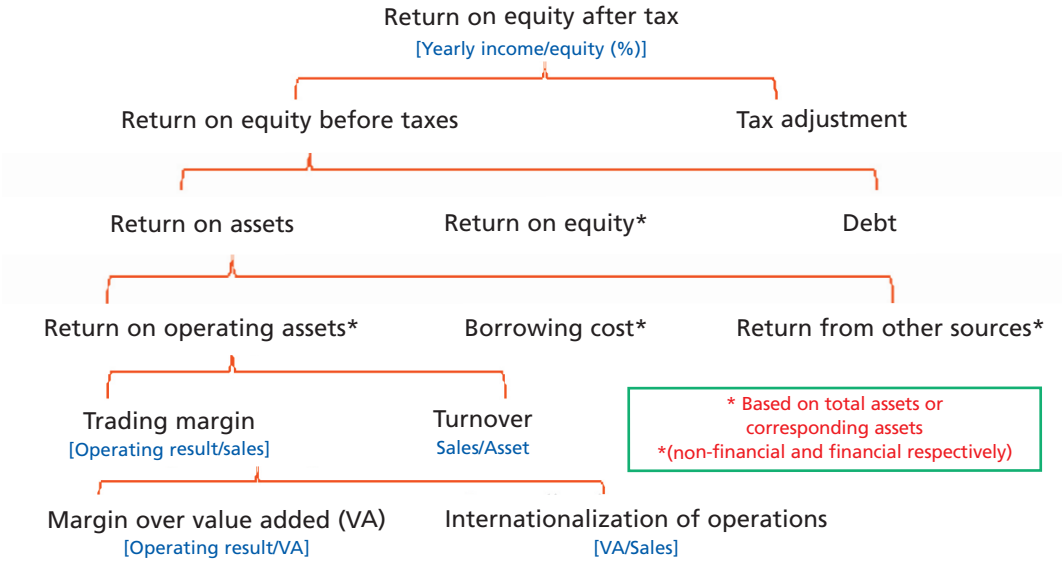
The company's competitive edge: above industry average return on assets

As we mentioned earlier, the most straightforward, widespread indicator for measuring competiveness in companies is their return on assets, i.e., the profit obtained for each euro of assets. A company is considered to have a competitive advantage when its return on assets is higher than average in its industry. This advantage can be due to **greater operational efficiency** or to the company having managed to differentiate itself and develop a **unique value proposition**.

Return on assets varies between industries, depending on industry structure (bargaining power of suppliers, bargaining power of customers, threat of substitute products, etc.). Therefore, the return on assets of a given region's companies depends not only on the companies' operating efficiency and strategic positioning, but also on the industries they operate in.

The key variables used for the financial analysis in this section are shown in the box below.

Key variables in the business and financial analysis



We will now proceed to analyze the above indicators for manufacturing industries in the Basque Country, for other autonomous communities in Spain, and for those EU companies who submit their data to the European Commission. Unlike the industrial sector analyzed in several sections of this report, manufacturing industry does not include the mining or energy sectors.

The data for European countries have been drawn from the BACH Project .

BACH Project

The Directorate General for Economic and Financial Affairs of the European Commission publishes the BACH database, which contains harmonized accounts statistics for companies in certain countries in Europe, the United States, and Japan.

There are essentially two reasons that led us to **focus our analysis on manufacturing industry**: it is the sector that is most open to competition, and, therefore, at higher risk of

offshoring; it is also the sector for which the data for all the regions compared is most representative, most complete and most consistent.

Notes on the sources used for this study

- Statistics for the Basque Country and Spanish autonomous communities are drawn from data provided by companies in the registry of business enterprises and cooperatives, compiled and marketed by SABI-Informa.
- The selected period is 2002-2007. Our reason for not reaching further back is that the number of companies included in the sample would have dropped considerably.
- In addition, data from the Bank of Spain's Central de Balances show that 2002 was the year when return on assets hit its lowest point. Thereafter, a growth cycle began, following the problems the economy had due to the crisis in telecommunications companies, political and economic uncertainty after 9/11 and the war in Afghanistan, and the negative impact of Latin American investments (particularly in Argentina) on Spanish companies' income statements.
- 2007 is the last year for which data were available for a significant number of companies.

Lastly, it is important to note that accounting regulations and practices vary considerably from one country to the next, and therefore **the results of comparisons across countries must be considered with caution**, even when they are drawn from bases such as the BACH Project, which tries to harmonize data submitted by different countries. As shown in the literature, comparisons between countries are more useful for observing changes over time than for showing levels in a given year.

3.2.1. *Return on equity*

Basque Country has second highest return on equity among Spanish autonomous communities

As shown in Table 3.1, **return on equity** after taxes for manufacturing companies in the Basque Country ranks among the highest in Spain, second only to companies in Madrid, and only one decimal point behind them. This excellent position held by Basque companies is largely due to a **lower deduction for tax adjustment** on return on equity before taxes. Only companies in the Canary Islands and Navarra have a lower tax burden than companies in the Basque Country. The tax burden is also surprisingly low for companies in La Rioja, despite its not having a special tax system as the other autonomous communities do. Be that as it may, as indicated, Basque companies rank somewhat lower in terms of their return on equity when calculated before taxes: not only does the difference with Madrid increase, but also other communities along the northern coast of Spain (Cantabria, Galicia, and Asturias) move ahead of the Basque Country.

Table 3.1 Return on equity among Spanish manufacturing companies (2007)

	Return on equity after tax	Tax adjustment	Return on equity before taxes
C. Madrid	14.0	4.1	18.0
Basque Country	13.9	2.7	16.6
Cantabria	13.2	4.8	18.1
Galicia	12.7	4.9	17.6
P. Asturias	12.3	5.0	17.3
Catalonia	11.8	4.0	15.8
C.F. Navarra	11.7	2.4	14.1
Total Spain	11.7	4.0	15.6
Balearic Is.	9.8	3.8	13.6
C. Valencia	9.6	4.1	13.7
R. Murcia	9.5	4.1	13.6
Canary Is.	9.5	1.1	10.6
Castile-León	9.4	3.7	13.2
Castile-La Mancha	9.4	4.1	13.4
Extremadura	9.2	3.6	12.8
Andalusia	8.6	4.1	12.7
La Rioja	7.5	2.8	10.3
Aragon	6.8	7.8	14.6

Source: SABI-Informa, DVD, February 2009.

The Basque Country: higher return on equity than the European average

As we mentioned earlier, caution is needed when comparing the results of comparisons between different countries. Even so, Table 3.2 indicates that return on equity for Basque manufacturing companies, both before but particularly after taxes, ranks higher than the European average. On the other hand, the tax burden born by manufacturing companies in the Basque Country is lower than the average for European companies. Within the EU, Germany shows particularly low return on equity, whereas for Austria it is particularly high.[5]

[5] Whereas Germany exhibited low ROI practically all the years considered in the study (2002-2007), Austria's behavior is highly cycle-dependent, given that ROI after taxes for Austrian companies never reached 20% in any other years during that period.

Table 3.2 Return on equity for manufacturing companies in the Basque Country, Spain, and European Countries Included in the BACH Project database

	Return on equity after tax	Tax adjustment	Return on equity before taxes
Austria	30.1	4.6	34.7
Netherlands	22.0	1.6	23.6
Poland	20.0	3.2	23.1
Basque Country	13.9	2.7	16.6
France	13.1	4.8	17.9
Belgium	12.7	1.8	14.6
Finland	11.8	3.0	14.8
Spain-SABI	11.7	4.0	15.6
Spain-BACH	11.0	3.9	14.9
EU-10 Average	10.2	3.3	13.5
Portugal	9.1	3.5	12.6
Italy	8.9	7.8	16.7
Germany	4.8	0.5	5.4

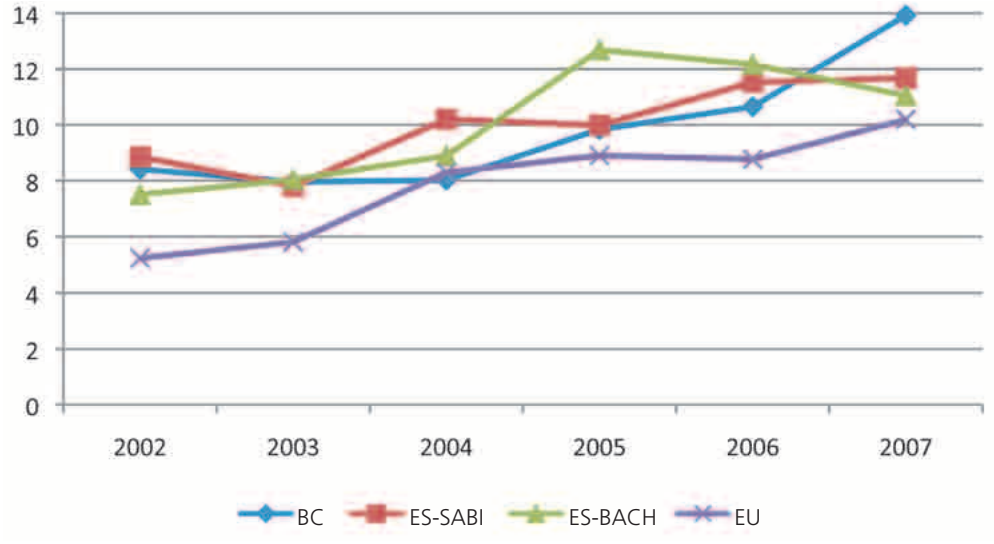
Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.
Data for 2007, except for Finland (2005) and Netherlands (2006).

Growth of return on equity

Graph 3.1 shows the **trend in return on equity before** taxes in the Basque Country, in Spain, and in the group of ten European countries considered. On one hand, it appears that after 2002 or 2003, return on equity among manufacturing companies improved considerably in all countries when they overcame the global economic slowdown that began in 2000.

On the other hand, it appears that both for the Basque Country and for Spain, return on equity was above the average for Europe in all the years considered. When we compare the Basque Country to the average for Spain, it appears that until 2006 return on equity after taxes for Basque manufacturing companies was slightly lower than the Spanish average, whereas on account of spectacular growth in 2007, towards the end of the period considered, return on equity for Basque companies clearly ranked higher than the average for Spain.

Graph 3.1 Trend in return on equity after taxes



Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

3.2.2. *Leverage analysis*

As we mentioned earlier, **return on equity is affected by leverage**:

- On the one hand, by the difference between companies' return on assets and their cost of debt;
- and, on the other hand, by companies' financial leverage.

The level of disaggregation in the accounts filed by most companies does not enable us to distinguish between debt with apparent cost (e.g., bank debt) and debt without apparent cost (e.g., business debt through delayed payment to suppliers). Therefore, in the estimate of the **cost of debt** made in Table 3.3, the explicit financing cost can only be related to total debt (both with and without explicit cost), which underestimates the real cost of debt, so that the resulting figure can be considered no more than a rough indication of said cost.

Likewise, the **debt ratio** has been calculated (short and long-term) debt divided by equity. We added some financial ratios for short-term debt (current liabilities as a percentage of total liabilities) and cash, which may be useful for assessing the relative position of companies in each territory in situations such as the current crisis, with a drastic cutback in financing and severe cash flow problems.

Basque Country has lowest apparent cost of debt

Despite all the reservations due given the observations we made above, Table 3.3 seems to indicate that Basque companies have one of the lowest apparent costs of debt. This may be partly due to a **highly developed financial system in the Basque Country** (with some of the most advanced reciprocal guarantee firms in Spain and an efficient, highly competitive banking system).

Table 3.3 Leverage analysis for manufacturing companies in Spanish autonomous communities (2007)

	Return on equity (1)	Apparent cost of debt (2)	Difference: (1) - (2)	Debt	Short-term debt	Cash (% asset)
C. Madrid	38.7	2.5	36.2	227	32.1	1.5
Total Spain	18.6	2.8	15.7	163	37.5	3.3
C. Valencia	16.7	3.7	12.9	161	44.5	5.1
Cantabria	16.1	3.4	12.7	134	43.9	3.7
Basque Country	14.4	2.4	12.0	113	33.6	2.5
P. Asturias	13.7	3.9	9.8	97	26.5	2.4
Catalonia	13.1	3.0	10.0	141	38.0	4.6
C.F. Navarra	12.3	2.0	10.3	217	32.7	2.8
Aragon	11.5	2.4	9.1	160	47.2	3.9
Andalusia	11.4	3.2	8.2	170	44.5	4.0
Galicia	11.1	2.8	8.2	168	50.5	4.3
R. Murcia	10.8	3.3	7.5	171	46.5	5.9
Balearic Is.	10.8	3.3	7.6	134	41.2	6.8
Castile-La Mancha	10.8	2.6	8.2	167	45.9	4.6
Extremadura	9.9	2.9	7.1	165	43.9	3.8
Canary Is.	9.8	2.9	6.9	95	32.4	6.7
Castile-León	9.4	2.9	6.5	157	39.8	2.9
La Rioja	9.3	3.0	6.3	115	37.7	3.9

Source: SABI-Informa, DVD, February 2009.

It seems reasonable to state that despite the cost of debt being undervalued, as we described above, it is clearly lower than return on assets in all autonomous communities. Therefore, in a situation of positive leverage, as occurred in 2007, the greater the companies' level of borrowing was, the higher the return on equity for their shareholders. However, in a different context, such as the current situation in which return on assets has plummeted and borrowing costs are increasing (given that banks have not transferred the Central European Bank's cuts in interest rates to their customers, but instead have chosen to become more demanding and increase their margins), and many companies have begun to show negative leverage, a lower level of borrowing implies a lower drop in return on equity, in addition to greater financial soundness and increased potential for survival.

The Basque Country: low leverage compared to other autonomous communities

Table 3.3 shows that manufacturing companies in the Basque Country exhibited some of the lowest levels of borrowing of all Spanish autonomous communities autonomous Spanish (after the Canary Islands and Asturias). This reduced the return on equity for Basque manufacturing companies during the period considered in this study, but it also offered certain advantages: in addition to enabling the development of strategies such as internationalizing production or purchasing other companies (which, given the higher risk involved, rely primarily on equity), it also endowed Basque companies with **greater financial soundness and resilience** to face crises and periods of financial difficulties such as these, when a change in the leverage sign

(from positive to negative) makes for less of a negative effect on the return on equity for companies with lower debt ratios.

Lower reliance on short-term financing

Another indicator that confirms this greater financial soundness of Basque companies is their lower reliance on short-term financing. Although there are other autonomous communities whose percentage of short-term financing is even lower, for the Basque manufacturing industry, financing is almost four points lower than the average for Spain, which is favorable in conditions such as the present ones where banks are becoming increasingly restrictive in their requirements for refinancing loans and companies are facing greater cash flow problems.

Mutual guarantee companies favor higher proportion of long-term financing

It seems obvious that the widespread introduction of mutual guarantee companies in the Basque Country and the long-term financing formulas these offer may have played an important part in that **greater weight of long-term financing**. The ratio of cash to total assets is lower for manufacturing companies in the Basque Country than in Spain as a whole. Although this may mean that Basque companies have fewer truly liquid assets during these cash-poor times, it is also an indication of more efficient cash management among Basque companies.

Lower levels of borrowing allow for strategies with higher risk and a broader scope

Table 3.4 shows that, while **manufacturing company leverage** in Spain is the highest, after Italy, of all the European countries we analyzed, Basque manufacturing companies rank considerably lower than companies from other countries in the study taken as a whole, with all the implications this has for profitability, financial soundness, and the possibility of applying strategies involving higher risk and a broader scope. In addition, while manufacturing companies in Spain as a whole are more dependent on short-term financing than average European manufacturing companies, in the case of manufacturing companies in the Basque Country the opposite occurs, which must also be considered as a positive sign of financial soundness and resilience during these times when refinancing can be difficult. Lastly, Basque companies show a lower percentage of assets deposited in banks and savings banks, which appears to indicate higher efficiency in their cash management, although this may detract from their ability to react quickly during cash-poor times such as these.

Importance of trade credit accounts for lower cost of debt in Basque Country and Spain

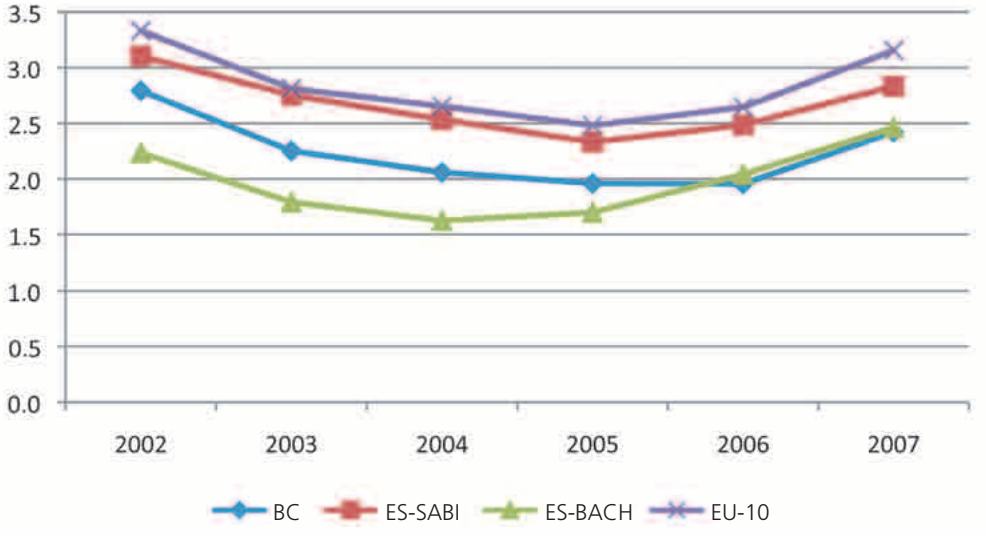
Graph 3.2 shows the changes in the apparent cost of debt among manufacturing companies in the Basque Country, in Spain, and in the other European countries considered as a whole. The graph clearly indicates the effect of reduced interest rates due to the currency policy up until 2004 and the rise due to tightened policies applied by the European Central Bank thereafter. It can also be seen that the apparent cost of debt in Spain and in the Basque Country is below the average for the European countries included in this study. This is partly because southern European countries make more widespread use of trade credit (provided by suppliers and other companies), which does not bear interest and so has no apparent cost. The cost differences between territories remain very stable over time.

Table 3.4 Borrowing and cash in manufacturing companies in the Basque Country, Spain, and European countries included in the BACH Project

	Debt	Short-term debt	Cash (% asset)
Italy	193	50	4.7
Total Spain	163	38	3.3
Spain-BACH	162	38	1.6
France	158	40	3.2
Portugal	155	42	5.9
EU-10	145	39	4.3
Germany	134	37	5.2
Austria	119	34	4.5
Basque Country	113	34	2.5
Belgium	109	28	2.5
Finland	106	28	3.2
Poland	88	34	6.5
Netherlands	82	26	4.7

Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.
Data for 2007, except for Finland (2005) and Netherlands (206).

Graph 3.2 Changes in apparent cost of debt among manufacturing companies

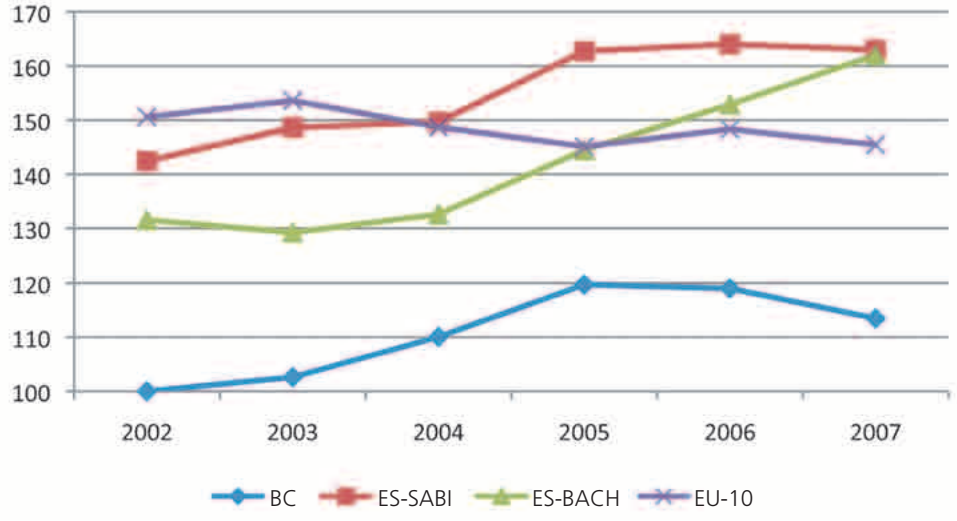


Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

Lastly, Graph 3.3 shows the **trend in borrowing** for manufacturing companies in the Basque Country, in Spain, and in other European countries considered as a whole. In contrast

to the relative stability (or even the downward trend) of borrowing among manufacturing companies in the group of ten European companies, the equivalent companies in Spain show a clear upward trend in borrowing (as is particularly clear in the data from the European database, perhaps due to the greater weight of large firms in the sample). In the case of the Basque Country, whose level of borrowing was lower at the outset, this trend increased until 2005, and actually declined somewhat thereafter, which undoubtedly places Basque manufacturing companies in a better relative position for facing the financial challenges of the present crisis.

Graph 3.3 Trend in borrowing among manufacturing companies



Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

3.2.3. *Return on assets*

As we mentioned earlier, a company's returns can come not only from its business operations, but also from its **investments in financial assets** (particularly in other companies' capital) and from **other sources**. In fact, as part of the process of increasing disaggregation of activities, of groups being created, and of internationalization through direct investment, the weight of financial assets in companies' balance sheets has been increasing, and, consequently, so has the portion of financial profits within each company's total return. Therefore, when considering a company's return on assets, it is important to make a distinction between the portion that is achieved through operating activities taking place within the companies and the part obtained from the company's financial assets and from other extraordinary activities.

Growing importance of return on financial assets

Table 3.5 clearly indicates that in Spanish manufacturing companies considered as a whole, in 2007 return on equity was twice the return on operating activities carried out within these companies. Although this was due to the unusual return on equity obtained in the autonomous community of Madrid that year, a glance at the Basque Country also shows that in the Basque Country return on equity for manufacturing companies was almost as high that year as its return

on operating activities. The ratio of financial assets[6] to total assets in Basque manufacturing companies is second only to companies in Asturias.

Table 3.5 Return on assets for manufacturing companies in autonomous communities in Spain and its breakdown into operating return on assets, return on equity, and return on extraordinary activities (2007)

	Return on investment	Return on operating assets	Return on equity	Return from other sources	Financial assets (% total)
C. Madrid	38.7	6.1	32.7	-0.1	14.0
Total Spain	18.6	6.2	12.0	0.4	18.1
C. Valencia	16.7	6.4	10.0	0.3	15.4
Cantabria	16.1	8.1	7.5	0.5	14.0
Basque Country	14.4	7.2	6.8	0.4	26.1
P. Asturias	13.7	6.5	5.7	1.5	39.9
Catalonia	13.1	6.5	6.1	0.5	22.3
C.F. Navarra	12.3	6.7	5.2	0.4	14.6
Aragon	11.5	5.1	5.4	1.0	15.6
Andalusia	11.4	5.3	5.4	0.7	13.3
Galicia	11.1	6.5	3.9	0.7	18.3
R. Murcia	10.8	5.8	4.4	0.6	17.9
Balearic Is.	10.8	6.3	3.8	0.7	17.2
Castile-La Mancha	10.8	5.4	4.9	0.5	16.3
Extremadura	9.9	4.7	4.4	0.9	13.7
Canary Is.	9.8	5.6	3.5	0.7	17.6
Castile-León	9.4	5.1	3.8	0.5	15.7
La Rioja	9.3	5.4	3.4	0.5	14.7

Source: SABI-Informa, DVD, February 2009.

Therefore, bearing in mind the different components in return on assets, and starting with **operating return on assets** (obtained by dividing the company's net operating income by the company's total net assets), it appears that, after Cantabria, the manufacturing companies in the Basque Country are the ones whose return on regular production was highest in 2007. Bearing in mind the high percentage of financial assets existing in Basque manufacturing companies, the advantage for these Basque companies in terms of their operating return on assets would be slightly higher if instead of relating the net operating income to total assets it were only related to production assets (i.e., the assets remaining after subtracting financial assets from total assets).[7]

[6] We have included investments, own shares (held long or short-term, and for capital reduction), short-term financial investments and cash. We have also included financial income, exchange gains, and variation in the provision for investments.

[7] A shift-share analysis was performed to see whether a higher return on operating assets among manufacturing companies in the Basque Country compared to the average for Spain was due to their sectoral specialization or, within the same sector, to Basque manufacturing companies obtaining a higher return (thus truly showing a competitive advantage). According to this analysis, this difference is due to both these reasons in equal proportions.

As regards what we have referred to here as **return on equity**[8], Table 3.5 shows that, excepting the unusual result for 2007 in the Community of Madrid, whose size enables it, to a fair extent, to set a trend for Spain as a whole, manufacturing companies in the Basque Country obtain a higher return on their financial assets than the average among other autonomous communities in Spain.

Lastly, the contribution of **return on extraordinary activities** does not differ much from one autonomous community to the next, and the results for the Basque Country in this respect are similar to those for Spain as a whole.

Basque companies' operating return on assets and return on equity are higher than average in the EU

Compared to the other European countries analyzed in this study, and with all the caution called for when comparing accounting data from different countries (particularly when assets and return on equity are involved, which are sensitive to different accounting practices, to the greater or lesser tendency to create financial holdings, and to the fact that in the sample of manufacturing companies in the European database, some of the larger countries are overrepresented), it appears that operating return on assets and return on equity in Basque manufacturing companies were clearly above the European Community average in 2007. In terms of operating return on assets, Basque companies were second only to their Polish and Austrian counterparts; in terms of return on equity, they were second only to Holland and the average for Spain (given the exceptional return on equity for Madrid in 2007, referred to earlier).

Table 3.6 Breakdown of return on assets in manufacturing companies in the Basque Country, Spain, and European countries included in the Bach Project

	Return on operating assets	Return on equity	Return from other sources
Poland	11.5	2.2	0.0
Austria	11.2	2.0	0.2
Basque Country	7.2	6.8	0.4
Spain-SABI	6.2	12.0	0.4
Finland	5.9	3.2	0.3
France	5.8	2.8	-0.1
Spain-BACH	5.7	2.8	0.1
Italy	5.3	1.5	0.3
Portugal	5.1	1.7	0.5
Netherlands	3.8	10.5	0.0
Belgium	3.8	3.8	1.4
EU-10	3.8	3.6	1.6
Germany	0.1	4.3	4.0

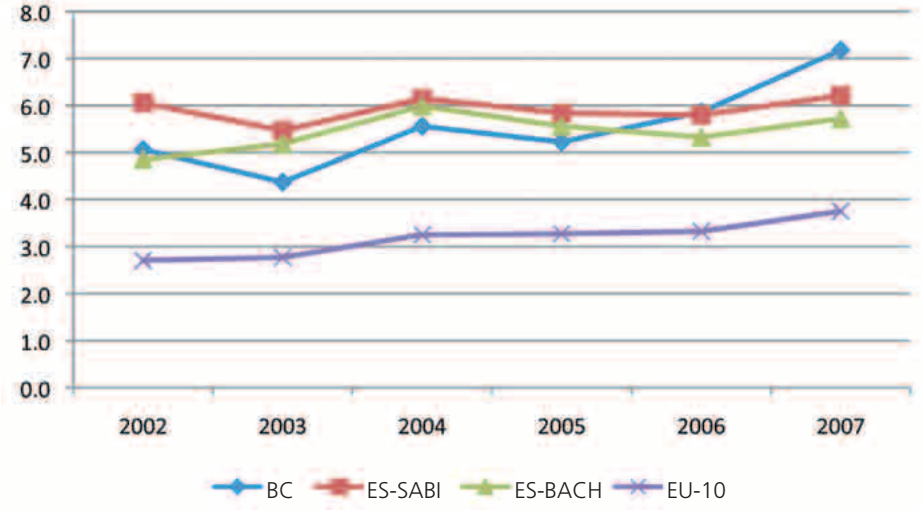
Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.
Data for 2007, except for Finland (2005) and Holland (206).

[8] It is important to note that what we are referring to here as return on equity is also referred to in the literature as return on net worth. As far as what we have referred to here as return on equity

Operating return on assets in the Basque Country has been growing since 2005

As regards trends, Graph 3.4 shows that operating return on assets in manufacturing companies has been increasing, after having hit its lowest point during the 2002-2003 economic slowdown. During all these years, operating return on assets for Basque and Spanish manufacturing companies has been above the European average. For the Basque Country, it was lower than the Spanish average during almost the entire period, but in 2005 it experienced a sharp increase, so that operating return on assets for Basque manufacturing companies ranked higher than Spanish manufacturing companies considered as a whole.

Graph 3.4 Trend in operating return on assets in manufacturing companies in the Basque Country, Spain, and European countries included in the BACH Project

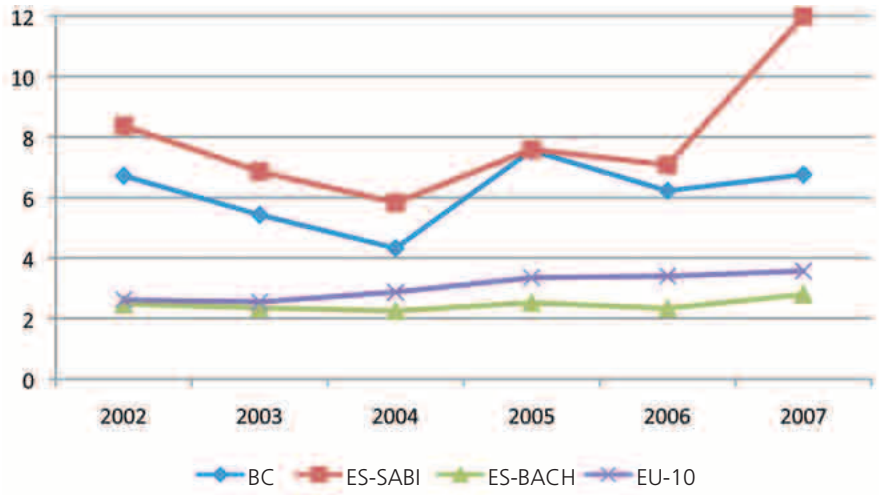


Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

Return on equity: trend for the Basque Country+Spain

As regards the **trend in return on equity**, Graph 3.5 appears to indicate similar behavior among Basque and Spanish companies, although with different intensities. Return on equity fell between 2002 and 2004, recovered considerably in 2005, declined again somewhat in 2006, and experienced a sharp increase in 2007. In the EU, progress was more even: after a slight decline from 2002 to 2003, it experienced slow but ongoing growth from 2003 to 2007.

Graph 3.5 Trend in return on equity in manufacturing companies in the Basque Country, Spain, and European countries included in the BACH Project



Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

3.2.4. *Trading margin, asset turnover, and outsourcing*

As we pointed out earlier, **operating return on assets** can be explained in terms of sales margins (net operating income to sales) and asset turnover (sales to assets). Meanwhile, the sales margin could be calculated in relation to value-added (i.e., the ratio of net operating income to value added) and the level of in-house production (estimated as the ratio of value added to sales).

Differences between Basque Country and Spain due to sales margins

Table 3.7, showing the values for manufacturing companies in the different autonomous communities included in the sample, indicates that although the asset turnover ratio for Basque manufacturing companies is not much different from the Spanish average (it is slightly lower in Basque companies if sales are related to total assets, and slightly higher if sales are only related to production assets), sales margins among Basque companies are clearly higher than the average for Spain.

The Basque Country's advantage in sales margins

This advantage in margins among Basque companies is somewhat lower when the margin is not calculated in terms of net sales, but in terms of the added value created by the company. This is due to Basque companies showing a lower reliance on outsourcing than the average for manufacturing companies in Spain (the degree of outsourcing can be calculated as the inverse of the ratio of added value to sales). Although these results were observed in earlier business and financial analyses of Basque companies, it is difficult to find a logical explanation for them. The fact is that outsourcing and focusing on a company's core operations tends to happen more in advanced countries featuring highly developed industrial and business communities that make outsourcing possible; in addition, outsourcing tends to increase with company size.

Table 3.7 Margins, asset turnover, and in-house production among manufacturing companies in Spanish autonomous communities (2007)

	Return on operating assets	Trading margin (on sales)	Sales turnover (on assets)	VA on sales	Trading margin (on value added)
P. Asturias	6.5	9.9	0.7	33.3	29.6
C.F. Navarra	6.7	7.1	0.9	24.6	29.0
C. Madrid	6.1	5.3	1.2	18.6	28.4
Galicia	6.5	6.0	1.1	23.8	25.3
Cantabria	8.1	6.7	1.2	26.5	25.2
Basque Country	7.2	6.7	1.1	26.7	25.0
Total Spain	6.2	5.5	1.1	23.2	23.9
R. Murcia	5.8	5.6	1.0	25.5	22.1
C. Valencia	6.4	5.3	1.2	24.0	22.0
Extremadura	4.7	5.1	0.9	23.6	21.6
La Rioja	5.4	5.9	0.9	27.6	21.5
Catalonia	6.5	5.7	1.1	26.7	21.5
Canary Is.	5.6	7.0	0.8	33.0	21.3
Castile-La Mancha	5.4	5.3	1.0	25.1	21.0
Castile-León	5.1	4.2	1.2	20.5	20.5
Andalusia	5.3	4.7	1.1	24.0	19.4
Balearic Is.	6.3	5.8	1.1	31.6	18.3
Aragon	5.1	3.5	1.4	20.5	17.2

Source: SABI-Informa, DVD, February 2009.

If the ratios are compared with European countries, Table 3.8 shows that the relatively high operating return on assets achieved by Basque manufacturing firms in 2007 was due to their relatively high trading margins, as opposed to their asset turnover ratio, which was slightly lower than the European average. The Basque Country's advantage in terms of margins drops again when they are linked to added value rather than to sales, but even then they continue to be higher than the average for the European countries included in the analysis, which is strongly influenced by the low values for France and, particularly, for Germany. In addition, compared to the average for Europe, the level of outsourcing is relatively low in the Basque Country, and it should be a goal to raise it in Basque companies in the future.

Degree of internalzation / outsourcing

In order to understand how a reduction in the degree of internalization can favor the firm, the concept of internalization is explained below.

As shown, a firm's value added is made up of:

Sales
(–) Intermediate consumptions
= value added
(–) staff cost
= exploitation result

The degree of internalization is the degree to which the firm develops its activities internally, and the degree of externalization is the degree to which the firm outsources some of its activities.

When a firm internalizes its activities it has lower intermediate consumptions but a higher staff costs and, thus, an increase in value added. When a firm outsources its activities its staff costs are lower and its exploitation results are higher.

According to the literature, when a firm outsources activities that are not its core business, its exploitation results will be higher.

The fall in the Basque Country's degree of internalization (see table 3.8) means that Basque firms are outsourcing more and more. However, the degree of outsourcing by Spanish firms or by the average EU firm has not yet been reached.

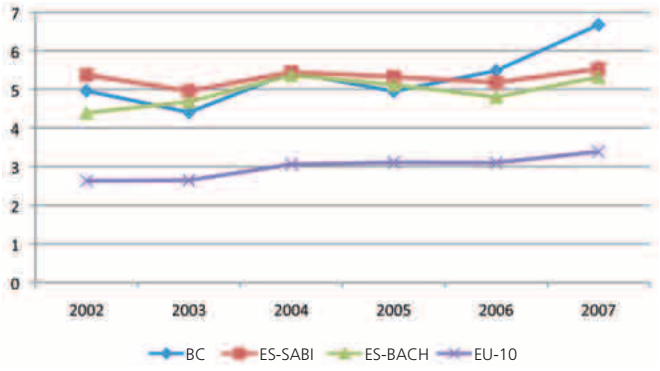
Concerning the trends for these variables, Graph 3.6 shows **an improvement in trading margins** for all countries as a whole after the 2002-2003 low; it was particularly noteworthy among Basque manufacturing companies after 2005. It also appears that during all the years covered in the graph, trading margins were higher in the Basque Country and in Spain that in the EU-10, and that due to the major improvement in the Basque Country in recent years, its margins are clearly higher than the average for Spain and for the EU-10.

Table 3.8 Margins, turnover, and in-house production in manufacturing companies in the Basque Country, Spain, and European Countries included in the BACH Project

	Return on operating assets	Trading margin (on sales)	Sales turnover (on assets)	VA on sales	Trading margin (on value added)
Poland	11.5	8.0	1.44	21.6	36.8
Austria	11.2	8.5	1.32	30.2	28.0
Basque Country	7.2	6.7	1.08	26.7	25.0
Spain-SABI	6.2	5.5	1.12	23.2	23.9
Finland05	5.9	7.8	0.75	25.6	30.4
France	5.8	4.3	1.35	23.5	18.2
Spain-BACH	5.7	5.3	1.08	18.0	29.5
Italy	5.3	4.7	1.13	20.8	22.7
Portugal	5.1	5.0	1.01	24.7	20.3
Netherlands	3.8	6.1	0.63	20.7	29.4
Belgium	3.8	4.9	0.78	21.6	22.6
EU-10	3.8	3.4	1.11	22.4	15.6
Germany	0.1	0.1	1.10	23.5	0.2

Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.
Data for 2007, except for Finland (2005) and Netherlands (206).

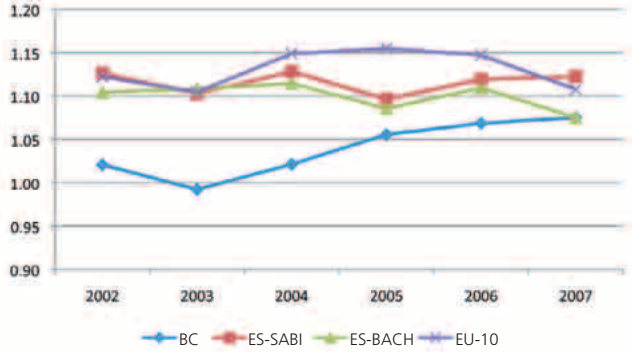
Graph 3.6 Trend in trading margins among manufacturing companies in the Basque Country, Spain, and European countries included in the BACH Project



Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project.

Graph 3.7 shows a **considerable improvement in the asset turnover ratio** in manufacturing companies in the Basque Country since 2003, which enabled them to substantially reduce their disadvantage as compared to the average for Spanish and EU-10 manufacturing companies in this area. Basque companies ought to continue their efforts along these lines, since the rates for EU-10 companies still show room for improvement (and even more so if turnover is only calculated based on production assets, without taking financial assets into account), given that the latter are a smaller percentage of total assets in the EU-10 countries.

Graph 3.7 Trend in asset turnover in manufacturing companies in the Basque Country,



in Spain, and in other European countries participating in the BACH Project

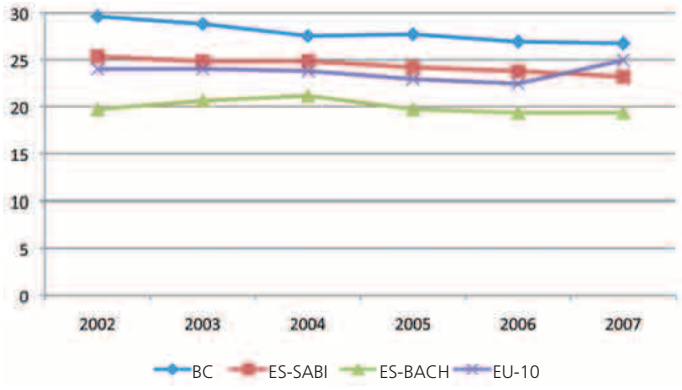
Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project

There is a drop in the degree in which company advantages are applied in-house

Lastly, Graph 3.8 shows a greater **drop in the rate that measures the extent of in-house production** (added value as a percentage of net sales, which provides an indication of the degree to which the company's advantages are applied in-house) among Basque manufacturing companies during the 2002-2007 period, which narrows the gap between Basque companies and

the rest of Spain or the EU-10. As we mentioned earlier, Basque companies ought to continue in their efforts to increase their focus on their key skills and take advantage of the favorable environment in the country and the opportunities now available in some developing countries for outsourcing operations that do not necessarily have to be performed in-house.

Graph 3.8 Trend in the extent of in-house production in manufacturing companies in the Basque Country, in Spain, and in European countries participating in the BACH Project



Source: SABI-Informa, DVD, February 2009; and European Commission, BACH Project

3.3. **Company size, corporate groups, and internationalization**

One of the three main areas for development considered in the Basque Competitiveness Forum 2015 referred to company **size and groups of companies for competing in the global economy**. Company size, groups of companies, and internationalization are three areas with a strong impact on competitiveness and that can be helpful for assessing business strategies. We will now present the Basque Country's position and progress in these three areas.

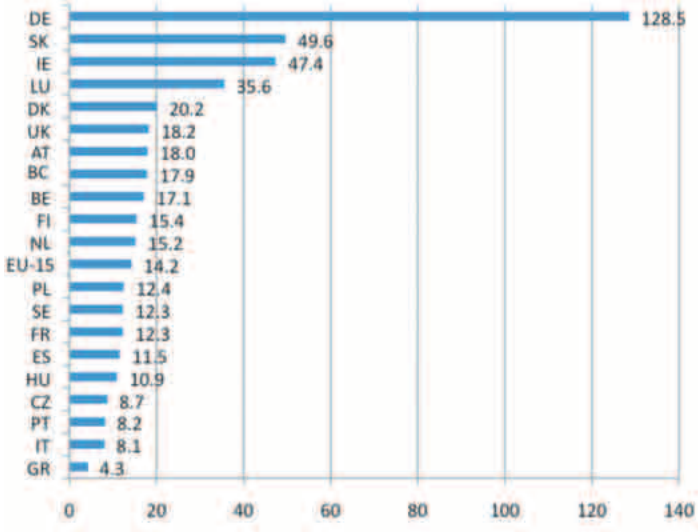
The factors mentioned above are particularly relevant for the manufacturing industry, given that it is more exposed to outside competition, due to its being more capital-intensive, and to economies of scale playing a more relevant role in it, and to the greater relative importance that R&D efforts have in this realm. That is why our analysis is mainly focused on data referring to this sector.

3.3.1. *Company size and corporate groups*

Before proceeding to **analyze size**, we must begin by pointing out that the data from different countries are hardly consistent or comparable. Even if we narrow our comparisons down to the manufacturing industry (the sector for which information tends to be more widely available) and to the data provided by Eurostat (the organization that has promoted a variety of regulations to harmonize statistics in EU member countries), the values shown in Graph 3.9 indicate that the difficulties in comparing data continue to exist. Since the data source is the same one, it seems reasonable to assume that the average size of a manufacturing company in the Basque Country (17.9) is clearly larger than the average for Spain (11.5), partly due to the greater specialization of Basque industry in manufacturing sectors, which tend to have larger-sized companies.

Average company size is larger in the Basque Country than in the rest of Spain

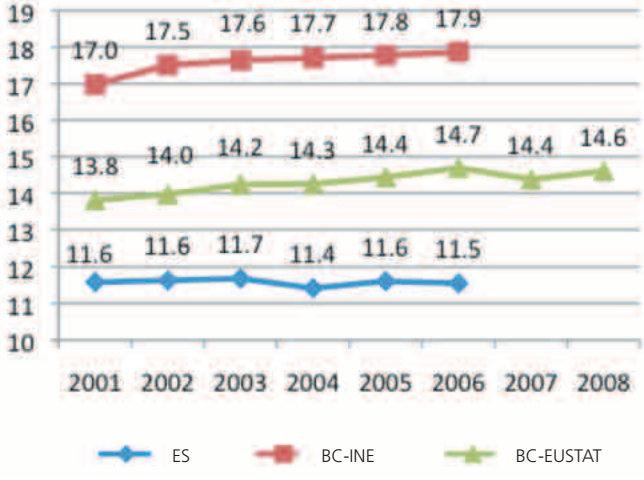
Graph 3.9 Average staff headcount in manufacturing companies in the EU



Source: Eurostat.

In contrast to the relative standstill of the average size of manufacturing companies in Spain, the Eurostat data reveal a slight growth trend among manufacturing companies in the Basque Country. Accordingly, during the current decade, the trend of shrinking company sizes in the Basque Country appears to have stopped. The trend that emerges from the Eurostat data for the Basque Country is confirmed by the data from the Basque statistics institute, Eustat, for the 2001-2006 period. In addition, according to Eustat, the growth trend in the average size of manufacturing companies continued after 2006.

Graph 3.10 Average staff headcount in manufacturing companies



Source: Eurostat and Eustat.

The data do not confirm small size for Basque companies

All in all, the available data do not confirm the widespread opinion about Basque manufacturing companies being relatively smaller, although for various reasons the data from different countries are not entirely comparable. As the European Union's definition of an SME demonstrates, measuring firm size makes less and less sense if we focus solely on staff headcount, disregarding factors such as belonging to a corporate group. Many companies have chosen to spin off certain business activities, yet although these businesses are formally independent, in practice their decision-making capacity depends on the company from which they have been legally spun off. The changes taking place in the environment (such as the increasingly complex, changing nature of knowledge and technology) are changing past trends and behaviors, so that, for instance, the trend of concentrating R&D in larger companies has been broken and SMEs are playing a more prominent role in terms of R&D activities. In addition, companies make up for the disadvantages of their smaller size for carrying out certain activities by cooperating with others, creating alliances, as we mentioned earlier, or belonging to corporate groups.

Although this would appear to indicate that size is not an insurmountable obstacle to success in the innovation-driven stage, belonging to groups is, together with other alternatives such as strategic alliances, networks or clusters, an unquestionably important factor for competiveness. There are no international statistics for estimating the degree of development of corporate groups, although the literature tends to consider that their presence is stronger in the European or Continental model than in the Anglo-Saxon model. The financial balances of the Bank of Spain indicate a sharp increase in corporate groups being established in Spain, particularly since the late 1990s 90.[9]

The Basque Country has a higher percentage of companies:

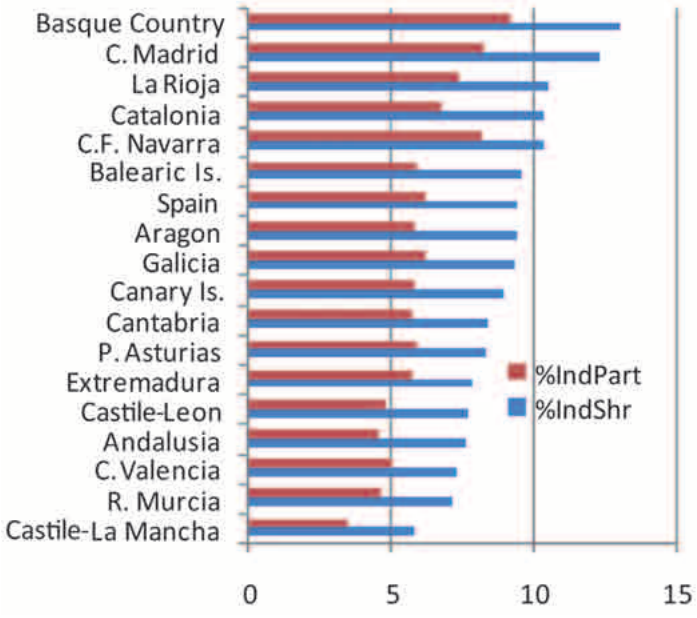
- **with other companies among their shareholders and**
- **with shares in other companies**

Graph 3.11 shows that the Basque Country is the Spanish autonomous community with the highest percentage of companies whose shareholders include another company; it is also the autonomous community in Spain with the highest percentage of companies holding shares in other companies. In the case of manufacturing companies, the Basque Country is behind Navarra, one decimal point below it in terms of having another company as a capital shareholder; however, it ranks highest, a few decimal points above Navarra, in terms of holding shares in other companies. If also appears that belonging to other groups (both by owning another company as a shareholder or by holding shares in the capital of other companies) is more common in manufacturing companies

[9] Our analysis of the level of development of company groups in the Basque Country and in Spain was based on the shareholder data contained in the SABI-Informa database, periodically selected and compiled by Orkestra. We used the DVDs published by SABI-Informa in December, from 2002 to 2008, only considering companies listed as active and with positive equity. In the DVD for December, 2008, 777,000 Spanish companies (32,000 of which were in the Basque Country) met these requirements, for which the database provided shareholder statistics for 313,000 (14,500 in the Basque Country). The SABI-Informa database also makes a distinction between shareholder types, considering that a company belongs to a group when one of its shareholders belongs to the "Industrial Corporation" category. This database also lists whether shareholders are domestic or foreign. It also provides data about shares held in other companies for 55,000 Spanish companies (3,500 of which were in the Basque Country), and specifies the nationality of each company in which shares are held.

than in the economy as whole.[10] The general assumption is that having other companies as shareholders can have a positive influence on improving management methods when a company takes on new models.

Graph 3.11 Percentage of companies that have another company among their shareholders or that hold capital shares in another company

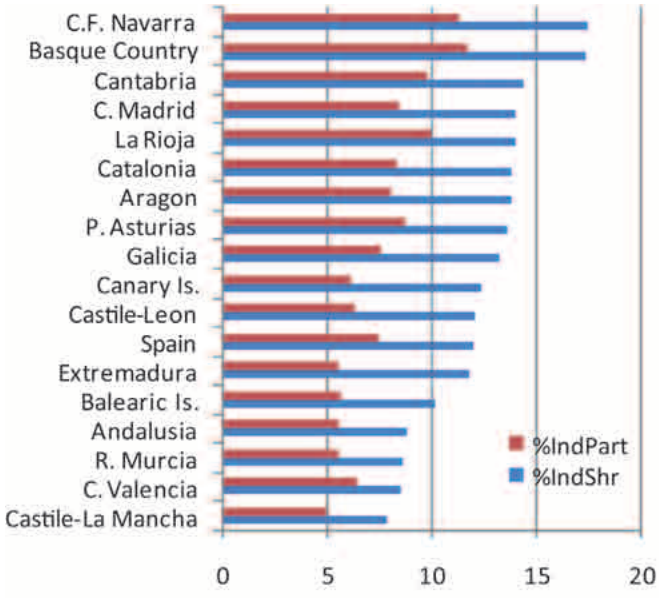


Source: SABI-Informa, DVD, December 2008. Prepared by the authors.

This indicates that Basque companies have **proactively implemented policies for developing or joining corporate groups** so that they now rank highest among autonomous communities according to the indicators used. Considering that Spain is outstanding in terms of companies holding shares in other firms, it would be reasonable to assume that Basque companies would also stand out in this respect at an international level. These financial relations between companies are increasingly visible in company assets and liabilities (for instance, in the growth of investments in company assets and of financing from other companies in their liabilities), in addition to constituting a very important element in determining return (a growing part of yearly profits comes from income generated by these financial assets, rather than from the company's actual operating income). But above and beyond these financial consequences, relationships between companies enable them to take advantage of synergies in R&D, marketing, internationalization, etc., which are potential sources of competitive advantage in the innovation stage.

[10] The research study on Ownership Structures and Corporate Groups in Spain and in the Basque Country, performed by Olga del Orden and Aitor Garmendia, by request of the Basque Institute of Competitiveness and published by the Institute in 2008, makes it possible to further analyze Basque corporate groups.

Graph 3.12 Percentage of manufacturing companies that have another company among their shareholders or that hold capital shares in another company



Source: SABI-Informa, DVD, December 2008. Prepared by the authors.

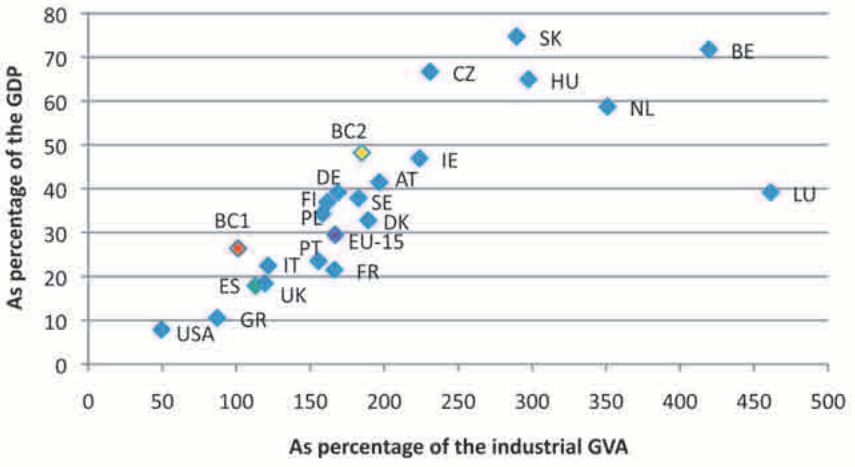
3.3.2. *Trade internationalization among Basque companies*

The subject of **internationalization** in Basque companies can be approached from the perspective of international trade or of direct investment. Both ought to be considered as the outcome of business strategies and proof of their competitiveness. To further examine this focus on business strategy, in addition to the usual indicators, this section includes the results of a series of studies that enable us to visualize what future paths towards increasingly sophisticated exports could be, thus making it possible to move ahead more efficiently towards the new innovation-driven stage.

Beginning with **international trade**, export intensity offers one of the basic indicators of the degree to which the need to compete in open markets is internationalized. Although this indicator is usually calculated by dividing the value of exports by the GDP, in fact, given that the foreign trade statistics essentially cover manufactured products in advanced countries, it seems more appropriate to measure the value of exports against industry GVA rather than against GDP.

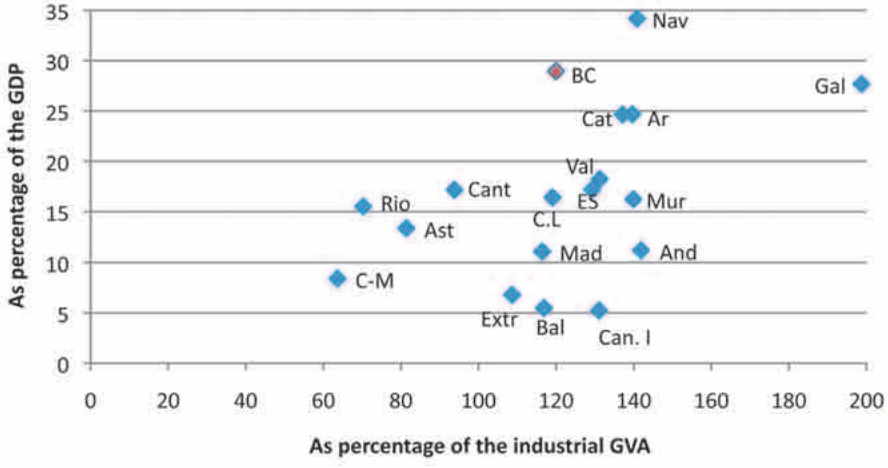
Graph 3.13 shows both indicators for a series of advanced countries, given that export data are not usually available by regions for most countries. It is important to note that the comparison of the Basque Country with other countries can be made by considering as exports both those actually exported to foreign countries and all outbound exports (foreign countries and the rest of Spain). Given its degree of complexity, it seems obvious that what is most clearly comparable to the concept of exports in other countries is foreign exports; however, exports to the rest of the EU are clearly becoming less differentiated from sales in the domestic market, and this is even more evident in small countries located in central positions within the EU. Graph 3.13 appears to indicate that the export intensity index for the Basque Country still needs to make a lot of progress, particularly if it is measured against the industry GVA.

Graph 3.13 Export intensity in the Basque Country and advanced countries in the OECD (in percentage of GDP and of industry GVA) (2006)



Source: European Commission, AMECO Base, and Eustat.

Graph 3.14 Export intensity in the Basque Country and in the Spanish autonomous communities (in percentage of GDP and of industry GVA) (2008)



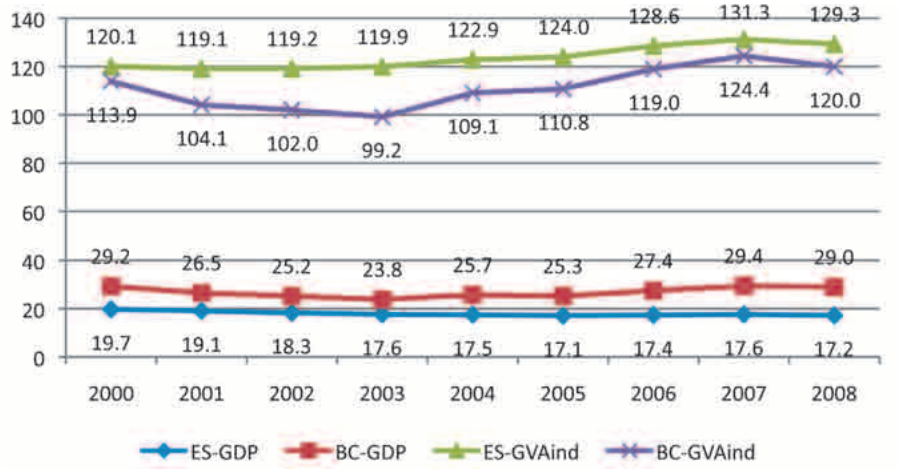
Source: Agencia Tributaria and INE.

Graph 3.14 shows the same indicators for the other autonomous communities in Spain. Although these data are more readily comparable than in the former instance, some distorting elements remain, such as the fact that the value of exports refers to the total value of the goods, regardless of whether or not they were generated within that autonomous community. This favors autonomous communities such as Aragón, with its automobile assembly and export operations, while it disfavors communities such as the Basque Country, which manufactures auto parts without final assembly plants (with the exception of the

Mercedes plant in Vitoria). Therefore, the graph indicates that, after Navarra, the Basque Country is the community with the greatest export intensity when exports are calculated as a percentage of the GDP. However, when export intensity is calculated as a percentage of industry GVA, the Basque Country ranks considerably lower, below the average for Spain.

As far as trends are concerned, Graph 3.15 shows that although the Basque Country's export intensity dropped during the 2000-2003 period, during the global economic slowdown, from 2003 on export intensity calculated as a percentage of industry GVA experienced considerable growth in the Basque Country, which continued until 2008, when the effects of the current economic crisis began to show. The positive progress of export intensity in the Basque Country is one more argument supporting the hypothesis according to which the Basque economy entered a more advanced stage of competitive development in the middle of the current decade.

Graph 3.15 Trend in export intensity, calculated as a percentage of GDP and of industry GVA



Source: Agencia Tributaria and INE.

The Basque Country has renewed its exports

The effectiveness of the business strategies underlying these export data can be improved by analyzing the breakdown of exports by products and markets.

A recent study by Orkestra (See Minondo 2008)[11] concluded that, compared to Madrid, Catalonia, Navarra, and Valencia, the Basque Country was the community that had achieved greatest renewal of its exports (particularly on account of exports to new markets).[12]Therefore, it stated that "Basque companies have

[11] Minondo A. (2008). "Un análisis del proceso de integración de la economía vasca." Estudios Empresariales ISSN 0425-3698.

[12] According to Minondo (2008), "over 40% of exports for 2005 were 'new,' either because exports to new countries began, because new products started being exported, or a combination of both." This percentage would drop to 32% if the calculation only considered customs-related items in the Harmonized System and the list of countries in the United Nations that did not change from 1990 to 2005.

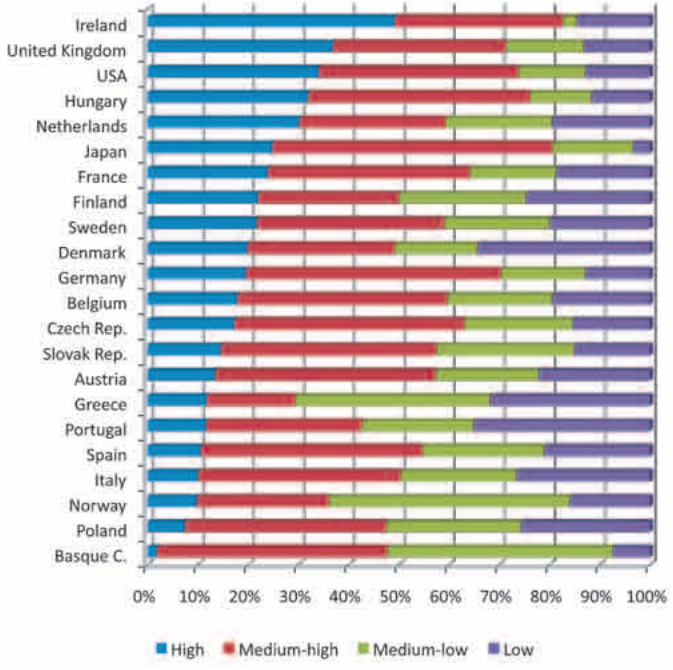
managed to innovate in products and markets, thus moving into increasingly complex export stages."[13]

Although the study conducted by Orkestra attempted to measure the changing composition of export products and destination markets, it does not specify the direction of that change. To further explore that direction, we will now proceed to analyze the Basque Country's position in terms of the technology level of its exports compared to other advanced countries, and the progress that this breakdown by technology levels has experienced in recent years.

Mid-level technology exports prevail

Graph 3.16 shows that the Basque Country stands out for the scant weight of its exports in high and low technology manufacturing industries, whereas mid-level technology industries are the ones that prevail. Specifically, the Basque Country follows Japan and Germany in terms of the highest percentage of mid- to high-tech exports, and comes in after Norway (also characterized by the innovation paradox, like the Basque Country), way ahead of the next country in the ranking for the highest percentage of mid- to high-tech level exports.

Graph 3.16 Percentage breakdown of exports by technology levels (2006)



Source: OECD, STAN database; Eustat.

[13] Growth of exports from 1990 to 2005 was broken down into four components: 1) products that were already exported to countries that were already trade partners in 1990; 2) exports of products that were already exported in 1990 to new countries; 3) new products exported to countries that were already trade partners in 1990; and 4) new products and new countries.

There is no clear trend in exports broken down by technology levels

Table 3.9 indicates that there is no clear ongoing trend in terms of the breakdown of exports by technology levels. From 2000 to 2003, the weight of high to mid/high-tech exports increased, while that of mid- to low-tech imports decreased; however, from 2003 on, just the opposite occurred. The decrease in the highest technology level after 2003 can be attributed primarily to electronics, motor vehicles, other transportation materials, and chemical products, whereas the rise in mid- to low-tech industries was primarily for oil refining and ferrous metals.

Table 3.9 Trend in the breakdown of Basque exports by technology levels

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
A High technological level	4.3	4.0	3.4	4.8	2.9	2.3	1.9	2.2	2.3
01 Aircrafts and spacecrafts	2.5	2.7	2.0	1.9	1.7	1.4	1.3	1.8	1.8
02 Office machines and computer equipment	0.1	0.1	0.5	0.5	0.3	0.2	0.2	0.1	0.1
03 Electronic material; radio, TV and communications devices	1.6	1.1	0.9	2.3	0.8	0.6	0.4	0.3	0.2
04 Pharmaceutical products	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
B Medium-high technological level	46.5	48.0	47.6	47.7	48.5	48.8	45.9	44.2	43.0
05 Precision medical-surgical equipment and instruments	0.6	0.8	0.8	1.2	0.6	0.6	0.6	0.6	0.6
06 Motor vehicles	21.5	20.0	19.3	19.4	22.8	21.1	20.6	18.4	18.0
07 Machinery and electrical equipment	2.7	3.3	3.2	3.9	3.3	3.6	3.6	3.9	4.1
08 Chemical products, excl. pharmaceuticals	3.4	3.1	3.3	3.3	3.1	3.5	3.2	2.7	2.6
09 Other transportation material	1.3	1.4	2.0	2.3	2.1	3.3	1.9	2.2	1.4
10 Machinery and mechanical equipment	17.0	19.5	19.1	17.6	16.7	16.7	16.0	16.4	16.3
C Medium-low technological level	40.7	38.6	39.4	38.2	40.4	41.0	44.9	46.4	47.5
11 Rubber products and plastic materials	6.6	6.7	6.5	6.4	5.7	6.5	7.9	7.0	6.4
12 Boats and repair services	2.5	0.4	1.8	0.8	2.2	0.2	0.6	1.8	0.1
13 Various manufacturing	0.5	0.5	0.6	0.6	0.6	0.5	0.4	0.4	0.4
14 Nonferrous metals	3.5	3.3	3.6	2.5	1.9	3.1	3.9	3.6	3.5
15 Other nonmetal mineral products	1.5	1.9	2.3	2.1	1.7	1.7	1.9	2.0	1.7
16 Metal products, excl. machinery and equipment	8.5	8.9	9.2	8.9	8.3	8.3	7.8	8.0	8.6
17 Coke and refined petroleum products	5.2	4.7	3.2	4.4	5.4	5.7	7.5	7.2	8.1
18 Ferrous metals	12.4	12.1	12.1	12.5	14.6	15.0	14.8	16.5	18.6
D Low technological level	8.5	9.4	9.5	9.3	8.2	7.9	7.4	7.1	7.2
19 Paper products; published or printed products	3.1	3.6	3.6	3.5	3.1	3.0	2.8	2.6	2.6
20 Textile, clothing, leather and footwear products	0.9	0.9	1.0	0.7	0.7	0.7	0.7	0.7	0.8
21 Food, beverage and tobacco products	3.1	3.5	3.6	3.8	3.3	3.1	3.0	3.0	3.0
22 Wood, cork and byproducts; furniture	1.3	1.5	1.4	1.3	1.1	1.1	0.9	0.9	0.8

Source: Eustat.

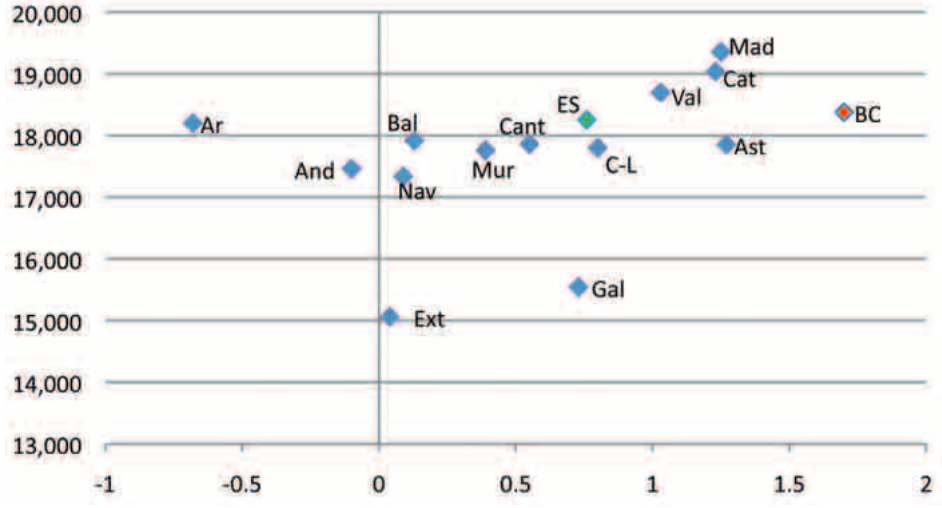
Export sophistication index as an alternative to ranking sectors by technology levels

However, as we mentioned in the first Competitiveness Report, this ranking of sectors by technology levels has been subject to increasing criticism in the literature. Among other things, it is argued that the OECD's technology level rankings are for highly aggregated activities, within which very divergent levels of sophistication and added value can coexist; and that this ranking is based on a view of innovation as almost solely related to R&D. An alternate, preferable measure of the degree of export sophistication was offered in a research project funded and published in 2008 by the Basque Institute of Competitiveness (See Minondo 2008)[14], whose results were published in the first Competitiveness Report, combining foreign trade with per capita GDP.

As Graph 3.17 shows, the Basque Country has a somewhat higher **sophistication index** (adjusted by quality) than the average for Spain, ranking after Madrid, Catalonia, and Valencia. This graph also indicates that the Basque Country was the autonomous community where this index experienced highest growth during the period 1996-2005. According to the report mentioned earlier, this was due to the index growing sharply in the Basque Country during the first half of that period, making up for slower growth in the second half (although again in 2005 that index experienced a substantial increase).

Compared to the countries for which this index can be calculated, it appears that the Basque Country ranks in the highest quartile of countries in terms of its level of sophistication, while Basque exports rank 40% lower than the most sophisticated exports (Ireland) and 20% lower than most of the EU-15 countries. As far as its progress is concerned, the Basque Country's export sophistication index experienced faster growth in the 1996-2005 period than the average for the EU-15, thus narrowing the gap between the Basque Country and these countries.

Graph 3.17 Export sophistication index (quality-adjusted) in Spanish autonomous communities



Source: Prepared by the authors, based on Minondo (2008).

[14] Minondo A. (2008). Minondo A. (2008). "The Sophistication of Basque Exports." Orkestra ISSN 1989-1288.

Specialization as a road map towards greater sophistication of the Basque economy

More recently, another research study sponsored by Orkestra (See Minondo 2009)[15], adapting a new methodology developed by Hausman and Klinger, attempted to identify "A road map for improving sophistication in the Basque economy." This methodology uses three indicators for identifying the ideal sectors for improving sophistication in a country:

(I) The sophistication index, which measures the level of productivity or income for a product (and therefore, the product's inherent interest)
(II) The index for that product's distance from the production structure in a given country (based on the assumption that it is simpler for a country to specialize in products that are closer to its production structure)
(III) The index for strategic product value (a value that is measured according to the degree to which specialization of that product facilitates moving into other increasingly sophisticated sectors, given its proximity to those sectors).

According to the preliminary results of the study, the best approach for the Basque Country to improve the level of sophistication in its economy is through greater **specialization** in machinery, optical instruments, and organic chemistry, although some sectors also include products with potential for improving sophistication. It is important to consider this proposal in the context that will be sketched out in the following sections in terms of the relevance of current clusters and potential clustering processes. The reason for this is that the effect of these specialization processes can be multiplied through clustering.

3.3.3. *Foreign direct investment*

After having examined trade internationalization in the Basque economy, we will now proceed to consider **the progress in direct investment**, generally considered to indicate a higher level of internationalization than that of foreign trade.

Research on the internationalization of direct investment was traditionally based on foreign investment flow data published by the Foreign Investments Registry of the Spanish Ministry of Industry. However, the values compiled in those reports showed considerable biases related—among other things—to the fact that both outward and inward foreign direct investment (FDI) are considered exclusively for the community where the company headquarters are located, as opposed to the community that is actually affected by those investments. These biases are particularly apparent, for instance, when the organization started publishing region-specific data for stock of outward FDI and inward FDI, where the "HQ effect" is corrected. In addition, the data for stock are not particularly dependent on the variations in investment from one year to the next.

The Basque Country attracts less investment and has a greater share of Spanish FDI than would be expected based on its GDP

If we look at the data for stock FDI, Table 3.10 shows that the Basque Country accounts for a lower percentage of inward Spanish FDI than expected for its GDP, and that, conversely, its share of outward Spanish FDI is higher than expected considering its GDP.

[15] Minondo, A. (2009)."Minondo, A. (2009). "Un mapa de ruta para mejorar la sofisticación de la economía vasca." Orkestra.

Table 3.10 Percentage of stock of inward FDI (IFDI), of outward FDI (OFDI), and of Spanish GDP by autonomous communities (2006)

	IFDI	OFDI	GDP
C. Madrid	25.5	65.7	17.7
Catalonia	22.6	11.6	18.7
Andalusia	9.0	0.7	13.8
C. Valencia	5.7	0.5	9.8
Basque Country	4.8	7.5	6.2
Aragon	4.7	0.4	3.1
P. Asturias	4.5	1.2	2.2
Castile-Leon	4.4	0.2	5.4
Galicia	3.4	2.3	5.1
Canary Is.	3.3	0.1	4.0
R. Murcia	3.2	2.3	2.6
Castile-La Mancha	2.6	0.0	3.4
C.F. Navarra	2.1	0.3	1.7
Cantabria	1.7	6.1	1.3
Balearic Is.	1.7	1.0	2.5
Extremadura	0.6	0.0	1.7
La Rioja	0.4	0.1	0.7
Ceuta and Melilla	0.0	0.0	0.3
Total	100.0	100.0	100.0

Source: Ministry of Industry. Position of Foreign Direct Investment in 2006, and INE, Regional Accounts.

Table 3.11 Origin of foreign shareholders in Basque companies that include foreign capital

Country of Origin	No. of foreign shareholders	% total shareholders
United States (US)	162	18.9
France (FR)	139	16.3
Germany (DE)	130	15.2
Great Britain (GB)	86	10.1
Netherlands (NL)	63	7.4
Italy (IT)	47	5.5
Switzerland (CH)	40	4.7
Luxembourg (LU)	38	4.4
Belgium (BE)	34	4.0
Other countries	116	13.6
TOTAL	855	100.0

Source: SABI-Informa, DVD, December 2008. Prepared by the authors.

According to the data drawn from the SABI-Informa 2008 database for companies in the Basque Country that include foreign shareholders (Table 3.11), and that therefore can give a sense of the main origin of foreign shareholders participating in these companies, it is noteworthy that 18.9% of all foreign shareholders are from the United States. These are

followed by French (16.3%), German (15.2%), and British shareholders (10.1%). In addition, 26% of the shareholders are from other European countries (Holland, Italy, Switzerland, Luxembourg, and Belgium) and the remaining percentage is covered by several different countries, grouping 13.6% of total shareholders.

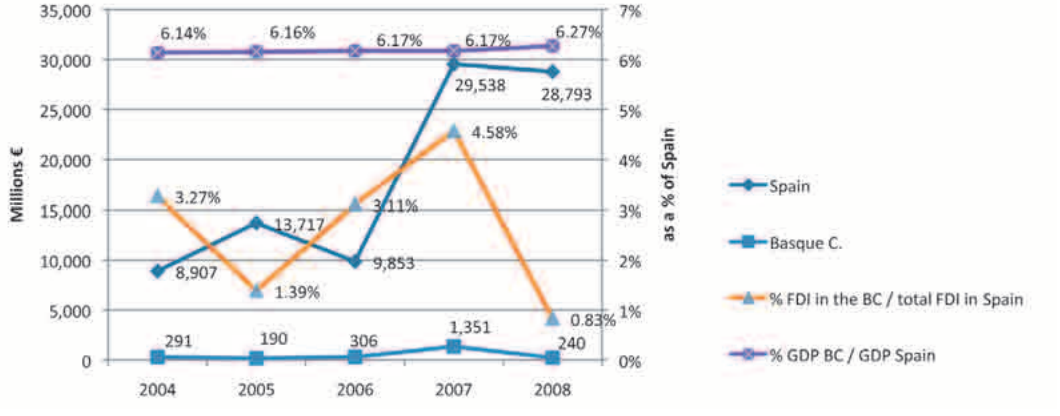
Dunning's eclectic theory, the most widespread paradigm for explaining foreign direct investment, considers that the first condition for FDI to exist is that the company wishing to invest abroad must have some competitive advantage. Accordingly, high outward FDI would be an indication of a competitive advantage of the country making the investment. This would not only be a consequence of its competitiveness: by favoring learning processes and new skill development in destination countries, internationalization through direct investment in turn brings on further competitiveness. The Basque Country is one of the three autonomous communities in Spain whose share of total Spanish outward FDI is higher than that of its GDP.

Location advantages for attracting inward FDI

As far as FDI in the autonomous community is concerned, again the data can be interpreted both as a cause and an effect of competitiveness in that territory. FDI is a cause as a source of investment (and, therefore, growth and employment), technology, sales networks, skills…and an effect, because if the territory did not have what is technically referred to as "location advantages"—some appeal for that foreign investment—that investment would not take occur. In fact, the Basque Country's share of stock of inward FDI is lower than expected for its GDP, an indication that it has not developed enough of this competitiveness factor or other factors.

In the five years that go from 2004 to 2008, the Basque Country captured around 2.6% of FDI into Spain, which contrasts unfavorably with the region's share in Spanish GDP which is around 6.2%.

Graph 3.18. Foreign Investment in Spain and in the Basque Country, 2004-2008



Source: Invest in Spain.

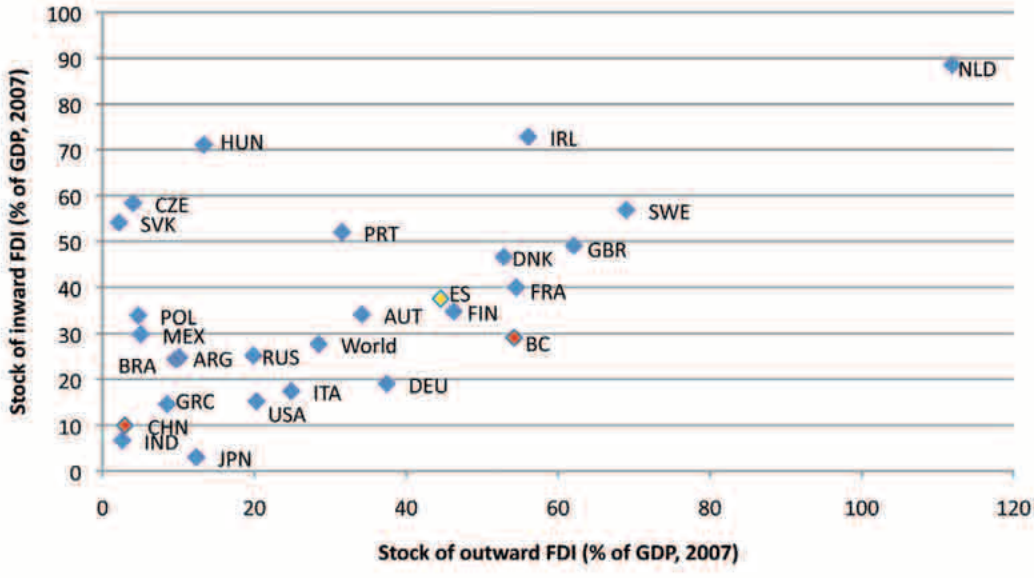
It is often argued that this lesser dependence on FDI makes the Basque Country less vulnerable to crises, and therefore the comparison has often been made with the Catalan economy, considered more vulnerable than the Basque. However, this vulnerability is dependent on the "location advantages" that draw in foreign investment, and that if those advantages are unique and difficult to replicate (such as those offered by Silicon Valley), the risk is considerably lower.

There is a need to make the innovation system attractive to attract foreign capital

In order to attract foreign capital, the innovation system has to be made more appealing. A high degree of endogamy is apparent according to several innovation indicators: a low percentages of foreign investment in R&D and a low percentage of R&D performed by foreign companies or by companies whose headquarters are located outside the Basque Country. Rather than developing advantages in general, an effort ought to be made to develop specific advantages (with an important effect on the environment and the institutions), often related to the different kinds of external economies provided by business clusters.

In order to offer an international comparison, based on the data for stock of inward FDI published by the Spanish Ministry of Industry and the international data provided by UNCTAD's well-known World Investment Report, we have estimated the Basque Country's position in terms of its percentage for stock of inward and of outward FDI (See Graph 3.19).

Graph 3.19 Stock of inward and outward FDI, as a percentage of GDP



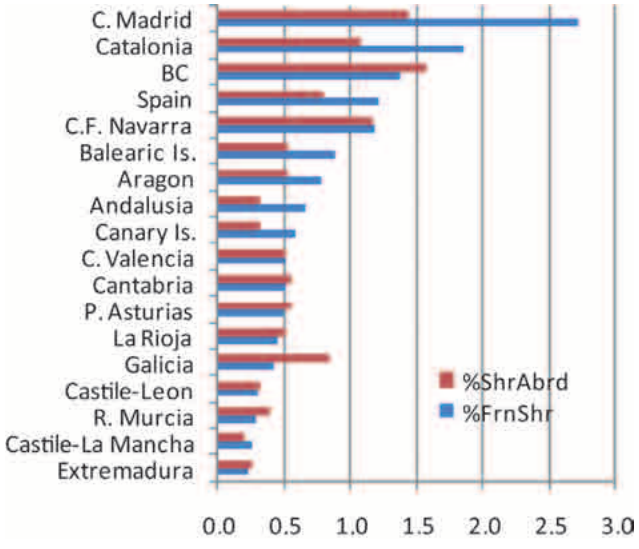
Source: Ministry of Industry. Position of Foreign Direct Investment in 2006, UNCTAD. World Investment Report.

The Basque Country, more outward than inward investment

The graph indicates that, much like most advanced countries, the Basque Country is to the right of the line of fit, with a greater relative weight in outward than in inward FDI. Although its role as an outward investor is not much different from that of other small-sized advanced European countries, its relative position in terms of that group of countries as a receiver of inward FDI is low and attempts must be made to improve it.

In order to complete the analysis of internationalization in the Basque Country, we will now proceed to shift our focus down to the company level. Here we find that one of the characteristics of FDI in Spain is its high concentration, so that inward foreign investments in a handful of companies (especially in the telecommunications and automotive industries) and particularly outward investment in a few companies (banks, energy and water, and transportation) account for most of FDI. In other words, the internationalization process appears to be concentrated in a handful of companies, without extending to and affecting a large part of the business community. It would therefore be advisable to complete the former analysis with an overview of the number of companies affected by these internationalization processes.

Graph 3.20 Percentage of companies with foreign shareholders (FrnShr) and with shares in capital of companies residing abroad (ShrAbrd)



Source: SABI-Informa, DVD, December 2008. Prepared by the authors.

Graph 3.20 shows that the Basque Country is the autonomous community with the highest percentage of companies with shares in companies residing abroad (See the Arteche Group as an example.) In terms of this ratio, it ranks even higher than Madrid, which for stock of outward FDI did show higher indicators than the Basque Country, yet did so because of the headquarter effect in Madrid, the capital of Spain, attracting headquarters of large banks, utility companies, telecommunications and transportation firms, which concentrate most of Spanish foreign investment.

In terms of attracting inward FDI, for this indicator the Basque Country shows clearly more favorable results than those provided by the Spanish Ministry of Industry's data for stock of FDI, because although there the Basque Country was unable to achieve the equivalent percentage of FDI stock to the Basque's GDP in relation to Spain (and therefore the Basque Country ranked lower than average in terms of attracting foreign capital), according to the data contained in the Graph 3.20, the percentage of Basque companies that had some foreign shareholder, however small its share (1.4%), is higher than the average for Spain (1.2%), and only ranks lower than Madrid and Catalonia, both of which, as capitals and highly urban areas, are very powerful poles for attracting foreign investment.

THE ARTECHE GROUP AS AN EXAMPLE OF A STRATEGY FOR INTERNATIONALIZATION

The Arteche group, based in Mungia (Bizkaia, Basque Country) is an industrial group comprising 13 companies located in eight countries. It offers solutions for the electricity sector, in generation, transmission, distribution, and industry.

In 1973, the Arteche Group began its international expansion, when the Spanish market ceased to offer sufficient opportunities to ensure company growth. The Group's strategy for penetrating new countries was based on **acquiring local companies in the sector** with a strong business presence and a certain product know-how, but with a lower technological level, so that entry in the Arteche Group would **provide them with a competitive edge.** This would result in jointly owned companies where Arteche was the majority shareholder and where the partner was offered the opportunity of an exchange.

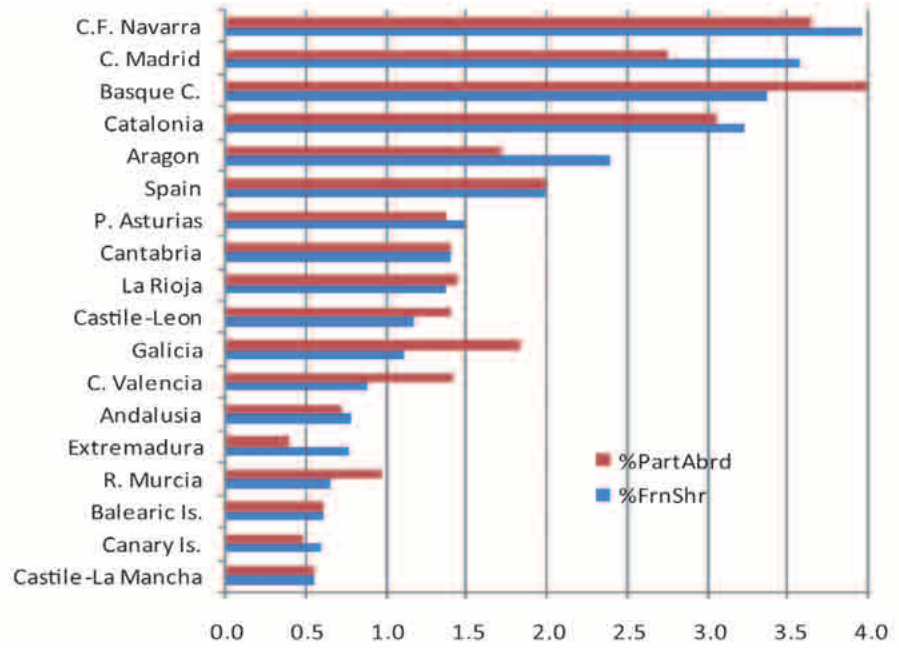
This strategy streamlines market access and allows them to employ trained staff. To facilitate transition and startup, the Arteche Group designates several people who would move to the destination country. Proper selection of these individuals is one of the keys to the Group's success in the penetration process, which has to be reinforced with support from headquarters.

This is how the Arteche Group proceeded in China, creating a partnership with DYH. Arteche DYH Electric Co., Ltd was established with the Arteche Group holding 60% of its shares. The staff selected to move to China included an Arteche Group manager, an operations manager, a financial controller, and an engineer. Training, daily demonstrations, and visits to the head office are some of the tools used to internalize the new culture in the Chinese company.

As we did in the previous sections, in Graph 3.21 we show the same index for manufacturing companies only. The first fact that stands out is that the percentage of companies which either hold shares in companies residing abroad or have foreign shareholders in their capital is roughly 2.5 times higher for manufacturing companies than for the economy as a whole. Again, the Basque Country is the autonomous community with the highest percentage of manufacturing companies with investments in companies residing abroad (even despite the fact that most of the companies in the MCC group are not included), followed by Navarra and Catalonia. Concerning the percentage of manufacturing companies whose capital includes some foreign-owned shares, the Basque Country ranks third, after Navarra and Madrid, and ahead of Catalonia. In the manufacturing industry, it is more obvious that, for all companies considered together, the percentage of companies with some foreign shareholder in the Basque Country (3.4%) is far higher than in Spain as a whole (2.0%). In other words, the Basque Country appears to offer more location advantages for

attracting companies in the manufacturing industry than in other industries. If we consider foreign shareholders participating in Basque companies and holding more than 25% of their capital in our analysis, the number of companies in the Basque Country in which this occurs drops from 855 to about 500.

Graph 3.21 Percentage of manufacturing companies with foreign shareholders (FrnShr) and with shares in capital of companies residing abroad (ShrAbrd)



Source: SABI-Informa, DVD, December 2008. Prepared by the authors.

3.4. **Entrepreneurial activity in the Basque Country**

Entrepreneurial activity is one of the **main drivers of economic growth**, and that is apparent based on the efforts of public authorities in the Basque Country[16]. We already examined its role in competitiveness in the former Report, stressing entrepreneurial tradition as its main strength.

The purpose of this section is to approach the situation as it relates to the **type of entrepreneurship that is considered most critical** for the innovation-driven stage: **high**

[16] See, for example, the Plan for Entrepreneurial Competitiveness and Social Innovation 2006/09, which views innovation and company size as key pursuits; or the Plan for Science, Technology, and Innovation 2010, one of whose programs is aimed at promoting technology-based and global-profile entrepreneurial activities. In addition, the recent presentation of the Euskadi Entrepreneurial Society Plan confirms the strategic role of entrepreneurial activity in the Basque Country.

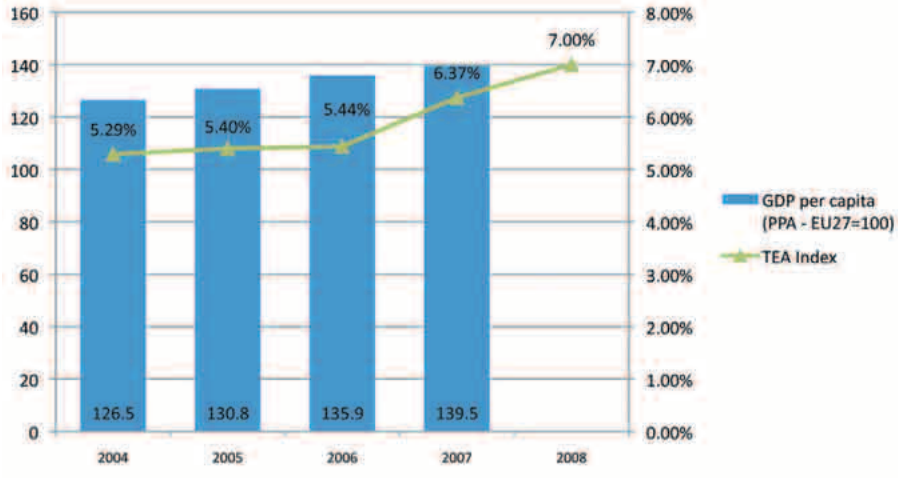
economic impact. It involves companies with an urge to innovate, an international approach, and rapid growth. Only under these circumstances is it possible to make recommendations for maintaining the competitive level described in the sections on performance (both regional and entrepreneurial, as described in this section).

Total Entrepreneurial Activity (TEA):

This index refers to the adult population (ages 18-64) involved in startups or who own a company that has not been operating for more than 42 months. The TEA is provided by the GEM Project on a yearly basis.

The following illustration shows how entrepreneurial activity (measured by the Total Entrepreneurial Activity rate, or TEA) and the level of economic development (measuring by per capita GDP) have gradually increased, with minor changes from one year to the next, but always in an upward direction.

llustration 3.1. Interaction between per capita GDP and total entrepreneurial activity (TEA) for the Basque Country.



Source: GEM (2008)

The Global Entrepreneurship Monitor (GEM) Project in the Basque Country

This project has been researching entrepreneurial activity under a global, national, and regional perspective since 1999.

Global GEM reports and for participating countries can be found at www.gemconsortium.org while results for Spain and its autonomous communities are at www.ie.edu/gem.

This profile for the Basque Country can be considered as characteristic of an economy in the innovation-driven stage.

The TEA (Total Entrepreneurial Activity) index in the Basque Country has shown a noteworthy increase in the past two years, one and a half percentage points over the first three years in the series.

Progress of entrepreneurial activity in the Basque Country

This rise in entrepreneurial activity places the Basque Country at a similar level as Spain and Finland, ranking higher than the four main European powers: Germany, France, United Kingdom, and Italy, showing positive progress. In terms of the autonomous communities in Spain, only three of them, in addition to the Basque Country, show a rise in the index (Madrid, Aragon, and Cantabria), while the remainder show a drop.

As regards the **entrepreneurial profile**, it hardly varies from one year to the next, nor does it between the three historical territories that make up the Basque Country. The percentage of male entrepreneurs continues to be higher. The most common age for entrepreneurship is around forty.

There are few entrepreneurs (not even a quarter of the total) who started up another business in the past or with experience in investing in entrepreneurial projects other than their own.

Potential of high-impact entrepreneurial activity for creating employment and added value

Concerning the types of entrepreneurial activity in terms of their impact, it is important to stress entrepreneurial activity considered as high-impact, characterized by innovative efforts, with a capacity for growth and for global competition. These companies' potential for generating greater impact in terms of creating jobs and generating added value is what makes them critical for making the transition into the new competitive stage.

High-Impact Entrepreneurial Activity

The following are considered innovative efforts, with the capacity to grow and compete worldwide:

- Companies are **innovative** when at least 25% of their sales are products that have been launched onto the market over the past three years.
- They are **international** when they export over 25% of their sales.
- They are **fast-growing** when their staff headcount increases by 10 people in five years or, otherwise, in two employees per year.

The data shown below are for a sample of 102 entrepreneurs who started up a company with support from the Basque Business and Innovation Centers (BICs)[17], as well as those whose companies include shares from a Basque venture capital fund[18] during the 2000-2005 period (See Peña (2009)[19].

[17] These centers are Beaz, Bic Berrilan, Cedemi, Ceia, and Saiolan.

[18] Considering their focus on startups, the venture capital funds from which we have drawn part of the sample were: Ezten FGR, Elkano XXI FCR, Inversión en Empresas Digitales FCR, and Seed Capital Bizkaia FCR. The companies with Fundación Sortek and Hazibide among their shareholders were also included in the sample.

[19] Peña, I. et al. "High-Potential Basque Entrepreneurial Activity (2000-2005)" Orkestra.

Combining the different criteria according to the established classification, out of a total of 102 projects included in the sample, low-impact companies accounted for 39.2%, mid- to low-impact companies for 42.2%, mid- to high-impact companies for 15.7%, and high-impact firms for 2.9%.

Table 3.12 General profile of startup companies backed by Basque BICs

Ranking based on Impact	Frequency (percentage)	Percentage distribution by activity (%)		
		Innovative	International	Fast-Growing
Low-impact company	40 (39.2%)	0.0%	0.0%	0.0%
Mid/Low-impact company	43 (42.2%)	72.1%	11.6%	16.3%
Mid/High-impact company	16 (15.7%)	87.5%	43.8%	68.8%
High-impact company	3 (2.9%)	100.0%	100.0%	100.0%
Total	102 (100%)	47.1%	14.7%	20.6%

Source: Peña, I. (dir.) (2009)

Highest-impact projects in the manufacturing industry

While entrepreneurial projects tend to concentrate in the banking, insurance, and services sectors, those with highest impact prevailed in manufacturing sectors. It is precisely in the manufacturing industry where entrepreneurial activity is more likely to introduce radical product innovations, leading projects to generate higher impact.

Obviously, higher impact calls for greater financial needs. In this sense, the capital invested initially is considerably higher for the most ambitious projects. In addition, high-impact projects actually show a higher proportion of foreign shares in their capital. These shares can promote advantages in access to technology, human talent, knowledge of foreign markets, and management experience that would be difficult to secure otherwise.

Entrepreneurial teams

The most ambitious projects tend to have a greater number of entrepreneurial partners behind them. Needless to say, starting up new ventures with entrepreneurial teams instead of individual entrepreneurs makes it easier to develop multidisciplinary activities, and by being joint efforts, they reduce the risk associated with ambitious projects. They can also appear as more trustworthy to investors, given that a well organized team boosts a project's feasibility.

Although at the beginning all projects are primarily financed with equity, over time other sources of funding begin to have a greater presence in the financial structure behind high-impact projects. The financing needs caused by growth cannot be covered by the entrepreneurs, and therefore they seek further funding from outside investors. In other words, entrepreneurs leading high-impact ventures appear to be better equipped to secure funding over time. Clearly it becomes easier to attract financing after the first years of a venture's existence, given that investors reduce the uncertainty inherent to high-impact projects.

Innovation activities are another characteristic feature in the behavior of high-impact ventures. These ventures not only show a stronger commitment to R&D efforts (e.g., a greater number of companies involved); they also allot a greater percentage of their sales revenue to R&D. They also combine internal and external R&D efforts with greater intensity than that of lower-impact ventures. Therefore, the higher the impact, the stronger cooperation with research centers, universities, and other companies in pursuing R&D efforts is.

Greater competitive tension leads to the development of new products and services

Despite customers perceiving greater novelty, both low and mid- to low-impact ventures face strong rivalry to a greater extent than other ventures. Therefore, it appears that this competitive pressure forces entrepreneurs to develop projects with new products and services in order to enter the market, thus fostering innovation among new and existing companies.

The most ambitious projects are the ones most likely to go international

Given that ***internationalization*** of sales is another one of the indicators used to measure impact, the most ambitious ventures have distinctly higher export rates. However, in addition to sales, these ventures make greater purchases abroad and have higher staff headcounts in the rest of Spain or abroad. In other words, they are not only international in selling their products and services, but also in developing other activities in the value chain.

Regarding when they perceive greatest difficulties in securing ***financing***, entrepreneurs consider it more difficult to seek investment when their focus is to grow or innovate. This is particularly true of high-impact ventures whose financing needs are minimally fulfilled with public funding.

An important challenge for the future is to build up and boost a Basque ecosystem that will enable the different economic and social agents to develop a higher number of high economic impact entrepreneurial ventures.

3.5. **Overall conclusions and recommendations**

Positive results of entrepreneurial activity and of the economic and financial analysis

In each section, we offered the main conclusions drawn from the analyzed data. To recap, we must begin by pointing out the positive results observed in the progress of entrepreneurial activity and in the business and financial analysis.

In terms of the business and financial analysis, the return on equity of manufacturing companies is above the European average and, after 2007, also above the Spanish average. The apparent borrowing costs and comparatively lower levels of borrowing than in other autonomous communities complete this picture. The business and financial soundness of Basque companies is confirmed by their smaller reliance on short-term financing. The trend in borrowing was increasing until 2005, when it leveled out and even declined slightly, which is helpful for facing the current financial challenges. Operating profit and the return on financial assets are also good. The fact that Basque businesses have performed well in recent years in terms of their economic and financial structure is likely to be a positive factor when it comes to dealing with the current crisis.

Meanwhile, the available data **do not confirm the widespread opinion about smaller company size** in the Basque manufacturing industry, and they show that, during the present decade, the trend of shrinking company sizes in the Basque Country appears to have halted. This is due to industry specialization in the Basque Country. However, when compared by sectors, average size of industrial companies in the region is somewhat smaller than the European average for the same sectors.

Basque promotion and participation in corporate groups

In terms of creating corporate groups, Basque companies have been proactive in implementing **policies for developing or joining corporate groups**, so that they now rank highest among autonomous communities according to the indicators used. Considering that Spain is an outstanding instance of companies holding shares in other firms, it would be reasonable to assume that Basque companies would also stand out in this respect at an international level.

Conversely, there is a need for a **substantial increase** in the Basque Country's **export intensity**, despite the positive trend in exports until 2008, when the economic crisis started to bite.

A breakdown of growth figures for exports of long-standing and new products and markets also indicates that Basque companies have managed to innovate in products and markets, thus moving into increasingly complex export stages.

Sophistication of Basque exports compared to the average for Spain

In addition, the Basque Country has a somewhat higher **sophistication index** (adjusted by quality) than the **average for Spain**, ranking after Madrid, Catalonia, and Valencia. The Basque Country was also the autonomous community where this index experienced highest growth during the period 1996-2005. Compared to the countries for which this index can be calculated, the Basque Country ranks in the highest quartile of countries in terms of its level of sophistication.

Another positive sign cited in this report is that the Basque Country is one of the three autonomous communities whose percentage share of Spanish foreign direct investment is greater than its share of GDP. Conversely, the Basque Country's share of the flow of stock of inward FDI in Spain is less than its share of GDP, which indicates that this competitiveness factor has not been adequately developed. Despite this fact, we would like to point out that the percentage of Basque companies with some foreign shareholders, however small their share (1.4%) is higher than the average for Spain (1.2%).

The overall data for **entrepreneurial activity** show positive scores, with an increase in recent years that could be interpreted as yet another indication that the requirements for moving towards a new stage are being met.

Progress towards an innovation-based economy

Our general conclusion is that there are signs that the Basque economy is evolving towards parameters more typical of an innovation-based economy, such as positive progress of export intensity, creation of business groups, innovation in products and markets observed after a breakdown of growth in exports, increased sophistication of exports, or share of FDI.

However, there is still **room for improvement** in certain areas, based on which we will now provide a series of recommendations.

3.5.1. *Recommendations for universities and research institutions*

As was the case for the regional performance indicators, one of the main challenges for business performance researchers is to **find indicators that are accurate enough** to guide policies that address companies' real needs. The studies performed by Orkestra both in export breakdowns and in examining export sophistication and the possible approaches for increasing the degree of sophistication open a line of work along which efforts ought to continue.

3.5.2. *Recommendations for public authorities*

Selective promotion of entrepreneurial activity

The first recommendation is that efforts to promote high-impact entrepreneurial activity should be selective and should be targeted and tailored to specific groups, depending on individuals' and companies' experience and functional and industry diversification. We would also like to stress the fact that the different groups can achieve greater experience through training.

Secondly, projects defined as high-impact, with greater potential for generating greater impact in terms of creating jobs and generating added value, prevail in the manufacturing industry, whereas entrepreneurial projects in general are concentrated in the services industry. Therefore, public authorities should promote company startups in the manufacturing industry.

Third, high-impact entrepreneurial ventures have different needs than conventional projects (e.g., financial needs, human resources, market access, patents, etc.). Hence, policies and programs aimed at these ventures also need to be different.

We must also stress the room for improvement in **export intensity** among companies and **attracting inward FDI**. Although ongoing efforts have been made in both these areas in recent years, it is important to **reinforce government policies** along these lines. As we mentioned earlier, attracting foreign capital calls for making the innovation system more appealing, and in order to do so it is important to be capable of generating specific externalities for certain clusters. We analyze this aspect further in the section on clustering as another one of the elements in the model that contributes to competitiveness.

To improve the two last aspects described above, all levels of government must make an effort to foster and finance them by making good use of national and regional resources and possibly also by developing financial instruments specifically for this purpose. In particular, they must provide decisive support for the development of innovative, high-technology businesses in the Basque Country and for the establishment of joint ventures between Basque firms and companies from the rest of Spain or other countries. Another challenge is the absence of research centers in the Basque Country associated with the CSIC, which calls for coordination between different levels of government.

3.5.3. *Recommendations for companies*

The critical aspects highlighted for public authorities are equally relevant for companies. Bearing in mind that the tendency of the average size of companies to decrease has halted and the efforts to create corporate groups are showing positive results, our recommendations focus primarily on export intensity.

In this case, our conclusions do not only address the quantitative aspect. It is not enough merely to export more. We must be capable of **drawing a road map towards greater sophistication** of the products and services being exported. Building on existing competencies, these road maps should help companies gradually evolve towards new, more sophisticated products in which their existing competencies are still a strength, but which are more sophisticated than the ones they are exporting at present.

4. Achieving competitive performance through innovation

This section expands on the analysis of performance in the previous section, with a more in-depth examination of innovation. It is structured on three main axes:

1. First, we present the idea that different regions have different innovation systems. To understand both the behavior of individual actors with regard to innovation and the effectiveness of different policies, it is necessary to understand the **type of system** we are dealing with. For the latter purpose, first we present the results of the Institute's efforts to define different types of regional innovation systems and to understand the characteristics of the Basque Country.
2. Next, we examine the **characteristics of this system** based on the data for R&D. The Institute works with a broader concept of innovation, so this study is interpreted as one possible approach to innovation, which in some of the paragraphs in this section, including the conclusions, will be supplemented by others.
3. Finally, we examine **R&D done exclusively by businesses**, thereby complementing the regional vision presented in the preceding sections.

4.1. **Position of the Basque regional innovation system compared to other regions**

4.1.1. *Introduction*

There are different particular ways to achieve the welfare of a territory

As seen in the section on regional performance, the level of welfare of a territory today depends increasingly on achieving high levels of productivity. But while it appears that, at least officially, all public authorities and decision-makers claim to pursue that goal, the ways of doing so differ. Each territory must pursue its own path to enhancing productivity and have its own competitive strategy.

Like any strategy, it must be built on the history of that territory and on the strengths and weaknesses which result from that history. In that sense, we must not forget the comparative advantages of a territory when planning its strategy. But while we must take into account the existing constraints as we start to build on present circumstances, we must not fall into the sort of determinism that leads to inaction. To some extent, the future can also be created. Certainly, we cannot create something from nothing, but strategic decisions can lead to the development of possibilities and potentialities, which for lack of

Foster the development of potentialities: native competitive strategy

impetus, had remained dormant or undeveloped. At the present stage of competitive development, a key element of the competitive model is how innovation, on which productivity ultimately depends, takes place. Thus one of the main distinguishing factors in a territory's competitiveness model is its innovation model.

One of the tools we have for understanding the specificities of each territory in terms of its innovation system is the typology. Typologies help each territory to find its own path and, by comparison with others which may be facing similar challenges, to identify practices that can help it to improve its innovation processes and competitiveness. Thus, this second competitiveness report seeks to further our knowledge of the innovation system in the Basque Country and to identify regions which either face similar challenges or which in contexts to some extent similar have excelled in terms of their innovative and competitive performance. For these purposes, below we present the results of two projects that have developed innovation typologies for the European regions and the autonomous communities of Spain.

Define different types of innovation systems in order to identify better practices for each type

4.1.2. *The Basque Country within the EU-25 Region Typology*

Definition of types of innovation systems for EU-25 regions

This section presents the results of the definition of types of innovation systems for 188 EU-25 regions, the detailed results of which will be published in Navarro et al. (2009).[20]

To define this typology we chose 20 indicators (see these variables and their values in Table 4.1). Based on these variables, we did a factor analysis that enabled us to group a large proportion of these indicators based on two factors:

1. The first factor, the horizontal axis in Graph 4.1, represents roughly **the economic and technological development** of the region, as seen in the fact that its positively-related variables are per capita GDP, productivity, human resources in science and technology, employment in knowledge-intensive, financial and business services, spending on R&D and patents.
2. The second component, the vertical axis in Graph 4.1, represents **sectoral specialization**, as shown by the positive relation between this axis and employment in industry and in medium and hi-tech manufacturing.[21]

[20] Navarro, M.; Gibaja, J.J.; Bilbao-Osorio, B. and Aguado, R. (2009). Patterns of Innovation in the EU-25 Regions: a Typology and Policy Recommendations (publication upcoming).

[21] The factors account for 43.2% and 14.1%, respectively, of the variance in the variables.

Table 4.1: Average values of the selected indicators in the groups of EU-25 regions

Selected indicators	G1	G2	G3	G4	G5	G6	G7	G8	EU-25
Per capita GDP (€)	8,060	7,393	16,501	23,454	26,492	27,346	31,446	37,575	23,651
GDP per worker (€)	21,393	18,243	43,536	55,826	59,734	58,248	64,117	73,711	52,589
Patents (per million inhabitants)	2.7	2.9	11.7	47.6	124.3	36.4	278.3	103.3	76.2
Hi-tech patents (per million inhabitants)	0.4	0.5	1.7	6.9	15.5	8.5	52.0	26.7	13.5
Total R&D (% GDP)	0.50	0.71	0.85	1.16	1.80	1.57	3.47	2.54	1.58
Business R&D (% GDP)	0.16	0.52	0.32	0.62	1.21	0.85	2.78	1.60	0.98
Higher Education R&D (% GDP)	0.24	0.11	0.35	0.34	0.37	0.42	0.42	0.57	0.37
Government R&D (% GDP)	0.10	0.08	0.18	0.19	0.22	0.29	0.27	0.35	0.22
R&D per researcher (thousands of €)	32.9	47.9	102.8	176.8	222.2	184.4	212.4	199.0	160.1
Agriculture (% employment)	16.7	4.5	7.8	3.7	3.5	2.1	2.6	1.2	5.3
Industry (% employment)	28.2	40.2	26.6	25.1	28.0	19.2	28.5	15.5	25.0
Medium and hi-tech manufacturing (% employment)	4.2	10.6	4.0	5.9	9.2	5.3	12.2	4.9	6.6
Business and financial services (% employment)	22.9	22.6	27.0	33.0	32.2	39.0	35.2	46.3	33.1
Knowledge-intensive services (% employment)	7.7	7.6	11.2	12.9	14.8	18.1	16.2	22.1	14.4
Population density (natural logarithm)	4.6	4.7	4.9	5.1	5.4	5.5	5.2	6.7	5.3
Accessibility	13.4	27.2	23.4	104.2	165.0	104.8	166.9	170.3	105.3
Employment (% population)	37.0	40.4	38.5	42.4	44.4	47.6	49.2	51.7	44.1
HRST (% employment)	17.1	18.7	20.9	26.4	26.3	27.0	32.4	36.7	26.1
Tertiary education (% population ages 25-64)	70.2	85.2	52.2	67.0	70.3	65.9	80.9	74.8	68.8
Students ISCED 5_6 (% total students)	19.7	11.0	18.9	16.8	14.2	14.4	14.2	17.3	16.2
Continuing education (% population ages 25-64)	4.5	3.9	7.8	7.7	7.4	15.7	11.2	17.6	9.8

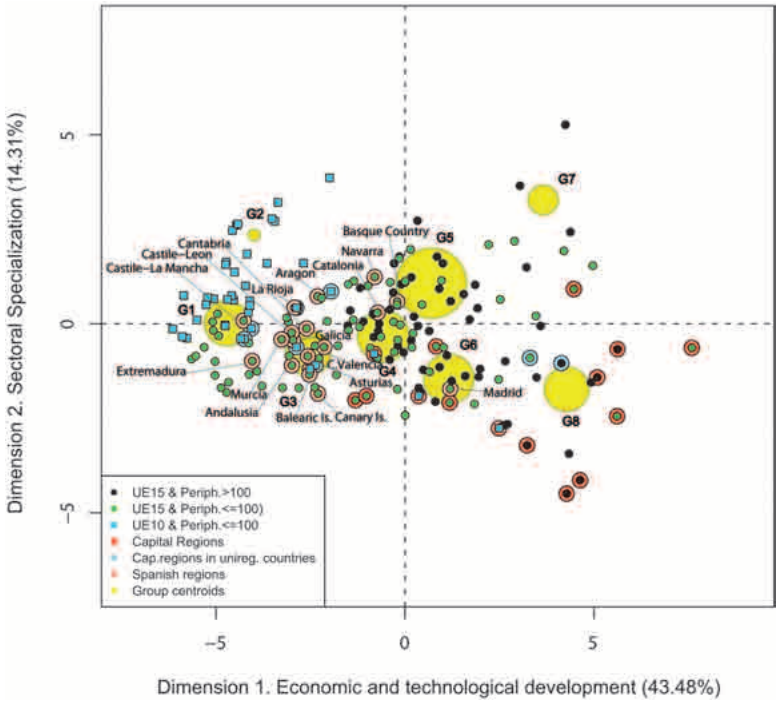
Source: Eurostat, PRO INNO Europe and Eustat. Prepared by the authors.

The size of the circles of different groups (also called centroids in the graph) represents the size of the regions belonging to the group. The regions with high levels of economic and technological development are at the far right of the figure, and to the left those with lower levels; the regions with a highly specialized industry or manufacturing are at the top, and at the bottom those with lower industrial specialization and higher specialization in the services sector.

Thus, we find that:

- The regions with greater accessibility tend to be on the right side (developed), and peripheral regions on the left (less developed), the Nordic countries being the main exception to this.
- The regions on the left are in the enlargement countries and southern Europe.
- Finally, the capital regions are located mainly towards the bottom of the chart, reflecting the lower industrial orientation of these regions (except the Helsinki region).

Graph 4.1. Position of the EU-25 regions with regard to the two main components: regional typology derived from cluster analysis



Source: Navarro et al. (2009).

In all cases, the capital regions are located to the right of the other regions of their countries, which shows the relation between being the country's capital and a higher level of economic and technological development.

Peripheral regions

A peripheral region is defined as a region with low accessibility.

Accessibility

Accessibility is the main product of the transport system. The latter determines the locational advantage of region with respect to all regions (including itself). Accessibility indicators measure the benefits to households and businesses from the existence of infrastructures relevant to their region.

Capital regions

Regions in which is located the capital of a country which has subnational levels of government.

The Basque Country is located at the center of the graph:

The Basque Country: average levels of economic technological development

- The centrality on the horizontal axis implies an intermediate position in relation to the set of variables that define this axis of the economic and technological development of the region: GDP per capita, productivity, human resources in science and technology, employment in knowledge-intensive, financial and business services, R&D spending and patents.
- The centrality on the vertical axis, which represents employment in industry and in medium and hi-tech manufacturing, is due to the fact that, although manufacturing has a considerable importance in the Basque economy, that of high technology is moderate.

Through cluster analysis we identified 8 groups of regions (see Table 4.2):

1. peripheral agricultural regions with weak economic and technological development
2. restructuring industrial regions with significant weaknesses
3. peripheral regions with weak economic and technological development
4. central regions of intermediate economic and technological development
5. restructured industrial regions with some economic and technological capacity
6. service regions with some economic and technological capacity
7. technologically-advanced industrial regions
8. capital regions with advanced services.

Table 4.2 Members of each of the 8 groups of EU-25 regions

In bold, the furthest from the center in each group. On the right, in parentheses, what would be its nearest group.

G 1	Castilla-la Mancha (ES)	Extremadura (ES)	Anatoliki Makedonia, Thraki (GR)	Kentriki Makedonia (GR)	Dytiki Makedonia (GR)
	Thessalia (GR)	Ipeiros (GR)	Ionia Nisia (GR)	Dytiki Ellada (GR)	Sterea Ellada (GR)
	Peloponnisos (GR)	Voreio Aigaio (GR)	Notio Aigaio (GR)	**Kriti (GR) (G3)**	Dél-Dunántúl (HU)
	Észak-Alföld (HU)	Dél-Alföld (HU)	Lithuania (LT)	Latvia (LV)	Lódzkie (PL)
	Malopolskie (PL)	Slaskie (PL)	Lubelskie (PL)	Podkarpackie (PL)	Swietokrzyskie (PL)
	Podlaskie (PL)	Wielkopolskie (PL)	Zachodniopomorskie (PL)	Lubuskie (PL)	Dolnoslaskie (PL)
	Opolskie (PL)	Kujawsko-Pomorskie (PL)	Warminsko-Mazurskie (PL)	Pomorskie (PL)	
	Algarve (PT)	Centro (PT)	Alentejo (PT)		
G 2	**Strední Cechy (CZ) (G3)**	Jihozápad (CZ)	Severozápad (CZ)	Severovýchod (CZ)	Strední Morava (CZ)
	Moravskoslezsko (CZ)	Közép-Dunántúl (HU)	Nyugat-Dunántúl (HU)	Észak-Magyarország (HU)	Západné Slovensko (SK)
	Stredné Slovensko (SK) (G1)	Východné Slovensko (SK)			
G 3	Burgenland (AT)	Cyprus (CY)	**Jihovýchod (CZ) (G2)**	Estonia (EE)	Galicia (ES)
	Principado de Asturias (ES)	Cantabria (ES)	La Rioja (ES)	**Aragón (ES) (G4)**	Castilla y León (ES)
	Comunidad Valenciana (ES)	Illes Balears (ES)	Andalucia (ES)	R. de Murcia (ES)	Canarias (ES)
	Corse (FR)	Valle d'Aosta (IT)	Umbria (IT)	**Marche (IT) (G4)**	Abruzzo (IT)
	Molise (IT)	Campania (IT)	Puglia (IT)	Basilicata (IT)	Calabria (IT)
	Sicilia (IT)	Sardegna (IT)	Malta (MA)	Mazowieckie (PL)	**Slovenia (SI) (G4)**
G 4	Salzburg (AT)	Tirol (AT) (G6)	R. Wallonne (BE)	Brandenburg (DE)	Mecklenburg-Vorpommern (DE)
	Saarland (DE)	Sachsen-Anhalt (DE)	Schleswig-Holstein (DE)	**País Vasco (ES) (G5)**	Cataluña (ES)
	Itä-Suomi (FI)	**Champagne-Ardenne (FR) (G3)**	Basse-Normandie (FR)	**Bourgogne (FR) (G3)**	Nord - Pas-de-Calais (FR)
	Lorraine (FR)	Pays de la Loire (FR)	**Bretagne (FR) (G5)**	Poitou-Charentes (FR)	Aquitaine (FR)
	Limousin (FR)	**Attiki (GR) (G6)**	Közép-Magyarország (HU)	Liguria (IT)	P. A. Bolzano-Bozen (IT)
	P. A. Trento (IT)	Friuli-Venezia Giulia (IT)	Toscana (IT)	Friesland (NL)	Drenthe (NL)
	Zeeland NL)	**Lisboa (PT) (G6)**	Norra Mellansverige (SE)	Mellersta Norrland (SE)	Småland med öarna (SE)
G 5	Niederösterreich (AT)	Kärnten (AT)	Steiermark (AT)	Oberösterreich (AT)	Vorarlberg (AT)
	Vlaams Gewest (BE)	Niedersachsen (DE)	Nordrhein-Westfalen (DE)	Rheinland-Pfalz (DE)	Sachsen (DE)
	Thüringen (DE)	C.F. de Navarra (ES)	**Picardie (FR) (G4)**	Haute-Normandie (FR)	Centre (FR)
	Alsace (FR)	Franche-Comté (FR)	**Midi-Pyrénées (FR) (G7)**	Rhône-Alpes (FR)	Auvergne (FR)
	Piemonte (IT)	Lombardia (IT)	**Veneto (IT) (G4)**	Emilia-Romagna (IT)	Limburg (NL)
	Border Midlands and Western (IE) (G4)				
G 6	**Bremen (DE) (G8)**	C. de Madrid (ES)	**Åland (FI) (G4)**	Languedoc-Roussillon (FR)	P. Alpes-Côte d'Azur (FR)
	Lazio (IT)	Overijssel (NL)	Gelderland (NL)	Flevoland (NL)	Övre Norrland (SE)
	Bratislavský kraj (SK)	North East (UK)	North West (UK)	Yorkshire and The Humber (UK)	East Midlands (UK)
	West Midlands (UK)	South West (UK)	Wales (UK)	Scotland (UK)	**Northern Ireland (UK) (G4)**
	Southern and Eastern (IE)				
G 7	Baden-Württemberg (DE)	Bayern (DE)	Hessen (DE)	**Etelä-Suomi (FI) (G8)**	Länsi-Suomi (FI)
	Pohjois-Suomi (FI)	Noord-Brabant (NL)	Sydsverige (SE)	Västsverige (SE)	
G 8	Wien (AT)	R. de Bruxelles (BE)	Praha (CZ)	Berlin (DE)	Hamburg (DE)
	Denmark DK)	Île de France (FR)	Luxembourg (LU)	Groningen (NL)	Utrecht (NL)
	Noord-Holland (NL)	Zuid-Holland (NL)	Stockholm (SE)	Östra Mellansverige (SE)	Eastern (UK)
	London (UK)	South East (UK)			

Source: Navarro et al. (2009)

In general, we see that in the groups on the extreme left (G1 and G2) and right (G5, G6, G7 and G8) productive specialization is more closely associated to belonging to one group or another, while in the intermediate groups (G3 and G4) it is essentially economic and technological development (factor 1) that determines membership in one group or another.

Looking at the position in this classification of the Basque Country and other advanced regions of Spain, we see that the Basque Country and Catalonia are in an intermediate group (the Basque Country at the upper limit, about to move to group 5) together with a large number of regions in other countries of the EU-15 (especially France) in a group of similar economic output and lower technological input and output than the EU average. Navarra is located in a group of EU-15 industrial regions with levels of economic output higher than the EU average, but slightly lower than average technological input and output. Madrid is located, along with other capital regions of intermediate countries (Rome and Bratislava), in a group of regions characterized by their services orientation, outside the group of advanced capital regions.

There is no Spanish autonomous community in groups G7 or G8, the most economically and technologically advanced in the EU-25.

The transition to higher economic and technological levels is occurring

From the Basque Country's position in these groups one can conclude that its point of departure is Group 4, with an average level of economic and technological development, and the logical evolution of its efforts is towards Group 5, of similar characteristics but superior in terms of economic and technological levels. This would be another way to present the transition of the Basque Country to the stage of innovation.

4.1.3. *The Basque Country within the Autonomous Community Types*

For the definition of types of innovation systems among the regions of Spain, the Institute did research (see details in "Typologies in regional innovation systems: The case of Spain") that locates each community with respect to two axes:

"Las tipologías en los sistemas regionales de innovación. El caso de España"

The complete findings will be published in Navarro, M. and Gibaja, J.J. (2009). Las tipologías en los sistemas regionales de innovación. El caso de España. *Ekonomiaz* (upcoming publication).

This research, carried out at the Institute, was done on the basis of 133 indicators from the REGES base, which through factor analysis, were grouped into 31 factors.

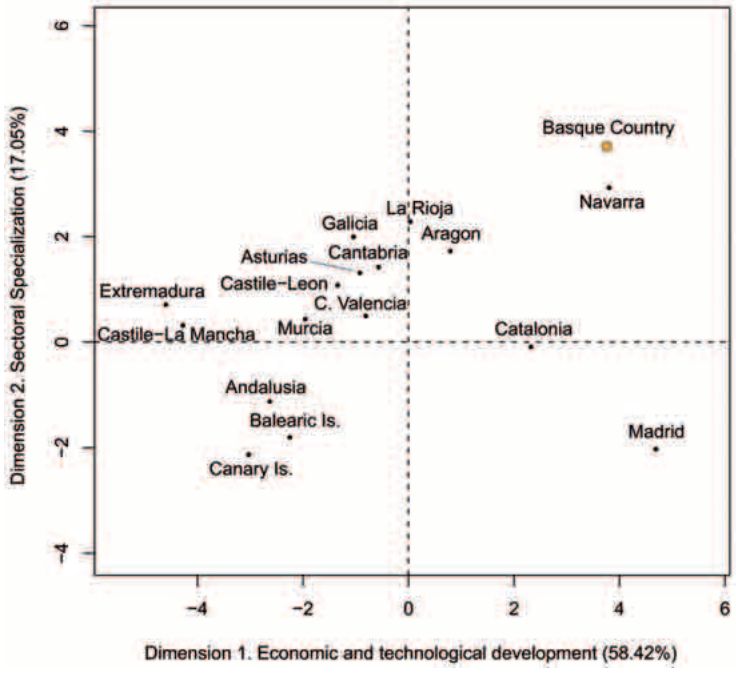
Based on these factors, a second factor analysis was done, which enabled us to identify two main factors.

- The horizontal axis measures the level of economic and technological development of the region (as shown by the position to the extreme right of the variables of economic output, scientific and technological output, innovation output, business R&D, sectoral technological level, ICT level, and business size).

- EThe vertical axis is closely related to industrial specialization (up) and services (down) of the regions and the factors related to such specialization (usually more regional government support for the innovative activities of businesses and more cooperation among businesses towards the top, and more government R&D, service sector and airport infrastructures towards the bottom).

The position of the autonomous communities relative to the factors is shown in Graph 4.2.

Graph 4.2 Location of the Autonomous Communities relative to the factors



Source: Navarro et al. (2009)
The factors explain 58% and 17% of the variance in the variables.

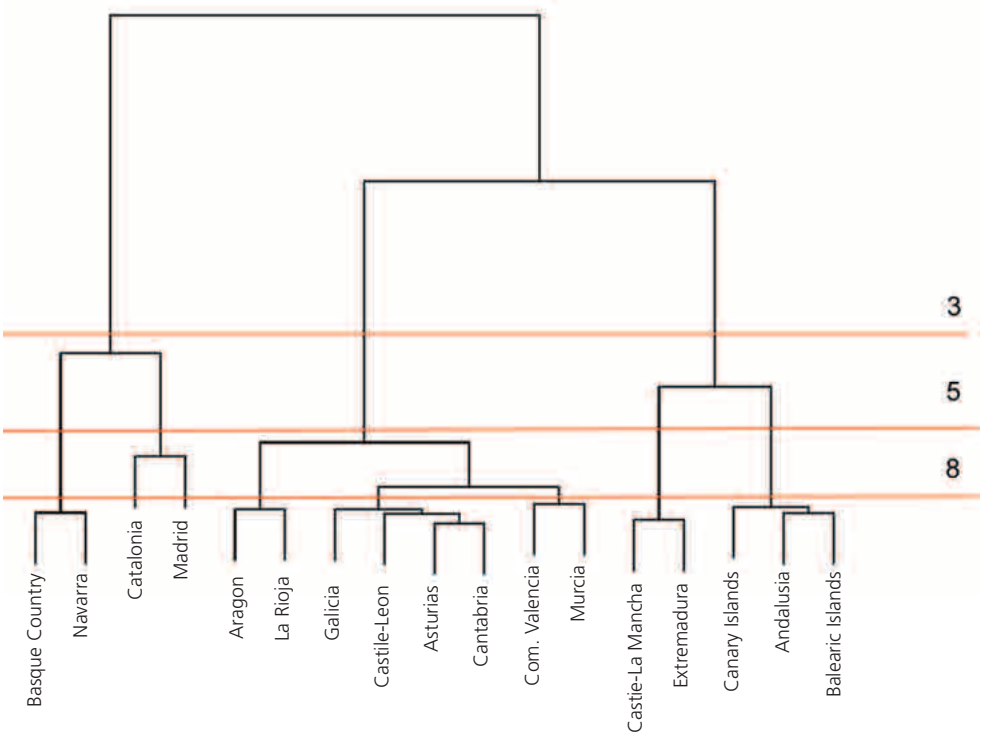
Although Graph 4.2 gives an idea of the groupings of the autonomous communities, the tree in Graph 4.3 provides the results of the automatic classification, which gives a truer view of the positions. The horizontal lines joining the vertical lines show how the autonomous communities are grouped. The analysis can be done at different levels of disaggregation. Lines 3, 5 and 8 show the different levels at which the autonomous communities can be grouped, giving this number of groups:

- Looking at line 3, the tree shows an initial clear distinction between three large groups, depending primarily on the level of technological and economic development of the regions.
- However, in order to increase the level of definition of the groups, we refined the classification to come up with 5 groups (see line 5). In this classification, in addition to the level of technological and economic development, the sectoral component is given

greater weight. Thus, among the most advanced we distinguish between Navarra and the Basque Country, on the one hand, both of which are industrial, and Catalonia and Madrid, with more services, especially the latter, and among the least advanced we distinguish between Extremadura and Castile-La Mancha, more agricultural, and the Canary Islands, Andalusia and the Balearic Islands, more tourism based.

- And if the classification was in 8 groups, Catalonia and Madrid would be separated (the former is more focused on industry and the latter on advanced services) and the middle group would be disaggregated between Aragon and La Rioja (more industrial), Valencia and Murcia (more agricultural), with the remainder in an intermediate position.

Graph 4.3 Cluster tree of the Spanish Autonomous Communities



Source: Navarro et al. (2009)

Another significant feature of this 8-group classification is that it groups the regions by geographical proximity. Thus, we have Basque Country-Navarra (located in the center north), La Rioja and Aragon (in the central part of the Ebro basin), Galicia, Asturias, Cantabria and Castile-Leon (in the northwest), Valencia and Murcia (central Mediterranean), Castile-La Mancha and Extremadura (center-south) and the Canary Islands, Balearic Islands and Andalusia (southern periphery). Moreover, even in the classification in 3 main groups we can see a clear geographical proximity of the regions in each group, with the exception of the two major urban centers in Catalonia and Madrid. We might define the five groups selected in the cluster analysis, shown in Graph 4.4, as follows:

(G1) Agricultural with a low level of development (Extremadura and Castile-La Mancha)
(G2) Peripheral tourism-based with little industry, low technological development (Canary Islands, Balearic Islands and Andalusia)
(G3) Intermediate with relative economic and technological development (Murcia, Valencia, Galicia, Asturias, Cantabria, Castile-Leon, La Rioja, Aragon)
(G4) Industrial and economically and technologically advanced regions (Basque Country and Navarra)
(G5) Advanced regions with major urban centers

Graph 4.4 Groups identified in the cluster analysis

Examining more closely the Basque Country and the factors that resemble and differ from Navarra, Madrid and Catalonia, the other advanced regions, our conclusions are as follows:

1. Compared to Navarra, the similarities between the two regions derive from the relative similarity of their sectoral and business structures, public financing for innovation, private sector policies of cooperation and internationalization, their favorable demographic, education and labor market indicators, and small size (especially Navarra). By contrast, the Basque Country outperforms Navarra in economic output, innovation input and technology centers and parks, while the latter outperforms the former in science and technological output and higher education R&D.

2. In comparison with Catalonia, the Basque Country is stronger in terms of economic output, due in part to its larger business sector and industrial profile, as well as in R&D and innovation, business partnerships, public financing for innovation, its network of technology parks and centers, land-based physical infrastructures and, finally, in education level and labor market. By contrast, Catalonia surpasses the Basque Country in scientific and technological output, higher education and government R&D, ICT, venture capital and business services, in addition to the size of the region.
3. Compared with Madrid, although the Basque Country outperforms Madrid in terms of economic output, the latter scores higher in scientific, technological and innovative output. Business structure and technological and innovation infrastructure differ markedly in these two communities: the Madrid business sector, larger, service-based and more internationalized financially than the Basque, is located in areas of higher technological development, with strong higher education, public research institutions, venture capital companies, business services and ICT.
4. Basque business sector, however, exceeds in its industrial character, greater cooperation in innovation and internationalization of trade, and an environment of a strong network of technology centers and parks and public policies to support innovation. As for the general socio-economic environment, largely due to its status as the national capital, Madrid has been able to attract more talent and benefits from a population with a higher level of education, a more favorable demographic structure and a far more developed airport infrastructure.

The objective is to find regions to serve as a reference in benchmarking

The purpose of this section is to find regions to serve as a reference in benchmarking to help define a strategy for moving forward in the stage of innovation. Navarra is the best region for benchmarking among the regions analyzed, since Madrid and Catalonia have very different characteristics. This result is consistent with what has been said about the European typology. However, there is one element that crops up in all comparisons and therefore is necessary to set out as a challenge: the need to improve scientific and technological output.

4.2. **Analysis of the Basque innovation system based on R&D statistics**

The analysis of the innovation system of the Basque Country in this section is based on the use of the R&D statistics. As we said above, this is a partial approach to innovation. These statistics have the following features:

- They provide more data on resources than on capabilities or innovative output.
- They do not take into account innovative activities other than R&D
- The values that a territory shows in the aggregate R&D indicator are highly influenced by its sectoral and business structure.

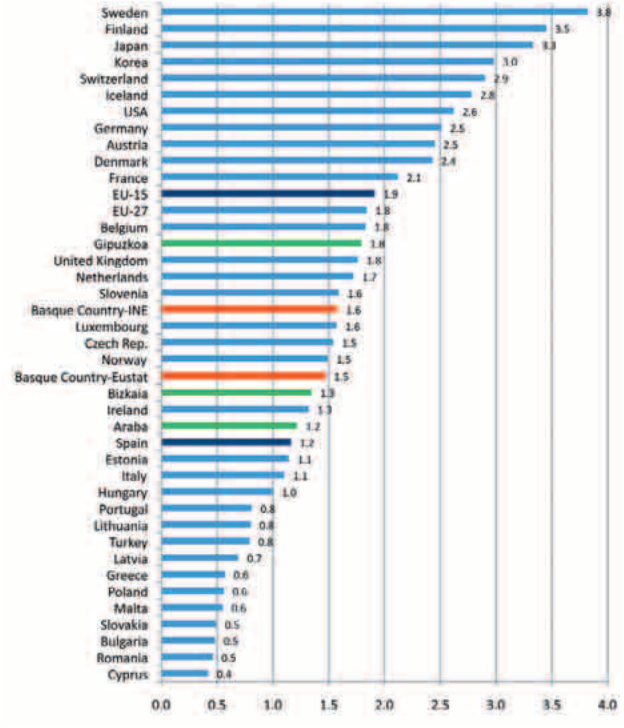
But in addition to the latter, such statistics offer the best data on innovative activity for international and temporal comparisons. They also offer the most comprehensive information on key components of the innovation system (businesses, universities and government) and it must be taken into account that innovative activity and the new sectors (ICT, biotechnology, nanotechnology, etc.) depend increasingly on science and R&D. Thus, this section examines from a comparative perspective the R&D activities of all the actors that make up the R&D system of the Basque Country.

4.2.1. *Analysis of R&D spending across the Basque Country*

Basque Country level medium-low in relation to advanced countries

R&D expenditure as a percentage of GDP is the chief ***aggregate indicator*** for R&D, and in the Basque Country the level is medium-low in relation to advanced countries (see Graph 4.5): 1.5% according to Eustat, and 1.6% according to the INE (Spanish Statistical Institute) in 2006, compared to 1.9% in the EU-15, 2.6% in the US and 3.3% in Japan. But if the comparison is made with other regions, the Basque Country scores somewhat better (see Graph 4.6), since country averages are largely due to the concentration of R&D in a few regions. Thus, in R&D spending the Basque Country ranks 55 among all 146 regions in EU-15 (i.e., above average) and against all Spanish autonomous communities, Basque trails only Navarra and Madrid (the latter of which benefits from the capital effect, the centralized policy on R&D and the existence of entities such as the CSIC-Spanish National Research Council). Within the Basque Country, Gipuzkoa (1.8%) surpasses Bizkaia (1.3%) and Araba (1.2%).

Graph 4.5: R&D expenditure as a percentage of GDP (2006 or closest year)



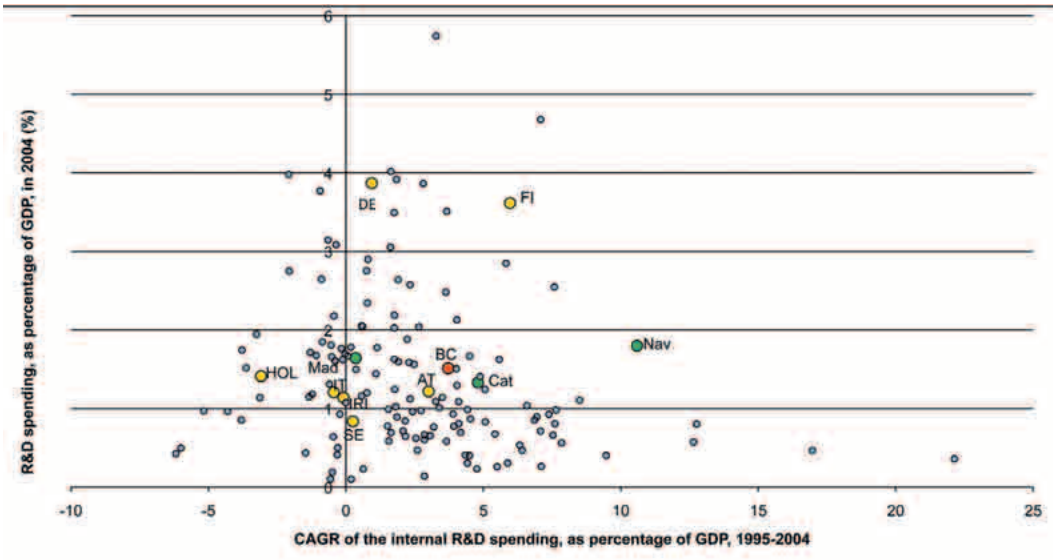
Source: Eustat, INE, Eurostat and OECD.

Increase in the rate of R&D spending as a challenge for the Basque Country

In conclusion, although in terms of R&D spending rates we rank low-to-middle in comparison to countries, we feel our position is better in comparison to regions. Without a doubt, improving this position is one of the challenges currently facing the Basque Country. In fact, there has been a sustained effort in

this regard over the past few years that appears to be bearing fruit, according to the latest available data.

Graph 4.6 Rate of R&D spending in the regions of the EU-15



Source: REGUE database, from Eurostat.
Yellow bubbles: Groningen (NL), Baden-Württemberg (DE), Vorarlberg (AT), Länsi-Suomi (FI), Småland med Öarna (SE), Lombardy (IT) and Ireland (IRL). Green bubbles: Madrid (MAD), Catalonia (CAT) and Navarra (NAV). Red Bubble: Basque Country (PV)

In terms of ***growth in the rate of spending*** on R&D compared with other regions (Graph 4.7) the Basque Country ranks below some 46 regions (just under one third). A careful look at these regions shows that most of them are either areas (in Spain, Portugal, Italy, etc.) with a lower rate of R&D spending than the Basque Country, which would indicate a certain process of technological convergence; or they are in countries, Finland for example, that have invested heavily in innovation. In the case of Spain, this also seems to be the case in Navarra, whose government committed itself to a university and a first class health service (both excellent sources of R&D).

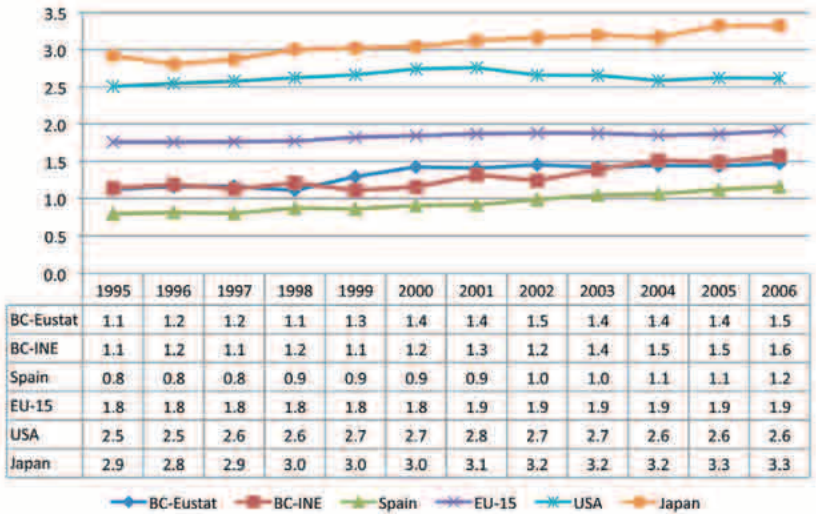
Also from the point of view of growth (see Graph 4.7), Eustat and the INE offer very similar data on the rate of R&D spending for 1995 (1.1% in both cases) and 2006 (1.5% Eustat and 1.6% INE).

Positive R&D growth indicators as a sign of progress toward the new competitive stage

The growth rate for R&D spending in the Basque Country is somewhat higher than that for the EU-15 (so there is some convergence here), but below the Spanish average (with which there is also ongoing convergence).

Indicators of growth in R&D show a positive trend, which can be interpreted as an indication that progress is being made towards the new competitive stage of in innovation.

Graph 4.7 Growth in R&D spending as a percentage of GDP.

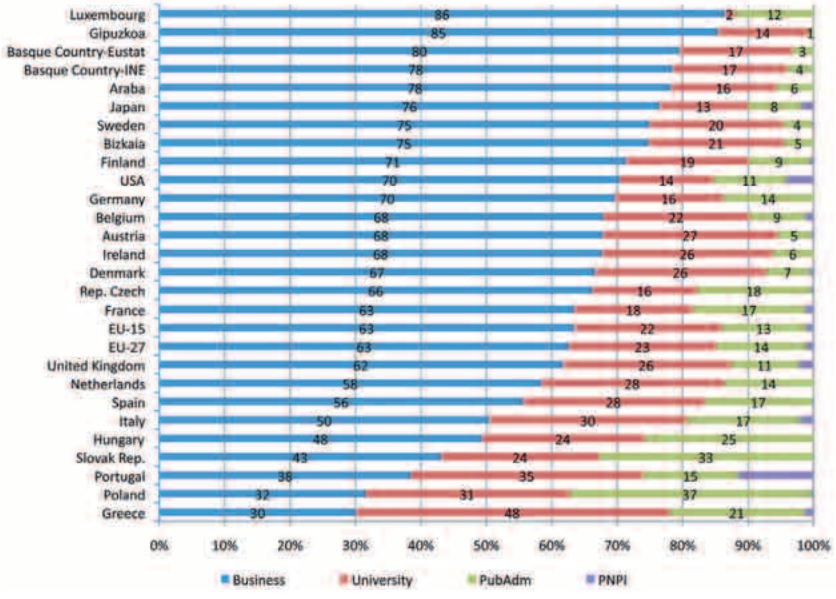


	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
BC-Eustat	1.1	1.2	1.2	1.1	1.3	1.4	1.4	1.5	1.4	1.4	1.4	1.5
BC-INE	1.1	1.2	1.1	1.2	1.1	1.2	1.3	1.2	1.4	1.5	1.5	1.6
Spain	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2
EU-15	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9
USA	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.7	2.7	2.6	2.6	2.6
Japan	2.9	2.8	2.9	3.0	3.0	3.0	3.1	3.2	3.2	3.2	3.3	3.3

Source: Eustat, INE, Eurostat and OECD.

With respect to the ***analysis of R&D spending by executing sector***, there are four major sectors that execute R&D: business, higher education, government and private non-profit institutions (PNPI). In some areas, such as the Basque Country, the number of PNPIs involved in R&D is either very small, or for reasons of, for example, statistical secrecy they are mostly included in the data for the private sector.

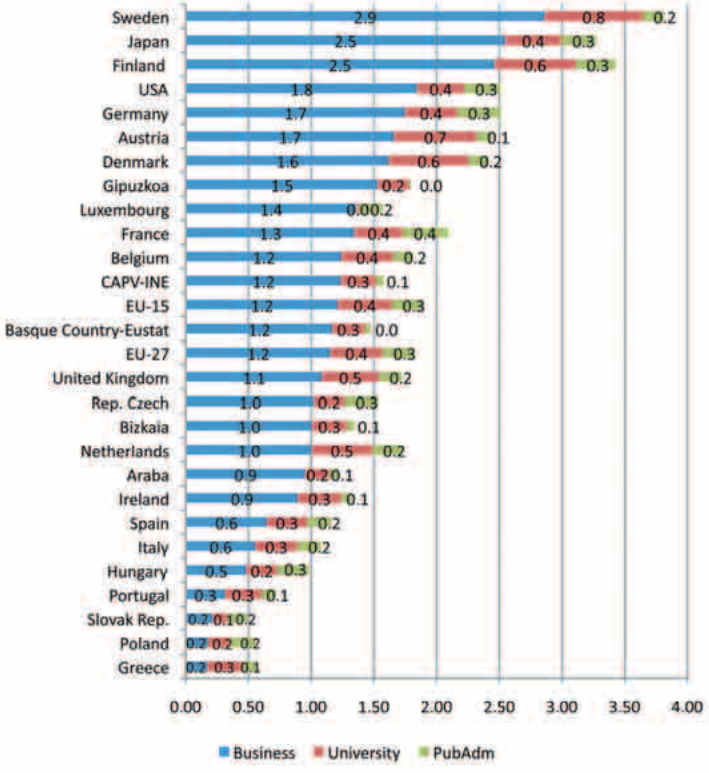
Graph 4.8: Percentage distribution of R&D expenditure by executing sector (2006 or closest year)



Source: Eustat, INE, OECD and Eurostat.

In terms of R&D expenditure by executing sector (see Graph 4.8 and Graph 4.9), while business spending on R&D, expressed as a percentage of total spending, is high in the Basque Country, when expressed as a percentage of GDP, the Basque Country trails the US and Japan, and is on par with the EU-15, although it is still twice that of Spain. In relation to higher education expenditure on R&D, the Basque Country lags behind the EU-15. The Basque Country is even further behind in R&D spending by public research bodies, **almost non-existent in the Basque Country**. Within the Basque Country, Gipuzkoa ranks highest in business spending on R&D, Bizkaia in higher education spending and Araba in government spending.

Graph 4.9: R&D expenditure as a percentage of GDP by executing sector (2006 or closest years)

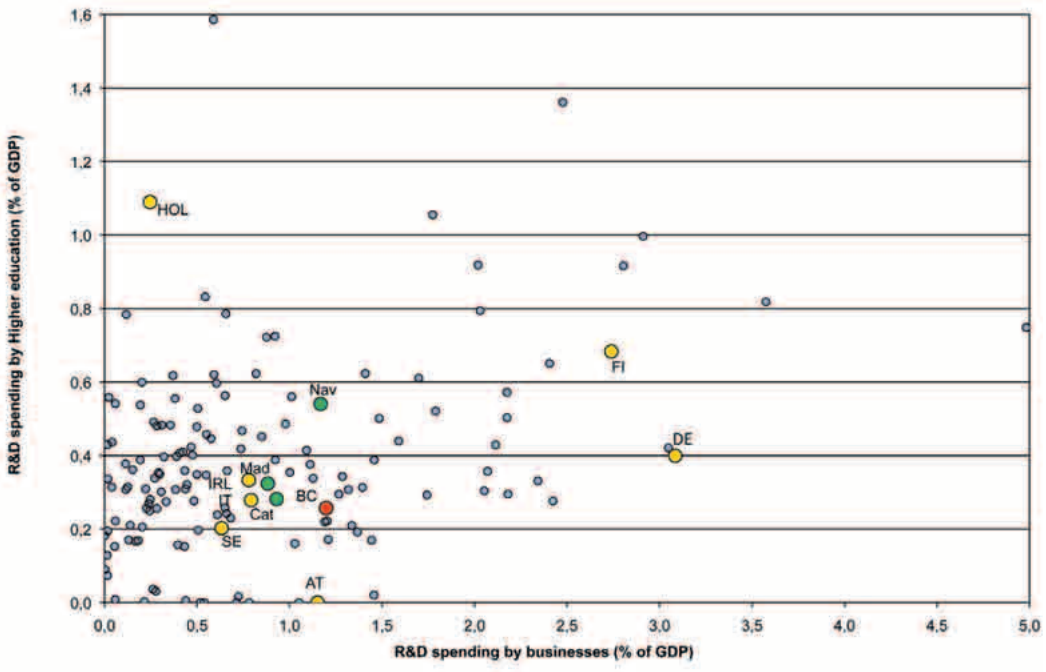


Source: Eustat, INE, OECD and Eurostat.

Potential for improvement in higher education R&D spending

Industrial regions with high per capita income, characteristics which make them comparable to the Basque Country, also show relatively more business than higher education spending on R&D (see Graph 4.10). In this regard, the Basque Country ranks relatively high in business R&D spending (although behind Baden-Württemberg and Länsi-Suomi), but relatively low in higher education R&D spending. Also relative to the other advanced regions, the Basque Country stands out for the strength of its business sector and the weakness of higher education and, especially, public research bodies. Within the Basque Country, Gipuzkoa is strongest in terms of business spending on R&D, Bizkaia in higher-education spending and Araba in government spending.

Graph 4.10: R&D spending by business and higher education as a percentage of GDP in 2004



Source: REGUE database, from Eurostat.
Yellow bubbles: Groningen (NL), Baden-Württemberg (DE), Vorarlberg (AT), Länsi-Suomi (FI), Småland med Öarna (SE), Lombardy (IT) and Ireland (IRL). Green bubbles: Madrid (MAD), Catalonia (CAT) and Navarra (NAV). Red Bubble: Basque Country (BC)

Advancing towards the new stage requires a balancing act

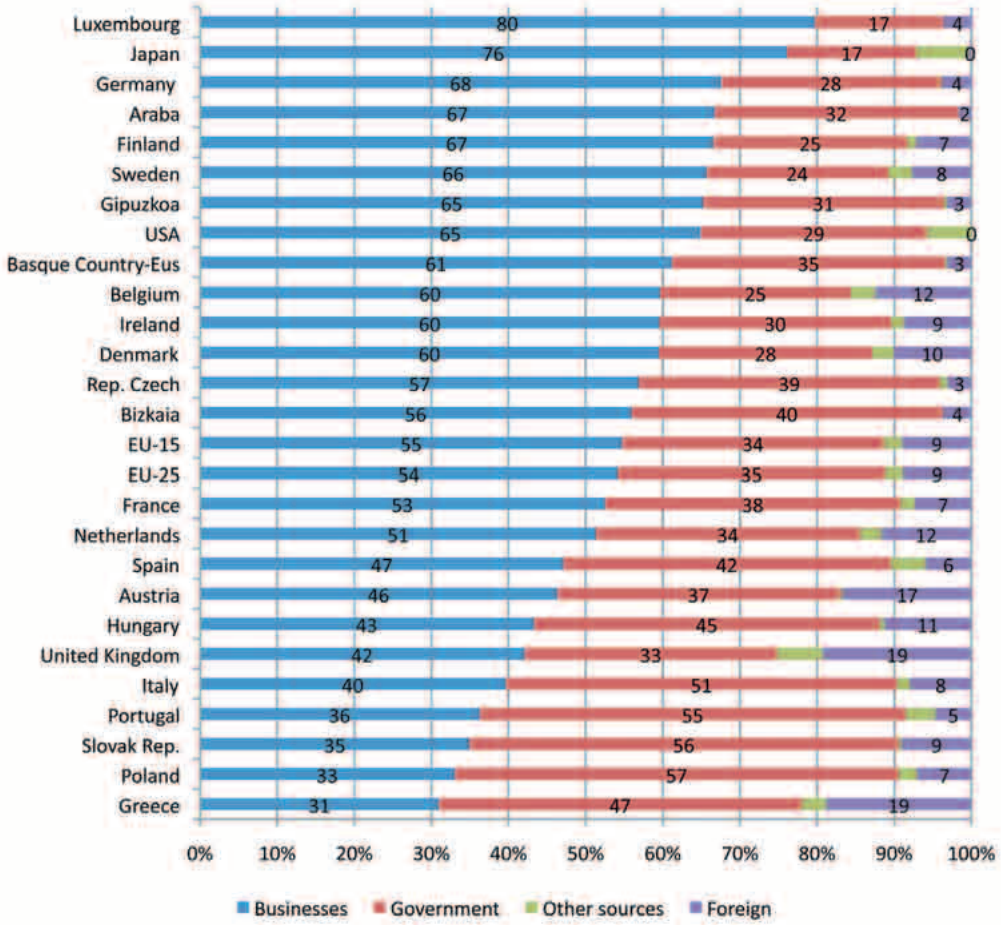
If we agree that progress towards the new competitive stage of innovation requires a systemic approach to innovation, it is also important to maintain a balance between different executing sectors of R&D, because each has a distinct role in the system. However, we cannot ignore that a strategy towards the new stage requires a balancing act; in other words, choosing key strengths on which to build a strategy, since no one can be first in all areas. One of the challenges is to reach a consensus on the innovation model in relation to the role and importance of each type of actor, maintaining a systemic view of the whole. This requires furthering our understanding of the role of technological centers—a distinguishing feature of the Basque Country system—and higher education in relation to business.

Finally, it is necessary to examine the ***financing of R&D expenditure***. In our approach to this, we focus our attention on three main sources: business, government and overseas.

High percentage of business financing of R&D (61%)

The Basque Country is characterized by a percentage of business financing (61%) well above that for Spain or the EU-15, a trait common to advanced industrialized countries (see Graph 4.11); by a percentage of government financing (35%) similar to the EU-15 and a very low portion of financing from abroad (3%), which is half of that for Spain and one third that for the EU-15.

Graph 4.11 Financing of R&D expenditure by financial actors (percentage of expenditure on R&D total, 2006 or closest year)



Source: Eustat and OECD.

High percentage of government-financed business spending on R&D (25.1%)

One of the most important aspects of an innovation system is the interrelations between its actors. If, in order to better grasp the interrelations between the actors in the innovation system, we examine government financing for business R&D and business financing for higher education R&D, we see that the percentage of government-financed expenditure on R&D has been much higher in the Basque Country than in Spain as a whole, in the US and the EU-15. Regarding business financing of higher education R&D, the percentage of financing for higher education R&D by Basque business stands at 4%, far below the EU-15 or Spain, which would indicate the lack of a direct link between academic research and the direct needs of the Basque business community (see Chart 4.1).

Chart 4.1 Percentage of government financing of BERD and business financing of HERD and GOVERD

	1995			2006 or closest		
	BERD financed by the Government	HERD financed by firms	GOVERD financed by firms	BERD financed by the Government	HERD financed by firms	GOVERD financed by firms
BC-Eus	17.1	3.7	12.4	25.1	9.3	24.4
BC-INE	n.d.	n.d.	n.d.	21.0	4.3	8.2
Spain	9.2	8.3	5.3	14.4	7.9	6.1
EU-15	10.7	5.9	5.2	6.9	6.6	8.1
USA	16.3	6.8	0.0	9.3	4.9	0.0
Japan	1.6	2.4	0.7	1.2	2.8	0.7

Source: Eustat, INE and OECD.
For the Basque Country, 1996 instead of 1995; and for the EU-15 and Japan, 2005 rather than 2006.
BERD: Business Expenditure on Research and Development; HERD: Higher Education Expenditure on Research and Development; GOVERD: Government Expenditure on Research and Development

Interaction as an essential factor in advancing towards the new competitive stage

Although it is the most difficult aspect of the innovation system to measure, interaction is now an essential factor in moving towards the new competitive stage. This will be a recurring feature in the various sections of this second competitiveness report. While the first report, cited higher education as a weakness, it cited the system of technology centers as a strength. Thus, the Basque Country does have structures for R&D. One of the main challenges for the new stage then is to activate the appropriate interactions for optimizing innovation output.

4.2.2. *Analysis of R&D personnel*

Positive position of the Basque Country in terms of people employed in R&D

The resources devoted to R&D activities can be quantified, in addition to expenditure, in terms of people employed in R&D. The ***relative position*** of the Basque Country in terms of people employed in R&D and researchers (expressed as per thousand out of total employment) is clearly more positive than that of R&D spending (as a percentage of GDP) (see Chart 4.2): in both employment indicators in 2006 the Basque Country had percentages (13‰ and 8‰) above not only Spain (9‰ and 6‰), but also the EU-15 (11‰ and 6.4‰), and was surpassed by only the Nordic countries, the US and Japan. Human resources devoted to R&D in the Basque Country multiplied by 2.5 between 1995 and 2006, a growth rate higher than the OECD countries. However, the proportion of researchers in FTE out of the workforce did not grow as fast (from 58.6‰ to 62.3‰), due to the sharp rise in overall employment.

EDP: full-time equivalent. For example, if a person works half-time annually, the FTE is 0.5 persons.

Growth of employment in R&D, especially in the business sector

From a ***growth point of view***, the remarkable growth of R&D employment recorded in the Basque Country took place mostly in the business sector. Between 1995 and 2006 the number of higher education researchers grew two and half times more slowly than in the business sector. Even so, in terms of the proportion of higher-education researchers in the workforce, the ratio in the Basque Country (2.6‰) is not significantly lower than that in the EU-15 or Japan (2.8‰), so the problem of higher education in the R&D system of the Basque Country seems to have more to do with expenditure and effectiveness per researcher than with the absolute number of researchers.

Chart 4.2 General indicators of workforce employed in R&D

	2005					Percentage change, 1995 - 2005			
	R&D spending /Employ. R&D (1000 €)	Employ. R&D /employ (‰)	Researchers /employ (‰)	Researchers (ED)/ Researchers (head) (%)	Researchers /Employ R&D (%)	R&D spending /Employ. R&D (at constant prices)	No. researchers	Researchers /employ	Researchers /Employ R&D (%)
Finland	71	24.0	16.5	78	69	29	135	101	37.4
Sweden	103	18.0	12.7	67	71	24	64	55	31.9
Japan	95	14.4	11.0	82	77	25	14	20	10.5
Denmark	70	15.7	10.2	65	65	15	77	68	22.7
USA	n.d.	n.d.	9.7	n.d.	n.d.	n.d.	35	19	n.d.
France	78	14.2	8.2	n.d.	57	4	35	22	20.5
Basque C.	66	13.0	8.1	62	63	–22	137	75	6.8
Belgium	78	12.7	7.9	68	62	2	42	31	5.8
Luxembourg	72	14.3	7.2	91	51	n.d.	n.d.	n.d.	n.d.
Germany	85	12.4	7.1	67	58	23	20	16	14.7
Austria	96	11.4	6.9	n.d.	61	38	n.d.	n.d.	n.d.
EU-15	75	11.1	6.4	66	58	8	39	24	12.6
Ireland	81	8.5	5.9	65	69	18	101	32	16.4
United Kingdom	71	10.4	5.8	n.d.	56	3	24	11	6.1
Spain	49	9.1	5.7	61	63	–7	132	64	6.1
Slovak Rep.	20	6.9	5.2	62	76	–7	12	14	26.3
Netherlands	71	10.9	4.9	81	45	1	17	2	3.8
Czech Rep.	45	8.7	4.8	64	56	0	102	109	5.9
Poland	27	5.8	4.7	64	81	48	23	49	34.2
Greece	32	7.3	4.2	59	57	1	99	82	3.2
Portugal	47	5.0	4.1	56	82	14	82	62	9.5
Hungary	48	6.0	4.1	51	68	67	51	41	27.5
Italy	73	7.2	3.4	66	47	4	9	–2	–11.6

Source: Eustat and OECD.
Except where expressly stated otherwise, the data in the chart are based on FTE. For Japan the variation was calculated for 1996-2005.

We can therefore say that the position of the Basque Country in terms of the number of researchers and people employed in R&D is encouraging.

Finally, regarding the ***qualification of R&D personnel***, the level rises as we move from the business sector to government and even more so to higher education. The percentage of PhDs in higher education and government in the Basque Country is on par with other countries and in the case of higher education we could say even somewhat higher (see Chart 4.3). The percentage of PhDs in the R&D services sector (consisting mainly

Potential for improvement in the capacity of Basque companies to operate with advanced scientific and technological infrastructures

of technology centers) in 2006 was 11.6%, well below the percentage for public research agencies, let alone that of higher education, which raises serious doubts about the sector's research capacities and ability to generate the more sophisticated scientific knowledge required by the innovation-based competitive stage. For the other business sectors, the percentage of PhDs is clearly lower than in other countries. Manufacturing companies in the Basque Country employed just 100 PhDs in 2006, and indeed this number had fallen since 2006. This would denote a lesser degree of mobility of researchers and a lower absorption capacity among Basque companies for working with advanced scientific and technological infrastructures. It is essential in this respect to promote a policy of incorporating PhDs in Basque companies, especially SMEs, since, as the studies show, this has a positive impact on the propensity of firms to innovate and to establish close relations with other knowledge-based organizations. Given the difficulty of these processes, they can be undertaken by the individual company, cluster associations, extension programs between higher education and business, or in the form of long-term joint R&D projects.

Chart 4.3 Level of qualification of R&D personnel by executing sector

	Bas.C 01	Bas.C 06	Ireland04	Greece03	Austria04	Portugal03	Finland04
Total sectors							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Univ. degree or similar	44.6	48.0	77.7	47.4	40.4	35.9	68.9
PhDs	18.9	19.2	22.3	29.5	18.2	45.5	16.6
Other	36.5	32.8	-	23.1	41.4	18.6	14.5
Businesses							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Univ. degree or similar	43.8	50.1	96.0	66.7	38.2	55.4	81.1
PhDs	4.4	6.0	4.0	7.2	8.6	6.3	5.1
Other	51.7	43.9	-	26.2	53.3	38.3	13.8
Gov.							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Univ. degree or similar	65.3	60.0	81.1	36.9	26.6	46.7	60.4
PhDs	20.9	25.7	18.9	17.6	19.1	22.4	21.5
Other	13.8	14.4	-	45.5	54.3	30.9	18.1
Higher Education							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Univ. degree or similar	43.1	41.3	58.7	43.3	45.7	23.7	52.6
PhDs	47.1	46.4	41.3	40.5	30.7	69.0	33.0
Other	9.8	12.2	-	16.2	23.6	7.4	14.5

Source: Eurostat and Eustat.
Basque Country, 2001 and 2005. Ireland, Austria and Finland, 2004. Greece and Portugal, 2003

4.3. **Analysis of business innovation based on R&D statistics**

In this section, using the same approach used in the previous section for the analysis of innovation at the regional level, we examine R&D by the most important actor from the standpoint of innovation: business.

4.3.1. *Percentage of businesses carrying out R&D*

1% of the companies in the Basque Country engaged in R&D, absorbing 12% of employment

The percentage of **companies engaged in R&D,** among those based in the Basque Country, is less than 1%. In 2006 it was 0.64% according Eustat and 0.85% according to the INE. However, after Navarra, the Basque Country is the autonomous community with the highest percentage of companies engaged in R&D activities. Within the Basque Country, the top-ranking province in this respect is Araba (0.84%), followed by Gipuzkoa (0.64%) and Bizkaia (0.58%).

While firms engaged in R&D account for less than 1% of all businesses in the Basque Country, in terms of jobs they represent 12%, and in Gipuzkoa that rate is as high as 20%. The average number of employees in such companies is twenty times that of the average for the Basque Country: 100 employees compared to 5. The probability of a company being engaged in R&D increases with firm size; among micro-businesses the percentage of Basque firms engaged in the R&D in 2006 was around 0.25%, while the figure for those which employed more than 250 people stood at 40%.

Chart 4.4 Growth in the number and percentage of Basque and Spanish companies engaged in R&D by province and autonomous community

	Number businesses with R&D with headquarters in territory			Percentage businesses with headquarters in territory and R&D activities		
	2001	2006	Change 2001-2006	2001	2006	Change 2001-2006
Araba	138	186	35	0.73	0.84	16
Gipuzkoa	281	414	47	0.51	0.64	27
Bizkaia	298	528	77	0.38	0.58	52
Basq. C.-Eustat	717	1,128	57	0.47	0.64	35
Madrid	504	1,963	289	0.13	0.39	198
Catalonia	938	3,334	255	0.18	0.54	199
Basq. C.-INE	414	1,398	238	0.27	0.85	213
Total	2,790	12,575	351	0.10	0.38	266
Cantabria	26	121	364	0.08	0.30	287
Balearic Is.	15	72	382	0.02	0.08	288
Murcia	52	282	442	0.07	0.29	303
Navarra	76	375	393	0.20	0.87	327
Aragón	88	426	384	0.11	0.46	328
Com. Valencia	255	1,404	451	0.09	0.38	331
La Rioja	26	165	535	0.13	0.71	429
Castile-Leon	83	515	520	0.06	0.30	437
Castile-La Mancha	33	240	627	0.03	0.18	449
Asturias	33	232	602	0.05	0.32	514
Galicia	88	686	679	0.05	0.34	546
Canary Is.	15	122	711	0.01	0.09	554
Andalucía	130	1,130	769	0.03	0.22	576
Extremadura	14	110	683	0.02	0.17	579

Source: Eustat and INE. Prepared by the authors.

The sectors with the highest percentage of companies engaged in R&D in 2006 were: machine tooling (25%), electronic equipment (22%), chemicals and petroleum refining (21%), household appliances (18%) and metallurgy (18%).

The number and percentage of companies engaged in R&D in the Basque Country saw strong growth from 2000 onwards, although this growth was higher in other autonomous communities that lagged behind in this respect.

Need to undertake studies beyond R&D, given that businesses innovate without being classified as being engaged in R&D

The limitations of R&D as an indicator of innovation and the relevance of continuing to use analysis based on this indicator have already been dealt with. The data analyzed may, however, illustrate the need to study the factors that can advance the stage of innovation beyond R&D, taking into account that the vast majority of businesses innovate without being classified as companies engaged in this activity. In our conclusions and recommendations we take up this issue again to offer recommendations for the different actors in the innovation system.

4.3.2. *R&D spending relative to GDP*

In terms of R&D expenditure as a percentage of GDP, in 2006 the Basque Country was on a par with the EU-15: 1.2%, but far from the levels found in the Nordic countries (Sweden 2.8% and Finland 2.5%). By province, Gipuzkoa has a level (1.5%) well above the EU-15 (1.2%) and a real growth in spending 5 times higher than that. Bizkaia and Araba are, however, below the EU average (1.0%) and real growth in spending 3 or 4 times less than that of Gipuzkoa, and as a percentage of GDP have even slowed somewhat.

The Basque Country, 61st among European regions in R&D expenditure

Among European regions, the Basque Country ranks 61st out of 200 regions in the EU-27. Compared with Spain as a whole, Navarra has a higher expenditure rate, on a par with Madrid. As for growth in this variable relative to the EU-25, the position of the Basque Country is much worse, since business expenditure on R&D in proportion to GDP grew less in the Basque Country than the European average, ranking 166 out of just over 200 European regions. This poor result is partly due to strong GDP growth in the Basque Country and in Spain in general, while the growth in business expenditure on R&D (the numerator) is compensated in large part by strong GDP growth (the denominator).

If we examine the rate of R&D spending (measured by dividing R&D spending by the value added of the sector), the Basque Country shows a level which, although almost twice that Spain, is somewhat below that of the EU-13, let alone the US and Japan.

In the statistics used, technology centers do not count as businesses, whereas in previous data they did. If in order to exclude the effect of technology centers, we focus only on the R&D spending rate of manufacturing, we see that the rate in the Basque Country (2.2%) is one quarter lower than that of the state (2.8%), almost 3.4 and 5 times lower than those of the EU-13, the US and Japan (6.2%, 8.0% and 10.8% respectively).

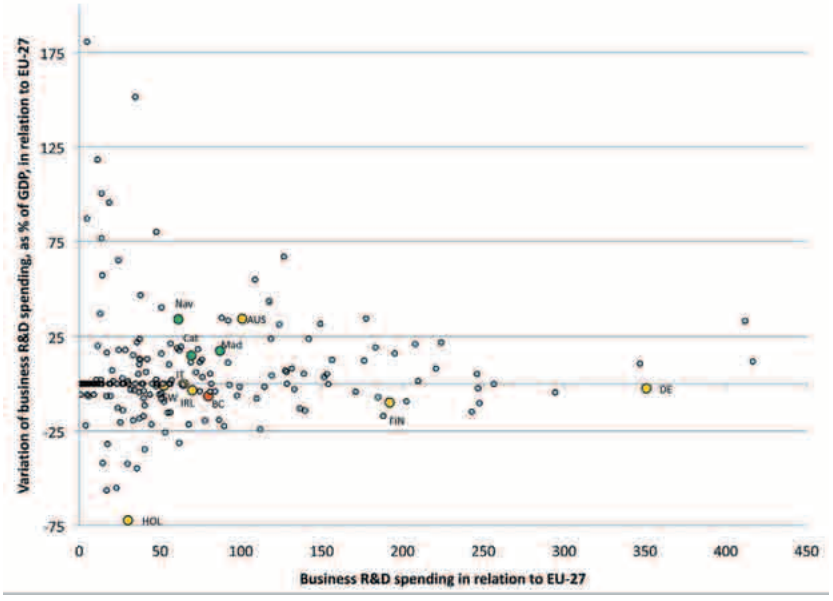
We can conclude, therefore, that when technology centers are included among businesses, the rate of R&D spending is relatively favorable, although far below the top countries in this respect. However, if we focus exclusively on the data for manufacturing, the Basque Country comes out worse. Although in interpreting this data it is important to consider aspects such as sectoral composition and business size, one of the challenges identified in a move towards the new innovation-based competitive stage is to increase the rate of R&D spending among manufacturing firms.

Chart 4.5 Percentage of business expenditure on R&D over GDP and percentage change in business expenditure on R&D in real terms

	Expenditure in R&D as a percentage of GDP		Percentage change in business expenditures in R&D in real terms between 2001-2006
	2001	2006	
Sweden	3.23	2.79	1.1
Japan	2.30	2.54	21.1
Finland	2.35	2.46	17.5
USA	1.99	1.84	4.9
Germany	1.72	1.75	5.8
Austria	1.42	1.66	9.2
Denmark	1.64	1.62	7.9
Gipuzkoa	**1.23**	**1.53**	**30.7**
France	1.39	1.34	4.9
Luxembourg	1.53	1.25	3.6
Belgium	1.51	1.24	-10.4
Basque Country - INE	**1.02**	**1.24**	**32.8**
EU-15	1.26	1.22	5.9
Basque Country - Eus	**1.13**	**1.17**	**18.7**
United Kingdom	1.19	1.09	-2.6
Czech Republic	0.72	1.02	43.2
Holland	1.05	1.01	2.8
Bizkaia	**1.08**	**1.01**	**10.4**
Araba	**1.06**	**0.95**	**7.0**
Ireland	0.77	0.89	33.8
Spain	0.48	0.67	39.1
Italy	0.53	0.54	5.2
Hungary	0.37	0.84	38.1
Portugal	0.26	0.31	17.3
Slovak Republic	0.43	0.21	-53.0
Poland	0.22	0.18	-4.3
Greece	0.19	0.17	10.3

Source: Eurostat, OECD, INE and Eustat.

Graph 4.12 Relative position of each region in relation to the EU-27 (EU = 100) in R&D spending as a percentage of GDP for the last available year, and percentage change in the relative position in relation to the EU-27 over the last 4 years, using available data



Source: Regional Innovation Scoreboard 2006.

Chart 4.6 Rate of business expenditure on R&D by sector

	BC-00	BC-06	SP	EU-13	USA	JAP
Agriculture, extractive, energy	**0.6**	**0.2**	**0.4**	**0.4**	**0.1**	**0.7**
Manufacturing	**2.5**	**2.2**	**2.8**	**6.2**	**8.0**	**10.8**
Chemicals and oil refining	2.5	2.1	8.3	21.4	17.3	16.3
Rubber and plastics	0.9	1.1	1.7	3.1	2.2	6.9
Non-metal industry	0.3	0.4	0.8	1.4	0.9	4.1
Metallurgy	1.1	1.3	1.4	1.5	1.1	4.7
Metal products	1.4	1.1	0.7	0.6	1.2	1.3
Machinery	3.3	3.8	3.5	4.3	4.2	10.0
Electrical material	3.4	4.5	5.1	4.3	2.9	26.1
Electronic material	26.7	8.9	14.8	24.0	30.8	17.1
Precision material	7.9	7.9	8.8	13.0	19.5	46.1
Transport material	7.6	5.6	6.8	17.5	18.3	14.7
Other manufacturing	0.5	0.4	0.9	1.1	1.4	2.1
Construction	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.4**
Services	**0.9**	**1.2**	**0.2**	**0.3**	**0.9**	**0.3**
Computing	5.6	6.5	3.1	4.3	9.6	2.2
R&D	71.8	95.9	1.8	5.3	20.8	34.7
Other business activities	0.6	0.6	0.8	0.5	2.1	0.1
Other services	0.0	0.2	0.1	0.1	0.3	0.0
Total sectors	**1.3**	**1.3**	**0.7**	**1.4**	**2.0**	**2.5**
Total manufacturing in ICS	**3.2**	**2.5**	**3.5**	**6.2**	**6.4**	**9.7**
Total sectors in ICS	**1.1**	**1.2**	**0.9**	**1.4**	**1.9**	**2.1**

Source: Eustat, OECD, Eurostat. Prepared by the authors.
Data for the EU-13 and Spain from 2004; data for the Basque Country (BC) from 2000 and 2006; and data for the US and Japan from 2003. The data for R&D for Spain, the EU, the US and Japan were taken from the OECD's Anberd database, which does not include data on agriculture or extractive industries.

4.3.3. *Financing of business R&D spending*

The Basque Country, highest public financing for business R&D

According to the data in Chart 4.7, business is the chief source of financing for R&D: to a greater extent in Japan, the US, Germany and the Nordic countries; to a lesser extent in the Basque Country, Spain, Italy and the enlargement countries. The government is the second largest funder of business R&D. The Basque Country (and within it, Bizkaia) is the territory with the highest rate of public financing (25%), followed by the enlargement countries, Spain (14%), Italy and a number of countries with aerospace or defense industries (France, the US and United Kingdom). In the Basque Country, among all types of government financing we must differentiate between the central government (10.6% of spending on R&D), regional (12.4%) and local (2.2%), this predominance of regional and local over central financing being a distinguishing feature of the Basque innovation system. Public financing differs widely from province to province due to the differences among regional and, above all, local government: it is very high in Bizkaia (28%) and Gipuzkoa (25%) and significantly lower in Araba (18%).

Chart 4.7 Business financing of spending on R&D (percentage distribution)

	2006 (or closest)			2001 (or closest)		
	Businesses	Government	Foreign	Businesses	Government	Foreign
Japan	98	1	0	98	1	1
Germany	92	5	3	91	7	2
Luxembourg	92	5	3	97	2	1
Portugal	91	4	4	94	2	4
USA	91	9	..	92	8	..
Finland	90	4	6	96	3	1
Sweden	87	4	9	91	6	3
Ireland	87	4	10	93	3	5
Denmark	86	2	11	87	3	9
Greece	86	6	8	90	1	8
Czech Rep.	84	14	3	84	12	2
Belgium	83	6	11	82	6	12
EU-15	82	7	11	83	8	10
Netherlands	82	3	15	80	5	14
Poland	81	12	7	68	30	2
France	81	10	9	83	8	9
Araba	81	18	1	85	13	2
Italy	79	10	11	78	15	7
Spain	79	14	6	82	10	8
Hungary	76	8	16	76	6	17
Basq. C.-INE	75	21	3	79	16	4
Gipuzkoa	72	25	3	76	17	6
Basq. C.-Eus	71	25	3	78	13	9
United Kingdom	69	8	23	65	8	27
Slovakia	68	21	11	78	21	1
Bizkaia	68	28	4	77	10	13
Austria	67	6	26	64	6	30

Source: Eustat, INE and OECD. Prepared by the authors.
Basque Country-INE corresponds to financing of R&D spending by companies based in the Basque Country. In the US, financing from abroad is included in the business sector. Excludes financing from the rest of Spain, which is fairly insignificant.

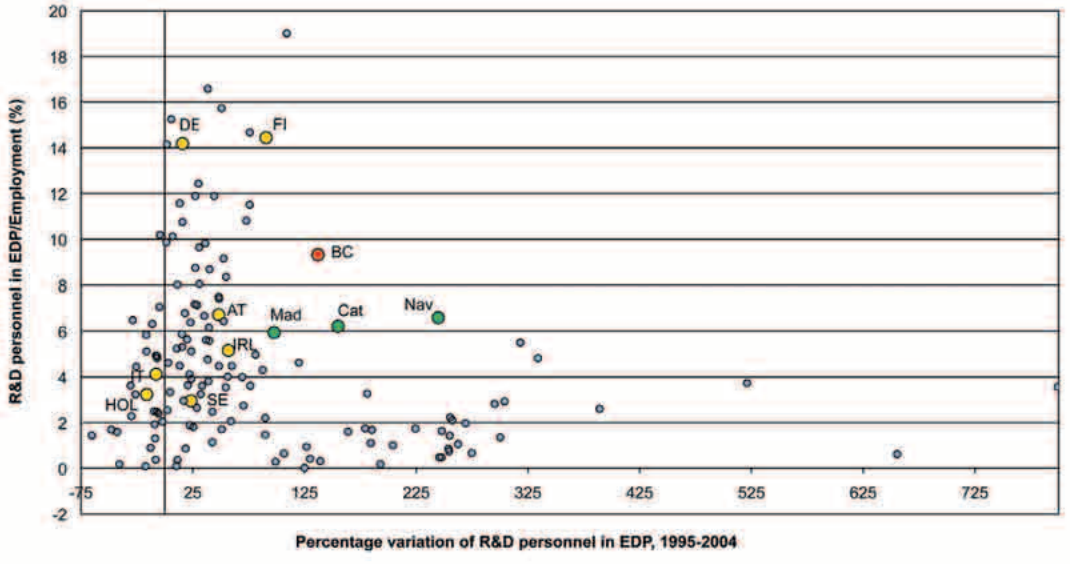
Only 57% of the companies that undertook R&D activities in 2006 received government financing. More specifically, about 1 in 2 companies engaged in R&D received financing from the regional government; 1 in 4 from the Spanish government; 1 in 6 from provincial councils and other local governments; and 1 in 20 from EU programs. Average financing per firm decreases the lower the level government: from EU programs, to central government, to regional government and provincial councils and other local governments.

4.3.4. *R&D personnel and researchers in the business sector*

A common way to quantify the resources devoted to R&D activities—in addition to the above manner of quantifying R&D spending—is the personnel engaged in such activities. Within the total workforce employed in R&D the statistics tend to distinguish between researchers, technicians and assistants. Of these categories, analysis often pays particular attention to the number of researchers, due to their higher skills level relative to technicians and assistants.

Moreover, the numbers of R&D personnel and researchers can be expressed in terms of individuals or in terms of full-time equivalent (FTE). Under this second means of quantification, a person who works only half of what constitutes an ordinary working day in R&D is computed as only 0.5 R&D personnel or researchers in FTE. To avoid repetition, in our analysis of human resources for R&D activities, priority will be given generally to the analysis of researchers in FTE.

Graph 4.13 Number of R&D personnel in FTE (per thousand over employment) in 2004 and percentage change in R&D personnel between 1995 and 2004, in the business sector in the EU-15 regions



Source: REGUE database, from Eurostat.
Yellow bubbles: Groningen (NL), Baden-Württemberg (DE), Vorarlberg (AT), Länsi-Suomi (FI), Småland med Öarna (SE), Lombardy (IT) and Ireland (IRL). Green bubbles: Madrid (MAD), Catalonia (CAT) and Navarra (NAV). Red Bubble: Basque Country (BC)

While in terms of spending, the Basque Country scored virtually the same as the EU-15, in R&D personnel the Basque Country scored around 50% higher than the EU-15. Few countries rank higher here than the Basque Country: Japan and the US (more than twice the EU-15) and the Nordic countries (Finland, Sweden and Denmark).

Comparing by region, only 21 of the 146 regions of the EU-15 ranked above the Basque Country in this indicator, among which there is no other Spanish autonomous community.

Therefore the figure for personnel employed in R&D and research is also favorable to progress towards the new stage in the context of companies, including technology centers.

Chart 4.8 Distribution of R&D personnel in the business sector, according to level of qualification, in the Basque Country and by province

	2001					2006				
			% over employment in R&D					% over employment in R&D		
	Employ. in R&D	No. of PhDs	PhDs	Degree holders, architects, engineers or similar	Other personnel	Employ. in R&D	No. of PhDs	PhDs	Degree holders, architects, engineers or similar	Other personnel
Araba										
Total manufacturing	857	12	1.4	28	70	919	19	2.1	37	61
Hi-tech, knowledge-intensive services	476	18	3.8	45	51	731	36	4.9	51	44
Other services	97	2	2.1	60	38	229	6	2.6	42	55
Total manufacturing and services	1,430	32	2.2	36	62	1,879	61	3.2	43	54
Gipuzkoa										
Total manufacturing	2,553	64	2.5	31	66	2,628	44	1.7	35	63
Hi-tech, knowledge-intensive services	1,319	176	13.3	59	28	2,339	307	13.1	59	28
Other services	222	21	9.5	64	27	660	94	14.2	55	30
Total manufacturing and services	4,094	261	6.4	42	51	5,627	445	7.9	47	45
Bizkaia										
Total manufacturing	2,510	71	2.8	35	62	2,111	38	1.8	44	54
Hi-tech, knowledge-intensive services	1,344	54	4.0	65	31	2,121	182	8.6	64	28
Other services	655	27	4.1	62	34	1,079	42	3.9	62	34
Total manufacturing and services	4,509	152	3.4	48	49	5,311	262	4.9	55	40
Basque C.										
Total manufacturing	5,920	147	2.5	33	65	5,658	101	1.8	39	60
Hi-tech, knowledge-intensive services	3,139	248	7.9	59	33	5,191	525	10.1	60	30
Other services	974	50	5.1	62	33	1,968	142	7.2	57	35
Total manufacturing and services	10,033	445	4.4	44	52	12,230	757	6.2	51	43

Source: Eustat.

However, it is not enough to know the number of people employed in this activity, but the level of **sophistication** of their activities. A key factor in the level of sophistication of business R&D, and its ability to access and interact with other components of the innovation system, such as higher education and advanced research centers, is the level of training of R&D personnel. It should be noted here that PhDs in 2006 accounted for 6% of R&D personnel in the business sector in the Basque Country, a percentage that lags behind that for public research institutions (26%) and higher education (46%). This percentage varies greatly from one province to another: from a high of 8% in Gipuzkoa, to 5% in Bizkaia, to a low of 3% in Araba.

More qualified personnel in hi-tech, knowledge-intensive services

The percentage of qualified R&D personnel also varies substantially from one sector to another: while in hi-tech knowledge-intensive services 10.1% of personnel have PhDs, in manufacturing they account for 1.8%. The high percentage of PhDs in the former is explained by its inclusion of the R&D activities sector, which includes technology centers, in which the percentage of PhDs in 2006 was 12%. In any case, it's a percentage that is far from that found in public research bodies and higher education, whose share of research (that which is more applied and linked to productivity) has traditionally been assumed by technology centers in the Basque Country. The latter circumstance is somewhat understandable insofar as, at the point in the competitive stage at which the Basque Country found itself, the mission of the centers was more focused on borrowing and adapting knowledge from abroad than on breaking new ground in knowledge and technology. But in the new competitive stage facing the Basque Country, where the key challenge lies precisely in such ground-breaking advances, the makeup of R&D personnel at the technology centers raises doubts about the ability to continue, as in the past, to depend so heavily on them for this provision of knowledge and technology that businesses must acquire from abroad. Although the number of PhDs in the R&D activities sector multiplied by a factor of 2.7 between 2000 and 2006, and the percentage of PhDs among R&D personnel rose from 9.2% to 12.1%, such increases still appear to be insufficient.

Small and decreasing number of PhDs in the Basque manufacturing sector

As for PhDs in the Basque manufacturing sector, there is cause for concern not only in the small number (in 2006 the sector employed only 100 PhDs), but still more so in the fact that that number fell between 2001 and 2006, a decrease that took place especially in the hi-tech manufacturing and in the provinces of Bizkaia and Gipuzkoa. It is also interesting to note that the highest percentage of PhDs (as well as researchers) in relation to total R&D personnel is found in smaller companies. On the other hand, Gipuzkoa's lead in percentage of PhDs out of total R&D personnel for all businesses disappears when we focus exclusively on manufacturing, a sector for which the percentages are very similar in all three provinces: Araba 2.1%, Gipuzkoa 1.7% and Bizkaia.

It is essential to advance a policy to attract PhDs to Basque enterprise, especially SMEs, since it has a positive impact on the propensity of businesses to innovate and to establish close relations with other knowledge-based organizations.

4.3.5. *Organization of R&D in the business sector*

The effectiveness of R&D in part is linked to the systematic nature with which it is carried out. Approximately three quarters of businesses in the Basque Country engaged in R&D do

The systematization of R&D is more common in larger companies

so systematically. This systematic nature is more common in the larger companies and those that spend more on R&D.

Chart 4.9 Number of businesses and employment in businesses with R&D in the Basque Country, according to the nature of R&D they carry out

	1995	2000	2005	2006
No. of businesses				
With systemic R&D	295	482	832	887
With occasional R&D	31	145	269	270
% systemic R&D/total	90	77	76	77
Employment				
With systemic R&D	63,249	83,242	87,323	102,595
With occasional R&D	2,488	12,323	12,191	12,324
% systemic R&D/total	96	87	88	89
Current spending				
With systemic R&D	242,622	446,602	631,251	697,617
With occasional R&D	2,816	31,580	22,976	23,737
% systemic R&D/total	99	93	96	97
Employ./business				
With systemic R&D	214	173	105	116
With occasional R&D	80	85	45	46
R&D/business spending				
With systemic R&D	822	927	759	786
With occasional R&D	91	218	85	88

Source: Eustat

The level of spending on R&D per person employed in R&D as an indicator of the level of development of the country's innovation system

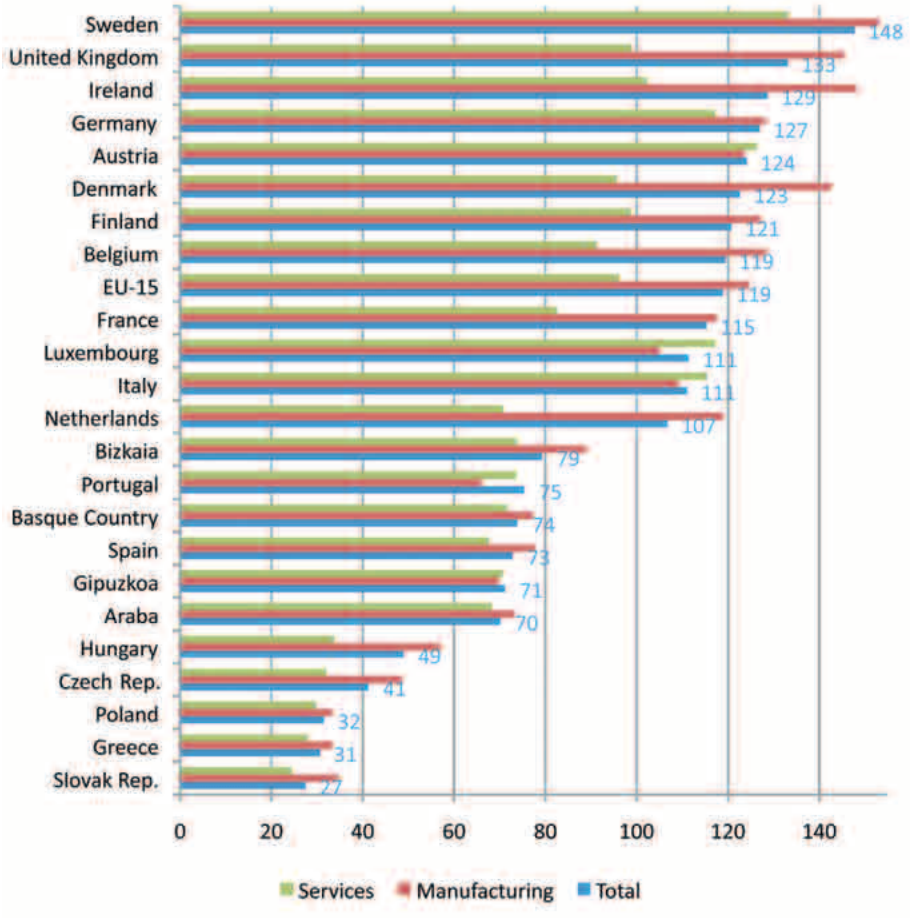
Another factor affecting the productivity of research are the resources available to researchers. Comparative analysis shows that the level of R&D spending per person employed in R&D is related to the level of development of the country's innovation system. In the EU-15, in the most advanced countries spending on R&D per person employed in R&D in FTE exceeds 100,000 euros; spending in Spain, Portugal and the Basque Country ranges between 70,000 and 80,000 euros; and the enlargement countries and Greece between 25,000 and 50,000 euros. Thus, another means of improvement in the transition towards a competitive innovation-based stage would be to increase the resources available per researcher.

The economic literature also shows that the effectiveness of R&D is strongly influenced by the size of the R&D team, at least until they reach a critical size. It is noteworthy in this regard that only 8% of firms engaged in R&D activities in the Basque Country (i.e., fewer than 90 firms) have 10 or more researchers in FTE, and only 13% of companies (i.e., about 150)

In 8% of the companies engaged in R&D, the R&D teams reach critical mass

spend 1 million euros or more on R&D. By contrast, just over half (55%) of the companies engaged in R&D activities in the Basque Country have one researcher or fewer in FTE, and almost 40% of companies spend 100,000 euros or less on R&D. However, comparison with the other autonomous communities shows that, after Madrid, the Basque Country is the region that spends the most per company on R&D and R&D personnel in FTE, followed by Navarra and Catalonia.

Graph 4.14 R&D spending (thousands of euros) per person employed in R&D in FTE in the business sector of the Basque Country and the EU



Source: Eustat and Eurostat.
Data for the Basque Country is from 2006; for the EU, from 2005.

This indicates, therefore, a favorable position relative to the rest of the autonomous communities, but there remains room for improvement in comparison to similar European regions in a move to the new competitive stage. This improvement could be made more effective by organizing the search for synergies and joint action in the context of the clustering processes discussed in subsequent sections of the report.

Chart 4.10 Businesses in the Basque Country by number of researchers and internal spending on R&D

		2001	2002	2003	2004	2005	2006
Total number of businesses	**By no. of researchers in FTE**						
	Total	744	779	847	959	1,101	1,157
	<= 1 person	440	438	478	575	655	640
	1-2 people	99	103	119	126	158	177
	2-5 people	108	126	124	130	145	174
	5-10 people	40	53	61	53	58	79
	>10 people	57	59	65	75	85	87
	By internal R&D spending						
	Total	744	779	847	959	1,101	1,157
	<=100,000 euros	307	333	337	389	467	438
	>100-200k euros	138	137	160	182	197	257
	>200-500k euros	138	156	180	189	215	228
	>500k-1 mill. euros	73	57	66	77	104	88
	>1 mill. euros	88	96	104	122	118	146
Percentage of total businesses	**By no. of researchers in FTE**						
	Total	100	100	100	100	100	100
	<= 1 person	59	56	56	60	59	55
	1-2 people	13	13	14	13	14	15
	2-5 people	15	16	15	14	13	15
	5-10 people	5	7	7	6	5	7
	>10 people	8	8	8	8	8	8
	By internal R&D spending						
	Total	100	100	100	100	100	100
	<=100,000 euros	41	43	40	41	42	38
	>100-200k euros	19	18	19	19	18	22
	>200-500k euros	19	20	21	20	20	20
	>500k-1 mill. euros	10	7	8	8	9	8
	>1 mill. euros	12	12	12	13	11	13

Source: Eustat.

4.4. **Conclusions and recommendations**

This section seeks to expand on the previous section in terms of the competitive performance of the Basque Country. In that section, we analyzed the main general indicators of innovation to see how they relate to GDP per capita. This section includes an approach to innovation systems and R&D. The latter is seen as critical, although not the only factor in innovation. For this purpose, we first present two typologies which enable us to establish a number of model regions for benchmarking. Then we analyze R&D both at the regional level and in business.

In the section on performance we said that one of the reasons for the so-called competitive paradox in the Basque Country could be that the most commonly used indicators to measure innovation are not the best suited to reflect the type of innovation

Traditional RDI indicators may fail to reflect real capacity for innovation

that takes place in the Basque Country. Given that the typologies presented are based on the common indicators of innovation, the results of the typologies are cause for reconsideration of this issue.

Our argument is based on the distinction between two modes of innovation: STI and DUI (see explanation in box below).

Modes of Innovation
Science, Technology and Innovation, or STI

based on the creation and use of explicit and codified scientific and technological knowledge. The STI model has also been associated with so-called analytical knowledge, understood as the new knowledge that is generated based on formal models and deductive processes, and that is documented and codified in an explicit manner. This is the kind of knowledge that has been associated with innovation in the term RDI.

Doing, Using and Interacting, or DUI

Based on the creation and use of tacit knowledge associated with "Know-How" (practical skills based on experience) and "Know-Who" (personal interactions). The DUI model has also been associated with "synthetic knowledge," understood as that which is generated from the application of knowledge gained in the practical resolution of previous problems to new problems through inductive processes. The generation of knowledge in the DUI model is promoted through organizational models predominantly horizontal and flexible in nature (multi-disciplinary teams, etc.) which encourage knowledge sharing.) which encourage knowledge sharing.

Knowledge bases

There are three types of knowledge bases associated with the different combinations of tacit and codified knowledge, qualification and skills, organizations and institutions involved or required and the types of innovation they lead to: analytical (or science-based) knowledge, synthetic (engineering-based) knowledge and symbolic (creativity-based) knowledge.

Traditional RDI indicators may fail to reflect real capacity for innovation

Both due to a lack of data or innovation indicators based on the DUI model (more based on know-how and personal interactions) and because RDI indicators do not apply well to the dominant sectors or economic activities in the territory, the position of a given territory in terms of traditional innovation indicators (R&D, patents, etc.) may fail to reflect its real capacity for innovation.

It is no secret that the economy of the Basque Country is heavily based on metals and medium technology sectors. All the literature agrees that in such sectors the dominant mode of innovation and learning is DUI and the knowledge base is synthetic (engineering-based) rather than analytical (scientific). Thus the traditional indicators of innovation (R&D, patents,

etc.) would not be the most suitable to reflect the real capacity for innovation in such activities, and any conclusions based on them could be open to doubt.

In this context, the typologies presented and data on R&D enable us to pinpoint meaningful features of innovation systems, as well as to identify other regions that share similar problems. In this regard, current studies of topology and identification of similar regions constitute the basis for future comparative analysis. However, in defining ways of improvement in the analysis of innovation, it is important to recognize that the typologies developed until now—not only by the Institute, but in general—have lacked indicators on DUI-mode innovation and with a clear bias towards indicators of technological rather than other types of innovation (organizational, commercial, social, etc. Therefore, they are not able at the current stage of study to characterize fully the innovation systems analyzed.

Finally, it should be noted that, although due to the characteristics of its sectoral and business structure in the Basque Country DUI-mode innovation and a synthetic knowledge base might prevail, where the main activities that lead to innovation are not R&D, patents, university-business links, etc., that does not mean that the latter are irrelevant to innovative and competitive performance. On the contrary, recent studies on innovation modes and knowledge bases show that the most successful businesses and territories in terms of innovation and competitiveness are those that, while preserving a dominant type of innovation and knowledge base, have been able to incorporate or integrate therein elements of other modes of innovation and knowledge bases.

Moreover, borrowing elements of an STI model and an analytical knowledge base and incorporating them in the DUI innovation model and synthetic knowledge base also helps avoid becoming trapped in obsolete technologies and activities (lock-in), which occurs with some frequency in systems in which innovation is more incremental and learning more based on experience rather than groundbreaking innovation, research and exploration.

With this in mind, below we offer our recommendations both for university, research institutions and for government and business.

4.4.1. *Recommendations for higher education and research centers*

The Basque Country belongs to the group of regions of intermediate-level economic and technological development

The typology of innovation in the European regions obtained shows the Basque Country belongs to a group of "central regions of intermediate-level economic and technological development" and that their natural progress would be to move to the nearby group of "restructured industrial regions with certain economic and technological capacity. Both in this group and in that of the "advanced industrial regions," which as the name suggests is associated with a higher level of technological development and industrial specialization, there are regions with which the Basque Country should conduct benchmarking exercises. In the advanced regions, the innovative pattern is clearly marked by the region's type of sectoral specialization, so that the comparable regions for the Basque Country should not be those with national capitals or large urban centers highly focused on services, but the advanced industrial regions. Moreover, the typology by autonomous communities used Navarra, Catalonia and Madrid for comparative purposes. The first of our recommendations for researchers is to further the study of these regions in order to draw the lessons that could help move towards the new competitive stage.

Our second recommendation relates to the definition of indicators that would reflect DUI-type innovation, based on experience, use and interaction. Although quantitative indicators are also beginning to be used here, a thorough understanding of these processes requires a move from quantitative to qualitative indicators. These are also highly contextual processes,

Need to define qualitative indicators of innovation

in which one must be capable of learning from case studies and of developing cogeneration of new knowledge among actors, so that the experience of some might serve for the betterment of others.

Finally, taking into account the need identified for PhDs and researchers in businesses, it is important that the real needs identified in the productive fabric of the Basque Country be verified and redefined as appropriate, with and by the agents of the innovation, science and technology system.

4.4.2. *Recommendations for public authorities*

We have discussed the strengths and weaknesses in R&D over the previous sections, so in this section we highlight those aspects in which we see the need for recommendations.

Sustain the efforts aimed at the intensity of R&D

The first recommendation is to maintain or even increase R&D intensity, as the indicators show that R&D investment is producing good results.

The second recommendation is to build a consensus, not only between local, regional and national governments but also among private actors, as to the role that each knowledge-producing agent (especially universities and technology centers) has to play in the system. Essential to the knowledge generated by these agents resulting in business innovations is the absorptive capacity of companies. Another recommendation is to continue to pursue policies aimed at generating the necessary absorption capacity, along the lines of the innovation agendas. In this respect, another challenge is to better understand the processes of DUI innovation, such that policies can be defined to support the innovation processes, beyond elements of continual improvement, but without the need to focus exclusively on technological innovation. This would help to define clearer criteria in policies such as the above-mentioned innovation agendas.

Create mechanisms that stimulate interaction between the agents of innovation

Another point derived from our analysis is that while structures for carrying out R&D do exist, a key to improving the output of innovation would seem to be the organization of interactions between different actors. Our recommendation is based on a very simple but potentially very effective mechanism: to move beyond generation and transfer of knowledge to establish mechanisms for the cogeneration of knowledge. This means establishing arrangements that allow company employees to work with university and technology center researchers as a team from start to end of the project.

A final recommendation, this time addressed to policy makers and the knowledge generation subsystem, is to steadily increase the funding available to researchers and the number of PhD holders among R&D staff in firms.

Finally, regarding the focus on and specialization in the real needs of the Basque Country we recommend to universities and research institutions, government at all levels can play an important role in creating the incentives for that focus to occur.

4.4.3. *Recommendations for companies*

In this section of our Competitiveness Report we stress the need to complement the predominant mode of innovation in the Basque Country, clearly skewed towards the DUI model (learning by doing, by using and by interacting) with more scientifically basis innovative activities, both for the positive impact that such a combination would have on the capacity

to innovate and compete and to avoid being locked into technologies and activities which are obsolete or more susceptible to competition from emerging countries. Clustering has been suggested as one way to facilitate such an advance.

The latest statistics point to significant growth of R&D in the Basque Country, especially in Gipuzkoa, and our recommendation would be for business to sustain this trend. The hiring of PhDs and research staff by businesses is one way to advance this in this direction. Another way is to seek effective formulas for collaboration with higher education and technological centers, aiming for a real system of teamwork throughout the process.

5. Completing the regional diamond: diagnosis for competitive diamonds of the Basque counties and derived county strategies

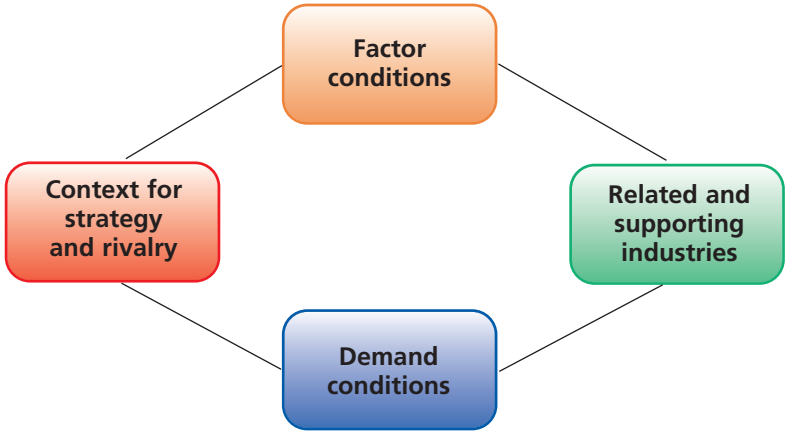
5.1. **Introduction**

Continuing with the elements set out in the Institute's model as critical to competitiveness, and which have been detailed in this report, this section examines further the elements reflected in the model under the headings of **diamonds**, **clustering** and **strategies**.

Diamonds (see definition and structure in the section on the Institute's competitiveness model) trace the position in terms of the conditions of the productive factors, the context of business strategy and rivalry, related and supporting sectors and the conditions of demand. In order to advance in the systematic vision of the overall system of agents and strategies that the new stage of innovation requires, it is important to approach the understanding of diamonds at various levels. In other words, it is important to understand the diamond in all the areas where the actors interact and define common strategies. Thus, in the same way that in addition to the territorial diamonds, the diamonds in each cluster are important, it is necessary to define diamonds at the different territorial levels.

It is also necessary to define diamonds at different territorial levels

The first Competitiveness Report presented the diamond model applied to the Basque Country. The aspects highlighted therein were:



Source: Porter (2008), *On Competition.* Harvard Business Review, Boston.

	Strengths	Weaknesses
Factor Conditions	• High percentage of population with tertiary education • Strong network of technology centers • Well-developed network of technology parks and BICs • public authorities with competencies and resources, and a rich, plural administrative and institutional framework;	• Scarcity of land in Gipuzkoa and Bizkaia • High percentage of population whose education does not exceed the lower secondary level and a low percentage of population with upper secondary education • Limited mobility of the population • Absence of world-class universities in teaching, deficit in research and insularism in higher education • Poorly organized continuous training system, low participation rates and absence of public research bodies.
Context of strategy and rivalry	• Entrepreneurial tradition and existence of serious entrepreneurs with capacity for survival • Significant level of public entrepreneurship • Strong implantation of culture of quality (certifications) and adaptability to customer/market • Autonomy and fiscal incentives suitable for investment, innovation and internationalization • Wealth of public programs and policies for innovation and better management practices • High level of communication between regional and local government and business, enabling policies to be adapted to needs	• Small number of large companies and industrial groups • Most decision-making centers of large companies located abroad • Scarce penetration of foreign capital • Low percentage of companies with R&D activities and low rate of business spending on R&D • Insufficient development of intangibles related to trade and marketing • Labor market with rigid regulatory framework poorly adapted to the social and employment reality of the Basque Country.
Related and support industries	• Capacity to produce 100% of any sophisticated product • Strong industrial and competitive specialization • Local network of industrial suppliers • Notable development of cluster initiatives based on traditional and new activities	• Relative scarcity of hi-tech manufacturing • Relative scarcity of highly knowledge-intensive services
Demand conditions	• High and growing income per capita	• Scarcity of producers of final consumer goods and driving-sector industries • Limited implementation of public purchasing policies

Source: Orkestra-Basque Institute of Competitiveness.

Materialization of public-private partnerships

The analysis based on the diamond was a structural analysis, and thus remains valid. However, there are strengths that have been consolidated, such as that of the institutional framework, which through the creation of organizations to support collaboration have

gradually produced the public private partnerships necessary for the new competitive stage, and public innovation policies in the form of innovation agendas and related programs. In the development of cluster initiatives there have also been developments that are discussed in greater detail in the section on clustering processes. There have been efforts to redress the weaknesses. Among the efforts to overcome shortcomings in the area of research, it is worth noting the creation of CIC's (research partnership centers) such as Cic Nanogune, Micronagune, Energogune, the Automotive Intelligence Center (AIC) and the Polo Donostia. In the area of business performance we should point out the efforts to create joint ventures. We can say therefore that we have a more solid diamond for the innovative stage than two years ago.

It should be noted that many of the factors highlighted in this diamond are addressed individually in this report, for example, the administrative and institutional framework and its evolution towards governance through facilitating bodies of partnerships, entrepreneurial tradition, business size and creation of joint ventures, business R&D, clustering processes and growth in income per capita, as well as other factors that have been described as critical to competitiveness.

The importance of having an analysis of the diamonds at different county levels – county diamonds

In this second report we build on the diamond in our first report incorporating one of the foundations of the MOC space, mentioned above in this introductory section: the importance of having an analysis of the diamond at different territorial levels. Thus, here we examine county diamonds. Given that creating a diamond for each county would be excessive, we proceed as follows:

1. Firstly, we present a **county typology** according to criteria of competitiveness, innovation and business activity, classifying the counties of the Basque Country in five groups.
2. Secondly, we present a rough table of the **diamond for each of the typologies**. Thus the analysis focuses on "model counties" which enable us deal with these relevant areas of our economy.

The diamond as a tool for analyzing where we stand and where we can go

The diamonds should be seen as dynamic, as noted above. They are tools intended to facilitate analysis of where we stand and where we want to go, in order to be able to launch the processes that would take us there. Thus, in this case, the question of how the Basque Country is positioned in the transition to the new stage translates into the question of whether at the county level there is an activation of the processes of diamond analysis and clustering strategy design that should mark the new stage, always at the service of specific differentiated strategies.

From this evolutionary perspective, there are signs of change towards adapting to the new stage. If we examine the county development agencies (agencies to support partnerships at this level), we see in recent years clear signs of progress towards new ways to diagnose the competitive situation of the counties. We also see the early stages of the clustering processes supported by these agencies. Given that these strategies are defined from the bottom up, starting with local actors, there is no structured and systematic information on the trends of the process. Therefore we decided to look at two examples we consider to be representative of the two largest groups identified in the typology (metropolitan counties and industrial clusters of average technological performance); and thus the belief that the diamonds as a tool that facilitates the transition to the new stage are valid for any county in the Basque Country.

The final section offers conclusions and recommendations arising from the ideas presented, with particular emphasis in this case on our recommendations for the county development agencies.

5.2. **Basic typology: grouping the Basque counties**

The Basque region is not a homogeneous territory and the Institute has been making a sustained effort to understand, through research, its diversity in terms of competitiveness at the county level.

As noted above, an individual analysis of each county is beyond the scope of our report, so as a first step we decided to present a typology that, by grouping counties, enables us to summarize the results in this regard. This typology is based on work done by the Institute in collaboration with the University of Deusto[22].

Table 5.1 Values of the counties of the Basque Country in the 21 chosen variables

Group	County code	County name	Employment in manufacturing, medium-high and high technological level (% of total)	Employment in knowledge-intensive sectors (% of total)	Companies with over 50 employees (%)	R&D spending (as % of GDP)	Companies with R&D activities (% of total)	Patents per 1,000 inhabitants	Higher-education centers	Technological infrastructure	Vocational training (%)	GDP Per capita (€)	Population > 65 years (%)	Inhabitants born in the province (%)	Population >16 years with tertiary education (% of the total)	Population density (inhab. per km²)	% of GDP of the Basque Country	Specialization rate	Employment in primary sector (%)	Employment in manufacturing (%)	Employment in services (%)	High-tech companies founded in the last 6 years (%)	Net rate business set-ups (%)
G1	COM6	Gran Bilbao	5.6	32.7	1.1	1.5	0.5	0.3	20.0	16.7	1.5	25,619	19.2	67.3	18.0	2,359.5	38.5	0.4	0.5	13.9	74.0	0.9	1.5
	COM9	Donostialdea	6.9	31.7	1.0	2.1	0.5	0.4	14.0	17.4	1.4	26,391	18.2	71.0	18.5	1,043.5	14.4	0.4	0.7	13.8	75.4	1.0	3.2
	COM18	Plentzia-Mungia	9.2	32.5	1.2	1.0	0.8	0.3	0.0	17.6	0.4	20,080	14.1	81.9	23.5	225.8	1.8	0.8	3.8	32.2	54.2	0.9	6.7
	COM2	Llanada Alavesa	12.2	26.4	1.6	1.5	0.8	0.5	10.0	17.0	1.6	29,874	15.6	56.5	17.2	305.9	12.6	0.6	0.8	24.4	65.1	1.0	2.2
G2	COM8	Alto Deba	29.2	18.9	2.3	4.4	1.8	1.2	4.0	10.0	1.9	36,384	18.7	88.7	15.0	178.9	3.8	1.0	0.9	51.6	40.5	1.2	0.9
	COM7	Bajo Deba	25.1	18.7	1.5	2.6	1.5	1.1	1.0	10.6	2.1	27,013	21.1	69.9	12.3	296.5	2.5	0.9	1.2	43.4	48.4	1.1	-1.2
G3	COM5	Bajo Bidasoa	5.3	23.3	0.8	0.4	0.3	0.8	0.0	11.1	1.5	21,521	16.2	66.6	14.1	1,053.7	2.8	0.8	1.3	18.7	69.1	1.1	4.1
	COM10	Duranguesado	16.6	19.4	1.8	1.8	1.0	0.3	0.0	9.6	0.9	33,436	16.3	64.6	12.4	292.4	5.5	0.7	1.6	41.3	48.8	0.7	3.5
	COM20	Urola Costa	13.6	17.8	1.2	1.0	0.8	0.6	0.0	11.2	0.9	27,218	15.9	83.5	13.8	210.1	3.3	0.9	2.9	44.2	40.7	0.5	4.7
	COM16	Cantábrica Alavesa	7.3	19.8	1.7	0.7	0.7	0.3	0.0	9.5	1.9	31,801	17.6	41.9	12.5	100.2	1.9	1.3	3.2	53.9	32.9	0.0	1.4
	COM14	Goierri	20.1	18.3	1.3	2.0	0.6	0.3	0.0	8.4	1.1	30,846	18.9	74.9	12.4	183.4	3.4	0.9	1.9	50.5	39.1	0.8	0.8
	COM4	Arratia-Nervión	13.7	21.0	1.3	1.2	1.0	0.8	0.0	7.1	0.9	29,135	19.6	78.3	12.4	54.8	1.1	1.0	4.0	49.0	36.0	0.6	3.2
	COM19	Tolosaldea	11.7	19.8	1.0	0.4	0.6	0.3	0.0	8.7	1.8	25,571	17.2	84.6	11.8	137.6	2.0	1.0	3.1	33.4	46.2	0.5	-0.2
	COM17	Markina-Ondarroa	11.4	17.7	0.8	1.4	0.8	0.5	0.0	7.5	1.7	21,656	20.7	82.7	12.7	127.0	1.0	1.9	15.6	33.3	40.7	0.0	-3.5
	COM13	Gernika-Bermeo	5.9	26.8	1.1	1.8	0.6	0.4	0.0	10.5	0.5	21,663	21.1	84.3	15.9	161.3	1.7	1.4	10.5	26.9	50.0	1.9	3.8
	COM11	Encartaciones	5.0	21.2	0.8	0.0	0.1	0.1	0.0	8.2	0.7	21,696	20.8	78.2	10.0	70.4	1.1	1.0	9.5	14.6	58.3	0.5	2.7
G4	COM15	Estribaciones del Gorbea	13.5	23.4	3.0	1.4	3.6	1.1	0.0	11.2	1.2	57,558	15.7	64.6	18.6	19.0	0.8	4.5	3.4	56.4	30.3	1.3	15.6
	COM1	Valles Alaveses	12.1	15.5	2.7	0.4	1.1	0.0	0.0	7.2	0.0	48,140	23.1	58.6	11.4	8.1	0.5	2.6	10.0	65.4	19.4	2.8	9.3
G5	COM3	Montaña Alavesa	7.0	14.8	0.8	0.9	0.0	0.0	0.0	5.7	0.0	28,836	27.6	75.6	8.4	6.6	0.2	1.9	57.8	20.6	9.4	0.0	4.6
	COM12	Rioja Alavesa	3.3	15.1	1.1	0.6	1.2	0.8	0.0	5.2	0.3	61428	21.3	54.6	10.2	33.6	1.2	1.9	70.0	9.0	14.2	0.0	1.2
Total			9.5	27.6	1.2	1.7	0.6	0.4	49.0	14.8	1.4	27753	18.2	68.4	16.6	299.8	100.0	-	1.7	22.9	64.9	0.9	2.2

Source: Zubiaurre et al. (2009)

[23] Navarro, M. and Larrea, M. (dir.) (2007). "Indicadores y análisis de competitividad local en el País Vasco". Vitoria-Gasteiz: Servicio central de publicaciones del Gobierno Vasco.

Zubiaurre, A., Zabala, K. and Larrea, M. (2009). "Capacidad local de innovación: una tipología de comarcas vascas". *Ekonomiaz* (upcoming publication)

Graph 5.1 Map of the Basque counties colored according to typology

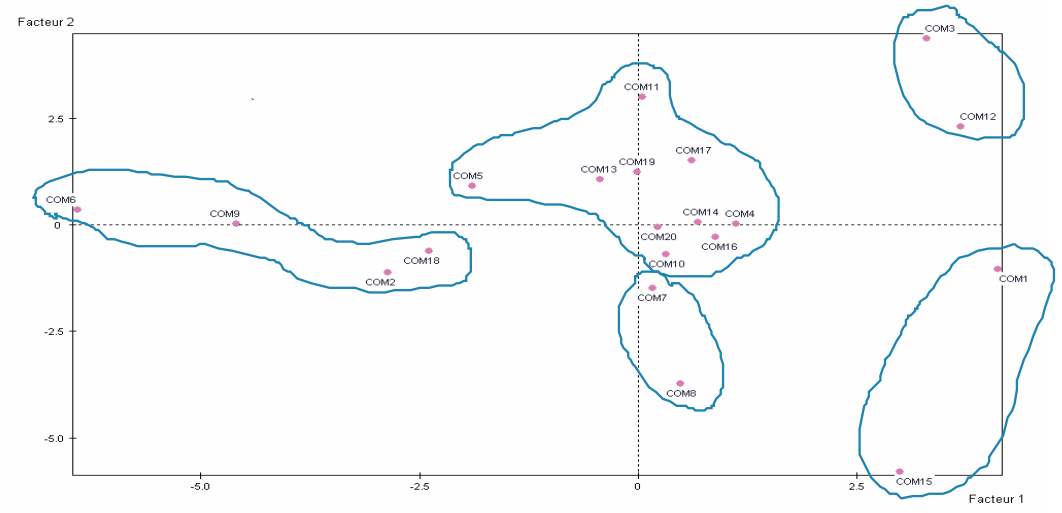
Based on the 21 variables in Table 5.1, we did a factor analysis which shows that there are three major forces that characterize the Basque counties:

- The degree of urban agglomeration
- The technological capabilities of industry
- Entrepreneurial activity

The degree of urban agglomeration accounts for 32% of the variance, the technological capacities of industry 22% and business activity 14%.

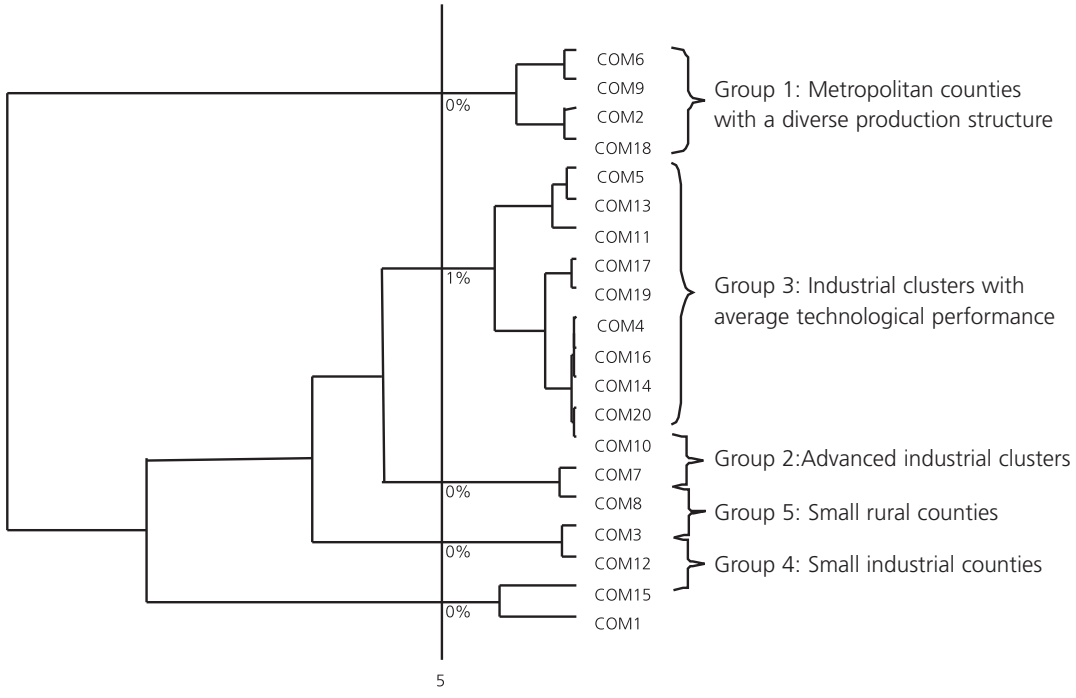
Graph 5.2 shows the position of the 20 counties with respect to the first two factors. On the far left are the three provincial capitals and Plentzia-Mungia, within the Gran Bilbao catchment area. On the far right are two small groups of counties in Araba: at the top two small rural counties (Montaña Alavesa and Rioja Alavesa) and at the bottom two with a higher innovative profile (Estribaciones del Gorbea and Valles Alaveses). In the middle are two groups of counties: one made up of two counties with a high innovative capacity (Alto and Bajo Deba) and another with the remaining counties. In order to identify these groups more precisely and objectively, we did a cluster or automatic classification analysis, the results of which are shown in Graph 5.3.

Graph 5.2 Position of the 20 counties in terms of the first two main factors



Source: Zubiaurre et al. (2009)

Graph 5.3 Cluster tree of the Basque counties



Source: Zubiaurre et al. (2009)

Below we discuss individually the characteristics and challenges of the five main groups identified.

The first group, which we call "**Metropolitan Counties**," consists of, as noted above, the three capital counties and Plentzia-Mungia. These counties account for 67% of GDP and 69% of the population of the Basque Country. They share a diversified production structure, with relatively large tertiary and knowledge-intensive sectors. They contain much of the infrastructure for research and knowledge generation (technology parks and research centers) and they (and not so much business R&D) account for the high level of spending on R&D. Their high population density and more skilled workforce facilitate the exploitation of economies of urbanization, i.e., the advantages associated with urban agglomeration. This is reflected in high rates of business set-ups. One of the main challenges of these counties is to improve their low standing among the European urban areas, due to their small critical mass with respect to other regional cities.

The second group, called "**Advanced Industrial Clusters**," comprises Alto and Bajo Deba, representing 6.4% of GDP and 5.4% of population in the Basque Country. It has a high concentration of large businesses, of medium and hi-tech manufacturing committed to R&D and an output of patents per capita three times the average for the Basque Country. Under the aegis of the Mondragón Cooperative Corporation, a university (Mondragon Unibertsitatea) was founded with strong links to business and two research centers of its own. The close relationship between business and higher education is further bolstered by a clear commitment of these counties to vocational training. The overall rate of entrepreneurship is low, perhaps because of this industrial focus; but it stands out in terms of hi-tech entrepreneurship.

The third group, "**Industrial Clusters of Average Technological Performance**," comprises10 counties, mostly in Bizkaia and Gipuzkoa, which together account for 24% of GDP and population. Their scores in most of the variables are average, while they stand out for a more indigenous population, an industry profile, more business R&D than the capitals but less than Alto and Bajo Deba, and weak support for scientific and technological infrastructures.

Group 4 consists of two "**small industrial counties**" in Araba, Estribaciones del Gorbea and Valles Alaveses, which, while they account for less than 1.4% of the GDP and population of the Basque Country, are characterized by the strong innovative performance of their businesses, as reflected in their levels of R&D, patents and entrepreneurial dynamism. They are an example of how small counties without scientific and technological infrastructures can overcome this disadvantage by developing links with neighboring counties.

Group 5 consists of two "**small rural counties**" located in Araba (Montaña Alavesa and Rioja Alavesa), which between them account for less than 1.3% of the GDP and population of the Basque Country. Their per capita income is high, due to a wine-making sector with advanced production systems and quality brand names. They are marked by an aging population.

5.3. **Diamond based on the county typology**

The variables used to define the county typology enable us to see the strengths and weaknesses of each type of county in the vertices of the diamond.

One thing we have found from our experience in the development of county-level diamonds is that they make a very useful diagnostic tool. However, in the case of the demand vertex, we see that the county is too small a geographic area to define at this level sophisticated components of demand that affect the productive activity of firms located there. Therefore, the diamond analysis for the five groups of counties has been done for the

The county diamond as a diagnostic tool

remaining three vertices: the conditions of the factors, the context for strategy and rivalry, and related and support industries.

Table 5.2 shows the results of integrating the defined typology into the diamond structure. The goal here is not to delve deeper into the diamond for each type of county, but to present below a number of basic elements for defining clustering strategies derived from the analysis thereof.

Table 5.2 Diamonds by county typology

	Conditions of the factors	Context of strategy and rivalry	Support and related industries
Metropolitan counties	Concentration of research and knowledge-generation infrastructures High population density High qualification of the workforce	High rate R&D expenditure High rates job creation	Diversified production structure Significant weight of tertiary and knowledge-intensive sectors
Advanced industrial clusters	Higher Ed. with strong links to business Presence of technological centers Commitment to vocational training	Large businesses Presence of medium and hi-tech manufacturing Businesses committed to R&D High level patents per inhabitant Low rate general entrepreneurship High entrepreneurship in hi-tech businesses	Clear industrial specialization Presence of high value added suppliers and networks of foreign suppliers
Industrial Clusters with average technological performance	More native population (social cohesion) Weak support from scientific and technological infrastructures	Avg. business R&D activity, Higher than capitals lower than advanced industrial clusters	Industrial specialization
Small industrial counties	Absence of scientific and technological infrastructures	High level of R&D and patents Entrepreneurial dynamism	Industrial specialization
Small rural counties	Aging population	Advanced production systems and quality brands in the winemaking sector in the Rioja Alavesa	Complementariness of primary sector and manufacturing

Source:Orkestra – Basque Institute of Competitiveness

Depending on their generic strengths, the clustering strategies of the ***metropolitan counties*** should take into account firstly the advantages of agglomeration. Normally, in these cases we talk of exploiting diversity, stressing that the greatest potential is derived from diversity of relations. In other words, it is important to seek activities that in principle may seem unconnected but that require the same sort of knowledge and materials, target the same markets and so on. Another factor that should be considered when designing strategies are the opportunities offered both by the presence of infrastructure for research and the generation of new knowledge, and by a highly skilled workforce. The example of Gran Bilbao (see below) illustrates both points.

Advanced industrial clusters have a very specific combination of critical features, since, despite being small counties, with their clear industrial specialization, they have significant infrastructures for research and knowledge generation usually located in capital cities. At first glance, it would seem logical that these counties should pursue a strategy of bolstering the economies of localization: i.e., they should build on the advantages they enjoy in having in such a small space a large number of companies, technology centers, universities involved in economically relevant activities, technologies and common products. However, it is essential to raise the level of sophistication of products in order to progress towards the new competitive stage, and that requires having an open system in which learning processes are not limited to the local context. Therefore, future strategies should combine the advantages of being able to undertake processes of co-generation of new knowledge with geographic proximity to many of the agents involved, avoiding the risks of becoming closed systems. As for clustering strategies, it should be noted that the main clusters identified in these counties already have Basque regional-level cluster associations, specifically ACICAE (automotive), AFM (machine tool) and ACED (household appliances). Therefore, the clustering strategies being examined by the regional development agencies are aimed at finding potential clustering points outside the area's main business clusters.

Strategies in favor of cooperation among counties and beyond the Basque Country

The ***industrial clusters of average technological performance*** generally share with their advanced counterparts industrial specialization (although less so in cases such as Bajo Bidasoa). But in general they are not as advanced in terms of research and knowledge-generation infrastructures, technology or business R&D. Thus it would seem that they are starting from a disadvantage when it comes to developing clustering strategies. However, strategic use of existing and desired diamonds can help build strengths out of what initially would seem to be weaknesses. In this regard, these counties find themselves obliged to create networks with research and knowledge-generating institutions outside their territories. If these processes are undertaken with the consensus of the agents involved, networking with those entities that generate the appropriate knowledge, the clustering processes can start with the openness that the sophistication of processes and products requires today. Thus these counties should base their clustering strategies on seeking cooperation among counties and beyond the Basque Country. While intercounty cooperation may be attractive for all groups of counties examined here, for this group it is even more important, primarily because of its limitations in terms of research and knowledge-generation infrastructures. This requires a high degree of competence among those who will manage the clustering processes.

Strategy based on promoting a sense of belonging and attachment

In the case of the ***small industrial counties***, we are dealing with two counties whose development has depended in part on the localization of business from neighboring counties (Alto Deba and Llanada Alavesa) strong in R&D and patents. From the standpoint of county development the big challenge for them in terms of clustering might be to promote a sense of belonging and attachment to the county to facilitate in the future a strategy that creates bonds among public and private actors.

Finally, classified as ***small rural counties*** are two small adjoining counties in which the primary sector plays a larger role than in any of the previous groups. The economy based around wine-making in the Rioja Alavesa is an example of clustering that exploits complementarities between the primary and industrial sectors, with significant brand visibility. Moreover, in recent years clustering has grown in the form of linkages between the former sector and tourism and cultural activities. This is a case of a clustering strategy based on the

uniqueness of the area, and thus the future strategy should be aimed at strengthening this feature through the interactions among the different components of the cluster. In the case of the Rioja Alavesa, it is important to note that the natural geographic scope of clustering includes the adjoining autonomous community of La Rioja.

Having examined each typology of diamond and discussed the **generic clustering strategies** arising from them, below we deal with two examples of real processes of definition of strategic clustering actions based on the competitiveness model proposed by the Institute.

5.4. **Clustering processes in the different county types identified**

It is necessary to generate knowledge working in partnership with the real agents of competiveness

One of the basic principles of research—an activity which has been at the center of the Institute's recent approach to the clustering process—is that effective research does not mean that it is the researcher's job always to generate and then transfer new knowledge. Sometimes it is necessary to engage in co-generation of knowledge, i.e., to generate knowledge in partnership with the real agents of competiveness.

In line with this philosophy, 15 county development agencies in the Basque Country, with support from the Institute, have undertaken a project in which they did cluster mapping in order to identify economic activities in their counties that could be clustered. As noted above, one consequence of this approach is that the findings are not generalizable, but are specific to each case. However, examples can complement the quantitative approaches set out in previous sections, illustrating real trends. In selecting our examples we took counties of the types where GDP is among the highest in the Basque Country: Gran Bilbao, representing the metropolitan counties (together accounting for 67% of GDP in the Basque Country) and Lea Artibai, representing the industrial clusters of average technological performance (together accounting for 24% of GDP in the Basque Country).

Advance towards the new competitive stage: systemic design of competitive strategies

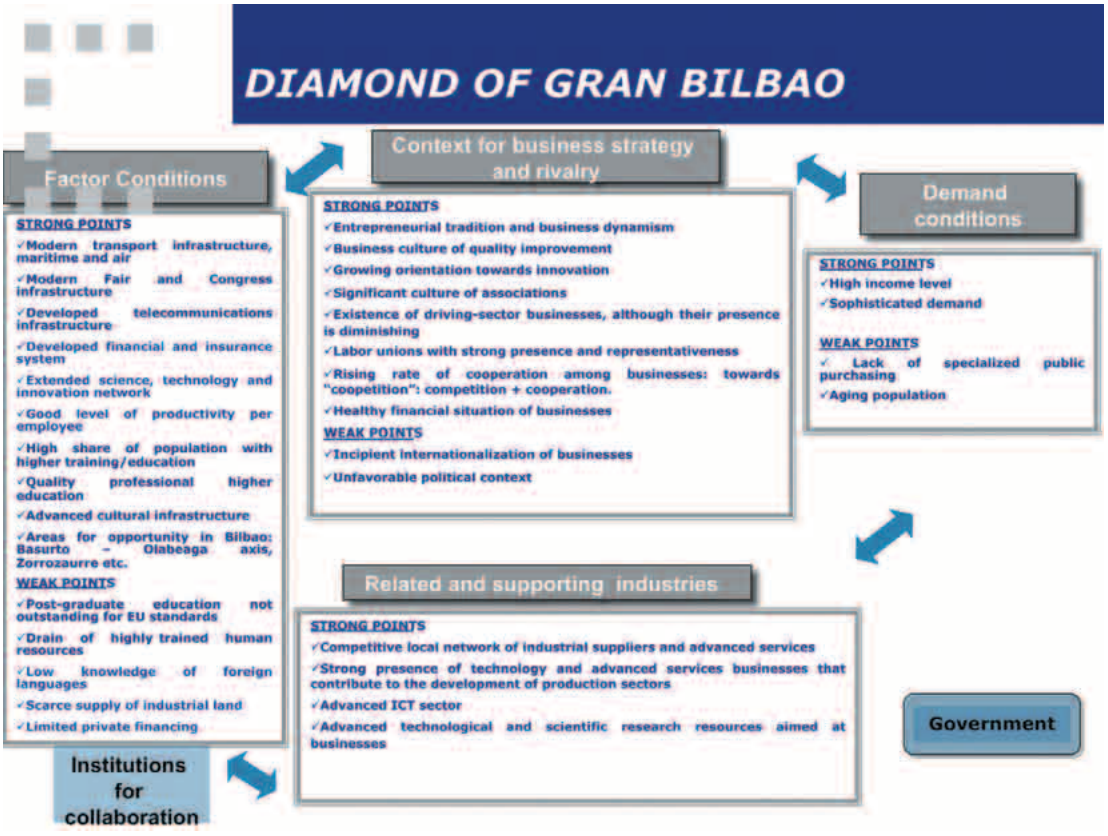
The main argument in favor of using these examples is that one of the signs of progress in the new competitive stage of innovation is the rise of competitiveness strategies designed systemically at different territorial levels, one of which, the county, we examine below. The processes described above, although with support from researchers, have been undertaken by real agents of competition—in this case county agencies—which is the clearest evidence that elements such as the diamond, clustering and strategies foster progress towards the new stage.

5.5. **Application of the Institute's competitive model to a metropolitan region: the case of Gran Bilbao**

This section looks at how a team from Lan Ekintza (Bilbao County Development Agency) applied the Institute's competitive model to the design of a clustering strategy. A report by the Institute with details of the methodology used will be published soon; this section deals only with a few of the results in order to illustrate how diamond analysis can foster clustering strategies which provide a foundation for the transition to the new competitive stage at the county level.

The first step in implementing the Institute's competitive model was the development of the territorial diamond, in this case, that of Gran Bilbao.

Graph 5.4 Competitive diamond for Gran Bilbao



Source: prepared by Lan Ekintza, based on their own research and on the study "El Clúster del turismo en el Gran Bilbao," Bilbao MOC Course 2008.

The outstanding features of this specific diamond are consistent with the components of the generic diamond based on counties typified by indicators of competitiveness and innovation. According it shows a city with a strong science, technology and innovation network of its own and a highly skilled workforce, in keeping with its type. But it also includes components beyond that type, such as developed financial and insurance sectors, a developed cultural infrastructure and specific areas of opportunity, such as the Basurto-Olabeaga-Zorrozaurre axis.

Using the methodology proposed by the Institute, a series of sectors in which Gran Bilbao surpasses other Basque counties, or that account for a major part of productive activity in the area, were identified.

Examination of these sectors has revealed a potential subcluster, health technologies, described in Table 5.3 below.

Table 5.3 Health technologies subcluster

Health Technology Subcluster	
Rehabilitation Technologies	Biomedical engineering. Biomechanics, personal mobility (orthopedics, rehabilitation)
Implants and biomaterials	Cellular engineering, tissue engineering biocompatible materials, prosthetics, optical and ophthalmology, dental
Medical equipment and instruments	Electromedicine, sensors, microsystems, measuring instruments, image diagnostics
	Robotics and automation
Consumables	General use, reactive for clinical diagnostics
Information technologies	Medical bioinformatics
	Telemedicine
Other	Medical and lab equipment, furnishings.
	Disinfection waste treatment
	Ambulances, emergency equipment

Source: prepared by Lan Ekintza, based on their own research: "Análisis cluster del Gran Bilbao: aproximaciones al subcluster comarcal de tecnologías sanitarias."

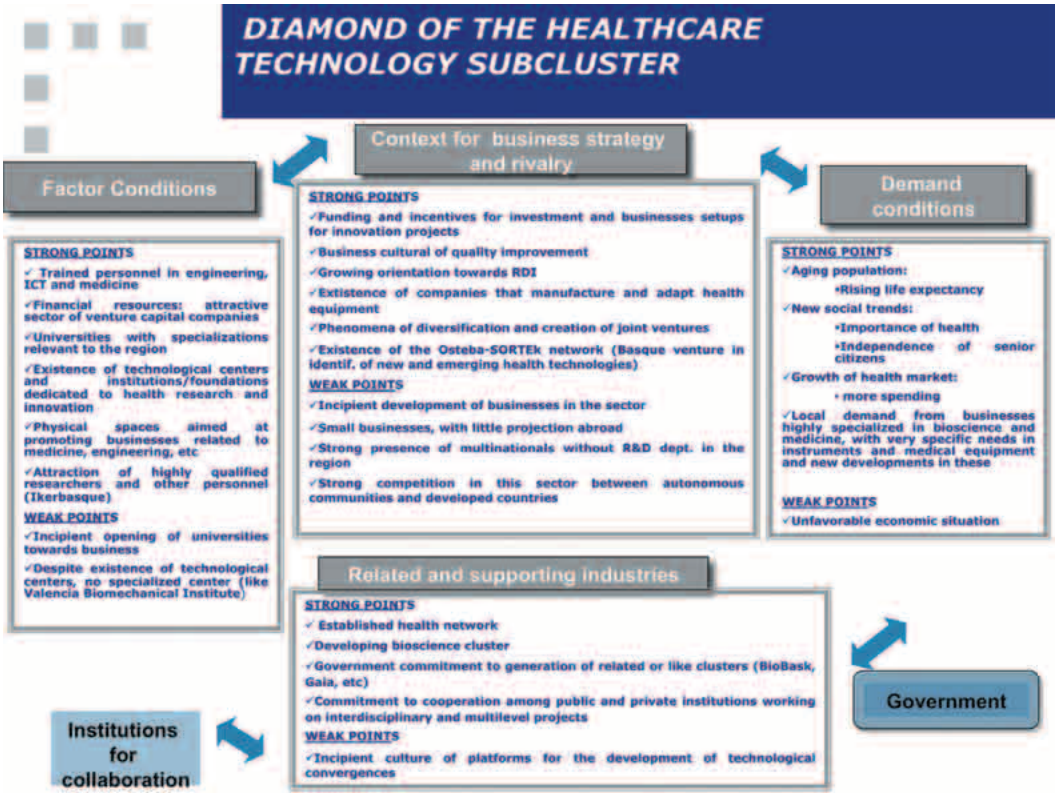
Having identified the cluster, the next step is to develop its diamond.

Based on the diamond, strategic objectives are established for the different levels of government and partnership support organizations in order to foster clustering. These include the following:

- Promote awareness of those involved (in-depth interviews with key factors: directors of hospitals and private clinics, manufacturers and wholesalers, retailers, academics and technology centers)
- Promote forums for meetings, taking advantage of conferences of interest to those involved
- Create a network to foster future cluster associations
- Encourage the creation of joint ventures among firms in the cluster
- Provide facilities, land, incentives, etc., for the creation of new businesses

- Raise the visibility of the cluster with fairs, conferences, etc.
- Transmit specific needs to technology centers and higher education
- Promote RDI and advanced entrepreneurship
- Position Gran Bilbao as a place to undertake in this type of activities

Graph 5.5 Diamond of the healthcare technology subcluster



Source: prepared by Lan Ekintza, based on the study: "Análisis cluster del Gran Bilbao: aproximaciones al subcluster comarcal de tecnologías sanitarias."

5.6. **Application of the Institute's competitive model to an industrial county of average technological performance: the case of Lea Artibai**

As in the previous example, this section sets out the main points of the process carried out by Azaro Fundazioa (development agency of the county of Lea Artibai) in arriving at a clustering strategy based on the county diamond. Compared to the urban agglomeration dealt with above, this example illustrates aspects associated with a smaller territory more specialized in terms of economic activity.

Following the same analytical methodology as in Gran Bilbao, we first identity the clusters for which the county stands out in the Basque Country, seen in Table 5.4.

Having done so, we examine the potential fishing cluster but without losing sight of a possible plastics/rubber cluster evolving towards new products and sectors.

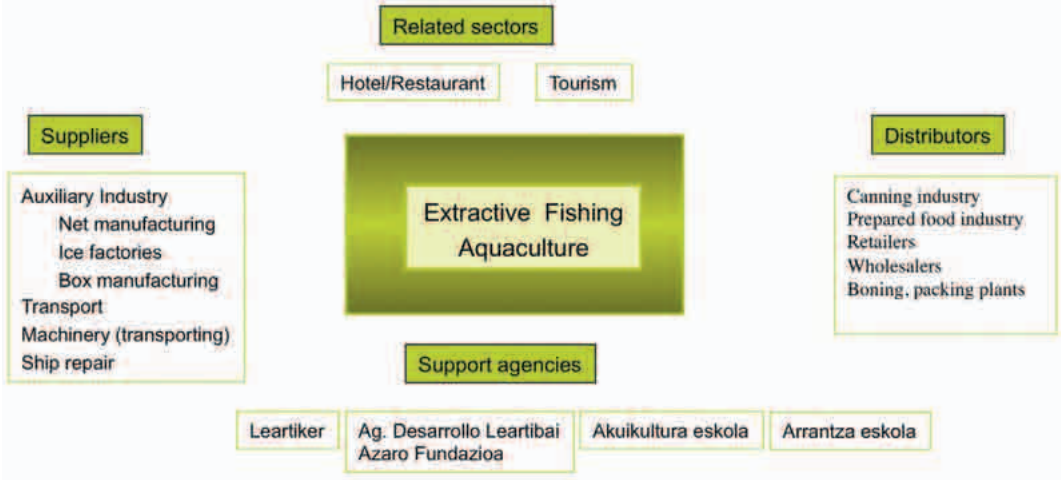
Table 5.4 Main activities. Data in absolute terms

Lea-Artibai		No. of Establish-ments	(% in the county)	Estimated workforce	(% in the county)
	Related to the sea	112	5.55	1,406.5	15.15
	Related to agriculture	15	0.74	134	1.44
	Plastics and rubber	26	1.29	1279	13.78
	Tourism	259	12.85	485	10.45

Source: Azaro Fundazioa.

Once we have identified the cluster, the next step is to produce its map. The cluster map centers on extractive fishing and aquaculture. There are large companies in extractive fishing but not in aquaculture; the reason for including the latter is that it is a strategic activity for the future into which existing businesses in the county are diversifying or expanding. Thus we see how the differences between the real and target diamond help to shape the strategy.

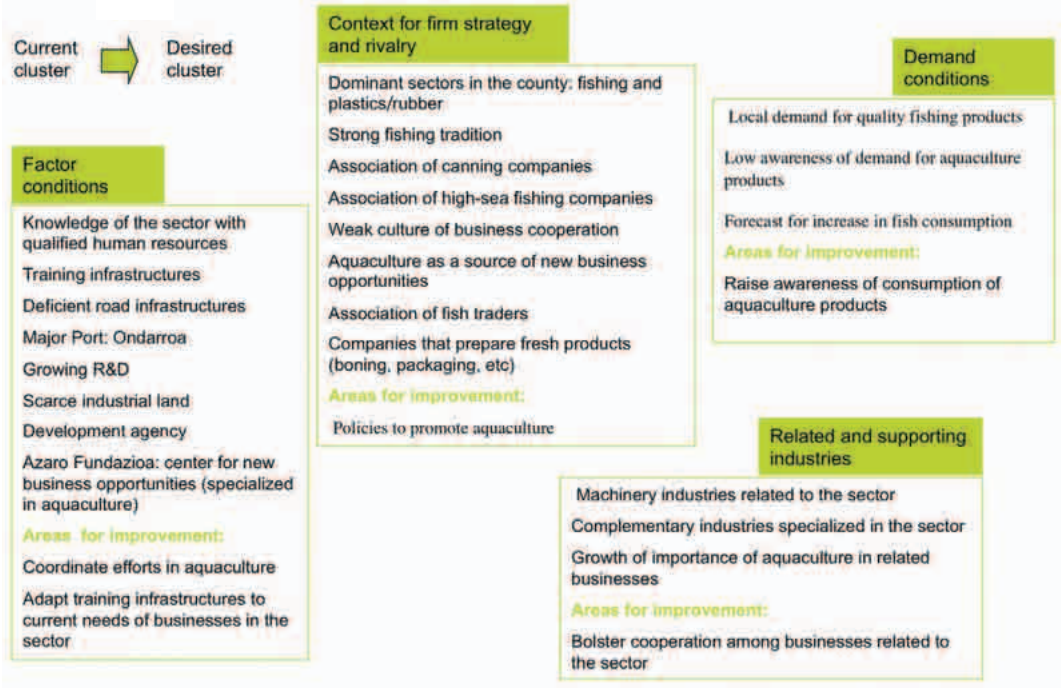
Graph 5.6. Map of the extractive fishing and aquaculture cluster in Lea Artibai



Source: Azaro Fundazioa.

The diamond for this cluster would be as follows:

Graph 5.7 Competitive diamond for the extractive fishing and aquaculture cluster in Lea Artibai



Source: Azaro Fundazioa.

Finally, based on the diamond, we establish strategic lines of action for the clustering process in four distinct areas: cooperation, market expansion and diversification, technology and innovation, and quality.

Graph 5.8 Lines of strategic action for the clustering of extractive fishing and aquaculture in Lea Artibai

COOPERATION	Encourage cooperation among businesses in the sector and related institutions Encourage cooperation among the businesses of the cluster Encourage cooperation among suppliers and customers
EXPAND MARKET (DIVERSIFY)??	Seek out new business opportunities Raise awareness and diversify into aquaculture, in terms of both demand and the business community Support international promotion

Graph 5.8 Lines of strategic action for the clustering of extractive fishing and aquaculture in Lea Artibai *(continuation)*

TECHNOLOGY - INNOVATION	Stimulate innovation Build knowledge and know-how in the sector Dynamization and promotion of tech projects to give products added value
QUALITY	Promote the adoption of the concept of total quality

5.7. **Conclusions and recommendations**

The objective of this section of the report is twofold. Firstly, to apply the diamond at the county level and to draw therefrom elements that should be taken into account in designing strategies for clustering at this level. This objective was met by presenting a county typology, the diamond for each type defined and recommendations derived from each diamond.

The second objective is to illustrate how at a county level tools are being incorporated to develop a systemic approach to county analysis. Thus clustering strategies are being developed for moving towards the competitive stage of innovation. This objective has been met by presenting two examples for each of the two main types of counties identified in the typology.

In the section in which we presented our conclusions drawn from the diamond for each type of county, we identified the features that should be taken into account when designing clustering strategies. We will not repeat these conclusions here.

The ability to evolve towards the new stage depends on the performance of the territory and agents operating in it

The core idea we wish to stress in this case is that the ability to evolve towards the new stage is largely dependent on getting a deeper grasp of the new leading role played by the territory and by each of the actors who operate in it, also at this county level. It is no longer enough for each company, level of government, institution for collaboration or researcher to understand their own particular situation. To build a common vision that leads to joint strategies and shared commitments, tools are needed that allow each participant to see itself as part of a system, understand the role each of the other participants plays and visualize their interactions. In other words, a system where in addition to understanding how our decisions affect us, we understand how our decisions affect others and how the decisions of others affect us. This systemic vision is very difficult to measure in quantitative terms, but it is one of the keys to advancing toward the new stage

Systemic vision at the intracounty level and among different territorial levels

In this regard, a key conclusion of this section is that at the county level there are clear signs that the systemic vision is being incorporated into the diagnostic and planning processes, and this is leading to the design of clustering processes that, should they materialize, would constitute clear steps towards the competitive stage of innovation. The processes already undertaken in this direction, in which the Institute has been involved, indicate that these dynamics are producing results in terms of increased knock-on effect of the innovation policies of the Basque

Government, for example in innovation agendas. This indicates that the systemic vision is being generated not just within counties but also between different territorial levels. Although there is no quantitative data on this point, in some of the counties analyzed there are also signs that clustering is affecting company attitudes (particularly in the case of smaller firms), leading to a greater recognition of the need to develop more sophisticated strategies.

5.7.1. *Recommendations for universities and research institutions*

Systemic vision also in designing strategic actions and their implementation

The systemic vision that fosters progress towards the new stage is not only necessary in the diagnostic phase and in designing strategic actions, a focus of this section. Some agencies are already implementing clustering processes and partnership networks, in which they need the instruments of support provided by research. However, research has put much more effort into diagnostic tools than into those aimed at supporting processes.

Thus, our first recommendation for researchers is to work on methodologies aimed at the basic clustering processes:

- The creation of social capital
- The search for common interests
- The creation of common spaces for decision

Another need is to develop for the projects now underway assessment tools specific to processes such as these which are so ridden with intangibles. Research-action as an approach that combines research, action and participation can be an aid to achieving these objectives.

With regard to our typology, we see once again that the territory of the Basque Country is not homogeneous in terms of strategies suitable for arriving at the new competitive stage. It is therefore important that research be focused on meeting the needs of the main types of counties identified. In this sense, taking into account their relative overall presence, one of the challenges for the coming years is to bolster the research being conducted in the Basque Country into cities and their competitive strategies, which are a significant part of the overall strategy at the level of the Basque Country.

5.7.2. *Recommendations for public authorities*

Responsibility for competitiveness and innovation policy is shared by different levels of government

Given that our analysis of the diamond has focused on the county level, the first of our recommendations is aimed at municipalities and all the levels of government that interact with them. Traditionally, competitiveness and innovation policies have been viewed as the responsibility of regional and provincial government in the Basque County. In the new competitive stage, however, all levels of government have a role to play. Municipalities are in the habit of delegating to agencies the tasks of economic growth, and the agencies themselves take responsibility for diagnostics and action plans such as those we have presented. Although all these plans are subject to political decision making at some stage, the involvement of policymakers varies considerably. Yet these projects will be unworkable unless local policymakers are directly involved. Accordingly, our first recommendation to local and regional government is that municipal policymakers should be involved in making assessments and formulating action plans for industrial clustering.

Regarding the second recommendation, we must first stress that institutional engagement in recent years has been noteworthy. Local and regional authorities have created various institutions to support private-public partnerships in common projects. In this context, our second recommendation relates to what is called a multilevel approach to policy. The main idea is that the systemic vision requires a high degree of coordination of the policies designed at the different administrative levels in order to maximize their effectiveness. Our second recommendation for government is to create spaces for dialogue among different institutional levels in order to ensure the consistency of the cluster initiatives put forth at each level.

5.7.3. *Recommendations for county development agencies*

County development agencies can play in the coming years a central role in clustering processes at lower levels in the Basque Country. This central role means that the recommendations to researchers and governments above may apply to them too. But below we also offer further recommendations which we consider particularly relevant to those partnership support organizations.

Raise the level of competence of agencies

The first is to develop the competencies of the agency teams, so that they are able to properly manage the processes associated with the new competitive stage, including that of clustering. These processes require both that administrators and technicians from the agencies move from a model of service provision to dynamizing county actors, seeking shared political and economic leadership. Doing this requires specific knowledge, skills and attitudes, without which the type of relational leadership the networks require is unlikely to develop.

One of the strengths of the county agencies in the Basque Country is that they exist throughout the region, with a total of 32 agencies. This means that within the Basque Country there is the potential for very useful benchmarking and information sharing. Garapen is already making a considerable effort in this direction. Our recommendation in this regard is to further pursue this line of action and to enrich it with experiences from outside the Basque Country that can help foster innovative dynamics in the approach to clustering processes and building county networks. In this sense it would be advisable for these agencies to:

- Bolster their capabilities.
- Stress strategy over financing and operational support.
- Achieve commitment to change.
- Encourage interaction with actors and driving-sector industries.

6. Clustering processes

6.1. **Introduction**

This section of the second Competitiveness Report seeks to **analyze the clustering of economic activity at the level of the Basque Country.** In the context of the county diamond we also discussed clustering. Here, we expand on that vision with an examination of the paradigmatic clustering experience in the Basque Country: cluster policy and the associations it has created.

Clustering

In the Institute's competiveness model clustering is understood as both the creation of structures for collaboration and the dynamization of the relations among different actors so that they reach a balance between competence and collaboration with the aim of meeting the objectives established in the context of a jointly designed strategy.

In the Institute's first report on competitiveness we set out a series of challenges. The three challenges associated specifically with clustering were:

1. Fostering of new clustering processes.
2. Innovative transformation of the existing cluster relationships.
3. Assessment of cluster policy in the Basque Country.

The Institute carries out projects aimed at meeting the competitive challenges identified in 2007

The content presented in the following sections derives from the projects carried out by the Institute aimed at meeting these challenges.

Following a scheme designed to meet these challenges, this part of the report is organized into three main sections.

First, the results of the project carried out to identify the **clusters we now have in the Basque Country.** This enables us to make two different analyses:

- In cases where cluster associations exist, we assess the significance and growth of the cluster on which they act.
- In cases where there is no cluster association, our examination enables us to identify business clusters where competitiveness can be enhanced through the coordination of

their activities or another facilitating instrument. In this way we can indicate the ways in which clustering can advance and facilitate the transition to the new competitive stage of innovation or foster new clusters.

The second section centers on the challenge set out in the first report regarding the **innovative transformation of existing cluster associations.** There we present an assessment of cluster associations, highlighting their challenges for advancing efficiently in their clustering processes. With this we can ask ourselves whether clustering processes in the Basque Country are suitable or not for the demands of the new competitive stage, and make recommendations for moving in this direction. This section also deals with the challenge of assessing cluster policy as a key element in advancing towards the new competitive stage.

Thirdly, we discuss our **analysis of the historical origins of the clusters** as a determining factor in the creation and evolution of their competitive advantages. This leads us to another of the critical elements of competitiveness dealt with in the Institute's competitiveness model under the heading of legacy and historical creative context. Our previous work on legacy in a series of clusters enables us to further develop the model with an examination of how our history affects our present situation, and how what we inherit through our experience in previous competitive stages can be managed creatively to become current strengths.

Finally, we give our **conclusions and recommendations** based on the main areas for improvement identified in the first three sections.

6.2. **Relevance of current clusters and potential new clustering processes**

Challenge: identify potential new clustering processes

As discussed in the introduction, one of the challenges of clustering set out in the Institute's first competitiveness report was the identification of potential new clustering processes in the Basque Country.

For this purpose, we designed a project to identify clusters in the Basque Country and in its three provinces based on export data[23]. No mapping or identification of clusters had been done since the early 1990s, when *Monitor* did the first study to identify clusters in the Basque Country. Therefore, we use the results in this report for two ends: first, to analyze the current status of the clusters that have an association; and secondly, to identify current clusters that could lead to new associations, and thus clustering processes.

Twofold objective: analyze the validity of current clusters and identify new ones

Our approach here was to apply the methodology for identifying clusters and subclusters of the Harvard Institute for Strategy and Competitiveness. The basic

[23] The methodology used to identify clusters has several limitations. Firstly, by considering only export sectors, it fails to identify clusters in other sectors, e.g., local or natural resource-dependent sectors, which comprise a major part of the economy of a region or country. Secondly, it is not particularly suitable for analyzing the competitive position of those clusters or subclusters which have a considerable presence abroad, since such a presence is not recorded among exports. Thirdly, it only considers the activities of the companies that comprise the export clusters, leaving out the activities of other sorts of organizations (technological centers, specialized training centers, etc.) which might form part of the export clusters.

information for the study of the Basque Country as whole and its three provinces was export data provided by Eustat. The analysis of clusters and subclusters takes into account the following indicators:

a) **Relevance indicator**, reflecting the importance of exports from each cluster or subcluster in total exports from the Basque Country, Gipuzkoa, Bizkaia or Araba. This is shown in the figures by the size of the bubble. Relevance is determined by the exports from a cluster or subcluster in total exports from the Basque Country.

b) **Indicator of comparative advantage (disadvantage)**, or competitiveness, reflecting the importance of exports from each cluster or subcluster in the Basque Country, Gipuzkoa, Bizkaia or Araba in global exports. This is shown in the figures by position on the vertical axis. Comparative advantage is considered to exist when these exports account for more than 2 per thousand (average export share of the Basque Country), comparative disadvantage when they are less[24].

c) **Indicator of dynamism**, reflecting the increase or decrease in the share of global exports of each cluster or subcluster.[25]. This is shown in the figures by the position on the horizontal axis. Dynamic is considered to exist when this share is rising; decline in the share means a lack of dynamism.

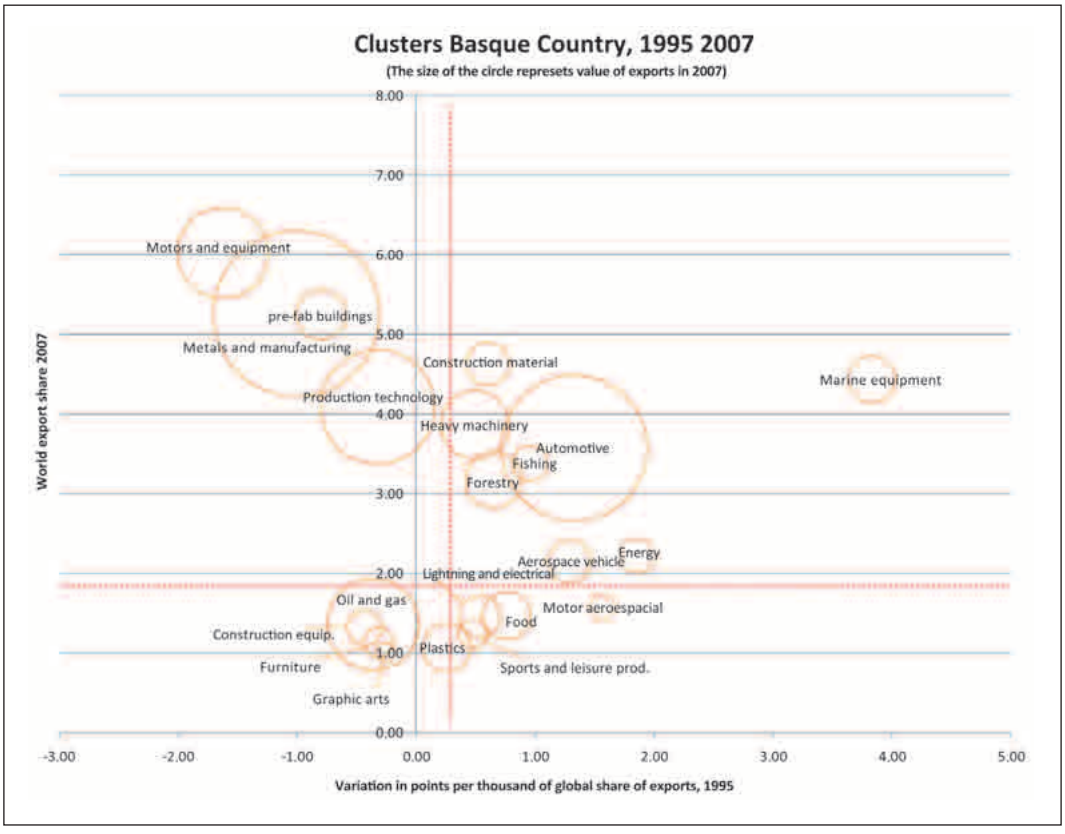
The following figure shows the competitive position, relevance and dynamism of the clusters in the Basque Country between 1995 and 2007. Relevant clusters, with a share of global exports above the average for the Basque Country, and which increased their share of exports between 1995 and 2007 include automotive, heavy machinery, energy, aerospace, marine equipment, forestry, fishing and construction material. Relevant clusters with a share of global exports above the average for the Basque Country, but which between 1995 and 2007 decreased their share include metals and manufacturing, manufacturing technology, motors and equipment, and prefabricated buildings.

Some of these clusters have a cluster association whose primary mission is to improve the competitiveness of the cluster through cooperation, while other clusters have no association responsible for fostering dynamism. For the former, this analysis may help them to get a perspective on the relevance, competitiveness and dynamism of their cluster. For the latter, while this analysis provides an initial identification of clusters, further study of the cluster identified would be needed in order to assess whether or not it needs an association to promote dynamism. Therefore, first we analyze those clusters and subclusters identified that have a cluster association.

[24] If the cluster's or subcluster's share of global exports is above the average export share of the Basque Country (or of each province) that cluster or subcluster has a comparative advantage; below the average, comparative disadvantage.

[25] Indicates whether the competitive position of the cluster or subcluster improved or declined in the period 1995-2007. If its competitive position improved more than the average for the Basque Country (or for each province) the cluster or subcluster is considered to be dynamic;

Graph 6.1. Major clusters identified in the Basque Country



Source: Eustat, Comtrade, Datos de comercio exterior, AEAT: Prepared by Authors.

The clusters or subclusters identified in this study that have a cluster association are automotive, energy, paper, household appliances, machine tools, shipbuilding and aeronautics. We shall deal with the results for these activities first. The fact that we do not include here other clusters that have an association—e.g., Uniport, Eiken, Transport and Logistics, Gaia and Aclima—does not mean that they are not relevant, but rather is due to the limitations of the methodology applied.

6.3. **Relevance of the main clusters identified that have an association**

As noted above, we have identified seven clusters in the Basque Country that have a cluster association, and thus where there is a body designed to foster dynamism. For each of them we offer a summary of its main characteristics and evolution in recent years, with which we are able to assess their current relevance and then formulate our recommendations for their policy cluster.

Table 6.1 provides indicators for clusters and subclusters with their own association of the share of their exports in total exports from the Basque Country (relevance), the share

of the cluster or subcluster in global exports and the variation in this share between 1995 and 2007.

Table 6.1 Clusters and subclusters with cluster association

Cluster or subcluster	Relevance (porcentage of exports from Basque Country) (per 100)	Competitive position (export share of the cluster out of global exports) (per 1000)	Change in global export share 1995 - 2007 (per 1000)	Cluster Association (CA)
Automotive	18.0	3.6	1.3	ACICAE
Machine Tools (Production technology cluster)	4.0	10.5	0.0	AFM
Home Appliances (Motors and Equip. cluster)	1.1	3.3	-0.6	ACEDE
Paper	2.7	3.2	0.6	Paper cluster
Oil processing (Oil and gas cluster)	7.0	3.3	-2.9	Energy cluster
Energy	1.0	2.2	1.9	Energy cluster
Airplanes (Aerospace vehicle cluster)	1.3	1.8	1.6	Hegan
Marine equipment	1.8	4.4	3.8	Foro Marírimo Vasco

From this table, we can draw the following conclusions:

- In general, all the clusters identified that have a cluster association to foster dynamism show a relevant and competitive position in terms of global exports. And all of them, except oil refining and household appliances, have increased their share of global exports.
- It is worth mentioning that at the time of our study, the latest data with which global comparisons could be made for purposes of our analysis are from 2007. In principle, this is a structural study, since this kind of position does not normally vary from year to year. However, the current crisis leads us to expand on our conclusions with the latest reports from the Observatorio de Coyuntura Industrial (Center for Industrial Opportunity) linked to the Basque Competitiveness Forum 2015. These reports indicate that industry, despite the general decline in the last quarter, has succeeded in sustaining most of its figures for 2008. However, the automotive sector is cited as one of the sectors most affected by declining demand and household appliances as one of the worst in terms of the forecast for 2009. Moreover, the cancellation of orders and delays in some programs place the aerospace sector in a delicate situation in the short term, although the outlook is more positive from 2010. In any case, with the data available today, it is impossible to assess the impact of the crisis on the indicators of relevance, dynamism and competitiveness discussed in this section.

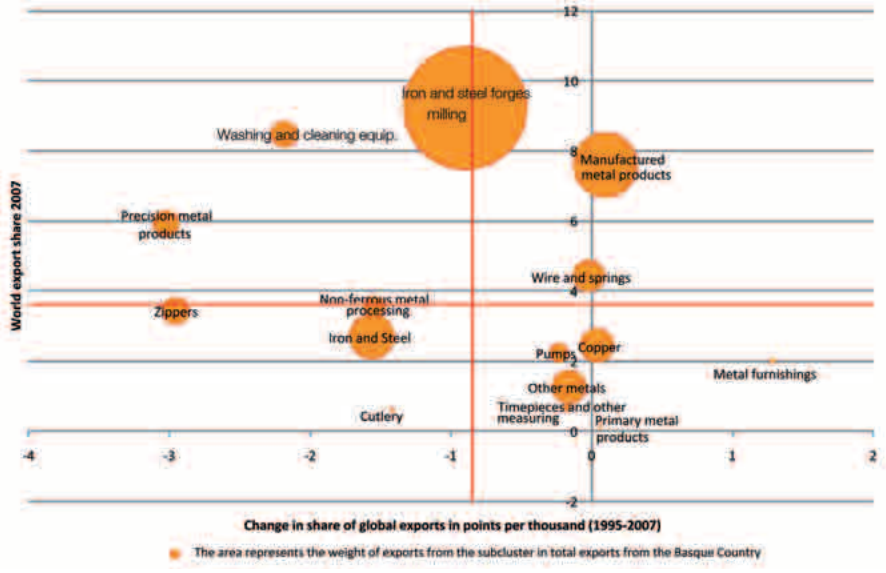
6.4. **Identification of potential clustering processes**

The above-mentioned study also identifies clusters that do not currently have a cluster association. In a first identification we found, among other significant examples, iron and steel smelting and manufacturing, hoists and cranes, railway equipment and food (especially in Gipuzkoa) and aluminum smelting in Bizkaia.

The **iron and steel smelting and manufacturing** cluster accounts for 13% of exports from the Basque Country, and a global export share of 10 per thousand, five times the

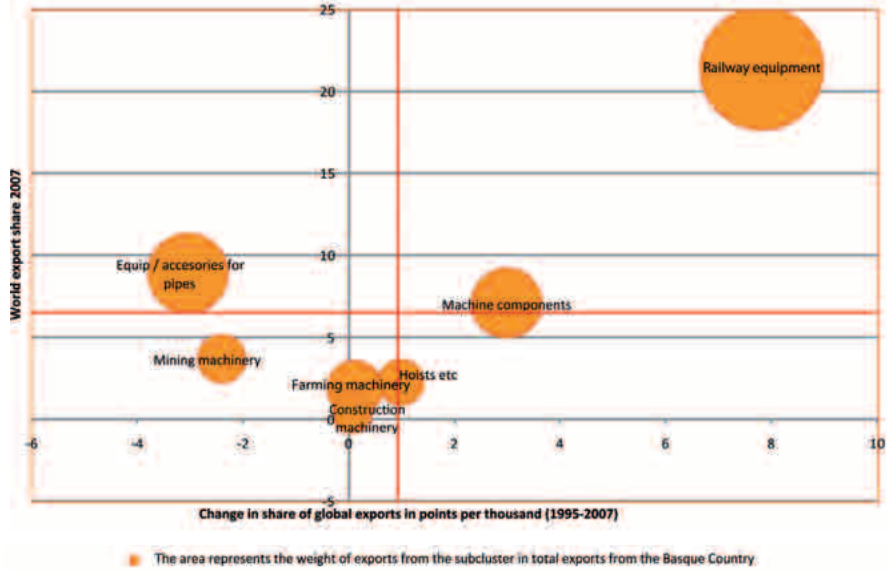
average export share of the Basque Country, although this share fell slightly between 1995 and 2007. This cluster is mainly located in Bizkaia.

Graph 6.2. Basque metals and manufacturing cluster, 1995-2007



Source: Eustat, Comtrade, Datos de comercio exterior, AEAT: Prepared by Authors.

Graph 6.3. Heavy machinery cluster in the Basque Country, 1995-2007

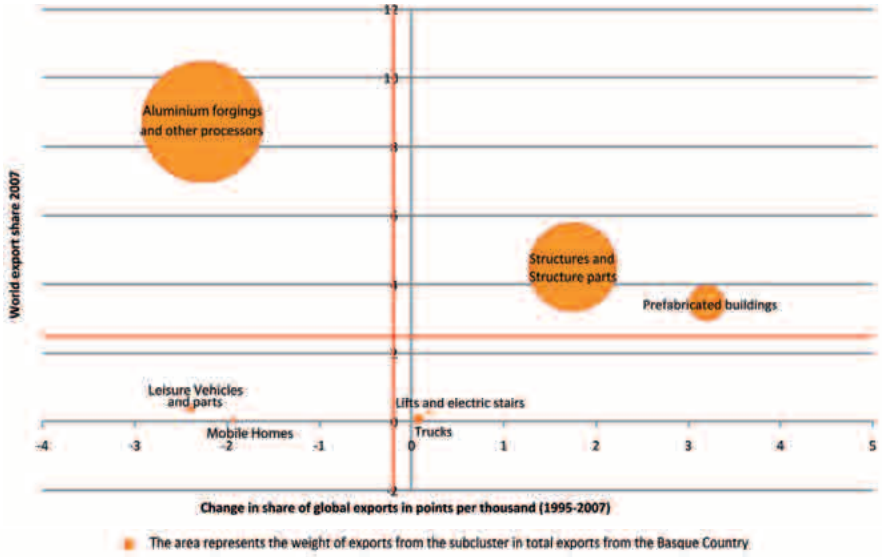


Source: Eustat, Comtrade, Datos de comercio exterior, AEAT: Prepared by Authors.

The **railway equipment cluster** accounts for 1.8% of exports from the Basque Country, and a global export share of 22 per thousand, eleven times the average export share of the Basque Country, and thus enjoys a very competitive position. Moreover, this share rose by 8 points per thousand between 1995 and 2007, thus showing a very dynamic position. This cluster is mainly located in Gipuzkoa.

The **cluster of aluminum forgings and other processors** represents 1.3% of exports from the Basque Country, and a share of global exports of 9 per thousand, four times higher than the average export share of the Basque Country; thus it has a very competitive position, although this share fell by 2 points per thousand between 1995 and 2007. This cluster is present mainly in Bizkaia.

Graph 6.4. Cluster of prefabricated building in the Basque Country, 1995-2007



Source: Eustat, Comtrade, Datos de comercio exterior, AEAT: Prepared by Authors.

This is a first identification of clusters, which means we need a more in-depth study of the cases identified in order to assess whether or not there are sufficient conditions for successful clustering processes.

These clustering processes can be undertaken in some cases without creating new structures for this purpose, since some of the potential clusters identified already have one or more sectoral associations that could take up the challenge of clustering and encouraging cooperation among members, thus assuming a role similar to that of the cluster associations. The goal in clustering processes is not to create new structures, but to change mindsets and to work towards a new philosophy of cooperation, that is, to evolve from the "sectoral association" to the cluster.

In fact, there are three sectoral associations (graphic arts in Bizkaia, smelting, and forging and stamping) that have taken up the challenge to undertake this transition with support from the Basque Department of Industry, Commerce and Tourism, which is going to pass a law specifically targeting priority clusters with the aim of facilitating this transition from sectoral associations to clusters. This is an indication of increasing acceptance of the advantages of clustering as a strategy for the new stage of innovation.

The next step in relation to the potential clusters identified is to answer the following questions:

a) Is it a cluster? What would be required for it to be considered as such?
b) Is there now dynamic interaction/collaboration among firms and other agents involved in the cluster identified?
c) Should the government play an active role in fostering this dynamic?
d) What would be the level of government (Basque government, provincial councils, municipal authorities) and the department most must suited to encourage the generation of this cluster dynamic?
e) Is there a need to create a cluster association, or is there a sectoral association that could enhance dynamism?

Answering these questions requires further analysis of the clusters identified, based on this identification of the main businesses in the cluster and analyzing the potential for improving their competitiveness through cooperation.

In some of the clusters identified, such as food, there has already been a clustering process supported by the Department of Agriculture (on the initiative of several key actors in the cluster). This is another indication that new steps are been taken towards the stage of innovation. In this context, we must remember that a cluster goes beyond the concept of sector, and that in all ideas raised it is necessary to find supra-industry and interdepartmental approaches.

6.5. **Cluster associations as institutions that facilitate clustering**

Challenge: innovative transformation of existing CAs

Cluster associations (CAs) are an important defining feature of the Basque Country's rich institutional framework and afford a good example of how public-private dialogue and collaboration can be achieved in practice. As we indicated in Chapter 1 of this report, clusters and the associations that work to give them impetus are key elements of the Institute's competitiveness model. In the first competitiveness report, the need to bring about an innovative transformation of existing CAs was identified as one of the critical challenges to be addressed to improve competitiveness and quality of life in the Basque Country.

In the previous section we focused on different clusters (encompassing all the activity that falls under certain headings, regardless of whether or not companies belong to a cluster association). In this section we will turn our attention to associations and their member firms.

First, we will consider the importance of CAs (the associated firms) in Basque industry and evaluate the competitive performance of CAs based on Eustat data[26]. We will then consider the main challenges facing CAs.

[26] More detailed information on the diagnosis for CAs can be found in the following study (publication forthcoming): Aranguren, M.J, de la Maza, X., Parrilli, D. and Wilson, J. (2009). Asociaciones Clúster: competitividad de la CAPV a través de la cooperación, Orkestra, Donostia-San Sebastián.

6.5.1. *Significance of CAs in Basque industry and analysis of their performance*

Processes for generating trust in CAs are slow

CAs are non-profit associations set up to improve the competitiveness of the cluster they represent through cooperation. The trust generated in collaborative projects should facilitate an increasingly strategic approach. These trust-building processes take time and should therefore be viewed as long-term initiatives. There are currently 12 cluster associations in the Basque Country.

Table 6.2 Priority clusters dependent on the Ministry of Industry, Commerce and Tourism and the Ministry of Transport

CLUSTER	ESTABLISHED	CLUSTER ASSOCIATION	MEMBERS
Machine Tools	1992	AFM	94
Household Appliances	1992	ACEDE	11
Automotive	1993	ACICAE	90
Environment	1995	ACLIMA	93
Bilbao Port	1995	UNIPOR BILBAO	151
Telecommunications	1996	GAIA	238
Energy	1996	ENERGY CLUSTER	76
Aeronautics	1997	HEGAN	36
Shipbuilding Industry	1997	BASQUE SHIPBUILDING FORUM	192
Paper	1998	PAPER CLUSTER	20
Audiovisual	2004	EIKEN	54
Transport and Logistics	2005	CLUSTERTIL	88

Source: Basque Country cluster associations

The majority of clusters were formed in the 1990s

As the information provided in Table 6.2 indicates, the majority of CAs set up under the cluster policy were established in the 1990s, though some have a shorter history. All of them, with the exception of the Logistics and Transport CA (linked to the Ministry of Transport) depend on the Basque government's Ministry of Industry, Commerce and Tourism and are classified as priority clusters[27].

There are other clusters—a sociolinguistics cluster set up in 2004, Biobask (a bioscience cluster) established in 2006, and an agri-food cluster (dependent on the Ministry of Agriculture) set up in 2008—that function as CAs but are not classified as priority clusters.

The numbers of members varies greatly from one CA to another, from 11 members in ACEDE to 238 in Gaia (the telecommunications cluster). The majority of members are companies, but they also include technology centers, training centers and public authorities.

[27] This means they receive funding equivalent to up to 60% of the expenses they incur to pursue their established objectives, to a maximum of €240,000.

The 11 priority CAs account for 32% of the value generated by Basque industry

We will now look at the significance of CAs within Basque industry. As the data in Table 6.3 (below) indicates, taken together the 11 priority CAs dependent on the Ministry of Industry, Commerce and Tourism represent 6% of companies and 7% of establishments in Basque industry. However, they account for 28% of employment and 32% of the added value generated by Basque industry. Thus approximately a third of Basque industry is clustered, a proportion that underscores the progress being made towards the new innovation-driven stage[28].

Table 6.3 Presence of industrial cluster associations in Basque industry (2006)

	No. of businesses Basque Ctry	No. of establishments Basque Ctry	Employment Basque Ctry establishmts.	Gross Value Added
ACEDE	10	13	6,806	340,073
ACICAE	79	101	14,366	802,913
ACLIMA	76	104	5,198	548,774
ADIMDE	128	152	5,608	252,915
AF	67	71	4,829	236,377
EIKEN	38	43	1,209	151,212
Energy	69	118	11,740	1,584,031
Gaia	196	233	8,883	212,260
Hegan	32	31	2,343	130,344
Paper	14	14	1,969	149,943
Uniport	95	121	6,673	865,950
Total CA	804	1,001	69,624	5,274,792
Total industry	14,202	14,768	250,862	16,624,164
CA weight in Basque Ctry. industry	6%	7%	28%	32%

Source: Prep. by Eustat and authors
Note: VA data in thousands of €

We will focus primarily on three indicators to analyze the competitive performance of CAs: growth in sales, internationalization and innovation.

Total sales for priority CAs are increasing

In terms of the **analysis of growth in sales**, as the data presented in Table 6.4 shows, total sales for all priority CAs increased by 31% from 2003 to 2006. Uniport, Energy, Foro Marítimo and Gaia experienced particularly significant sales growth over this period. On average and taken together, the CAs export 41% of their sales and 77% are made outside the Basque Country. Both of these percentages are higher than the average for these indicators in the Basque Country.

Internationalization: CAs export a high percentage of sales

The CAs that export a particularly high percentage of their sales are Hegan (74%), AFM (66%) and ACICAE 58%).

[28] These figures were calculated based on aggregated data requested from Eustat for the member firms of each CA. Given that some of these companies conduct part of their activity outside the Basque Country, the request submitted to Eustat has allowed us to assess the significance of the CAs by considering only their activity in the Basque Country.

Table 6.4 Change in sales and analysis of sales by CA

	2003	2006		2003			2006					
	sales	sales	Variation sales 2003-2006	% sales BC	% sales Spain	% sales outside Spain	% sales BC	% sales Spain	% sales outside Spain	Variation % sales to Spain	Variation % sales outside Spain	Variation % sales outside BC
ACEDE	1,261,093	1,349,029	7	10	50	40	9	52	39	2	-1	1
ACICAE	2,156,201	2,602,082	21	16	31	53	14	28	58	-3	5	2
ACLIMA	1,324,554	1,832,102	38	60	27	13	51	37	12	10	-1	9
AFM	634,931	772,304	22	17	27	56	12	22	66	-5	10	5
ENERGY	5,747,675	8,976,060	56	32	48	20	35	40	25	-8	5	-3
GAIA	375,716	522,178	39	25	44	31	27	34	39	-19	8	-2
HEGAN	505,358	512,583	1	10	11	79	16	10	74	-1	-5	-6
PAPER	550,144	594,658	8	8	51	41	8	57	35	6	-6	0
UNIPORT	4,141,195	6,817,683	65	31	47	22	35	38	27	-9	5	-4
TOTAL CA	17,195,818	24,734,295	31	23	38	39	23	36	41	-1.50	1.90	0.40

Source: Prepared by Eustat and the authors

As innovation indicators, we have used the percentage of firms that engage in R&D, the ratio of R&D spending over sales, and R&D personnel as a percentage of total personnel.

A high proportion of CA firms engage in R&D activity

As the data presented in Table 6.5 shows, an average of 32% of CA member firms engage in R&D. This is much higher than the average percentage observed for companies in the Basque Country, which as we have seen in the chapter on innovation is less than 1%. The CAs with the highest percentages of firms that engage in R&D are: ACEDE (60%), ACICAE and AFM (48%), Gaia (43%), Energy (42%) and Hegan (41%).

Table 6.5 R&D activities in CAs

	No. of firms Basque Country	No. of firms R&D	% of firms R&D	Employment for firms with R&D in the Basque C.	Personnel in R&D EDP	% of personnel R&D	Total business	Internal R&D spending	External R&D spending	Total R&D spending	% R&D spending to total business
ACEDE	10	6	60	5,935	258	4	1,240,545	23,962	3,776	27,738	2.2
ACICAE	79	38	48	7,434	313	4	1,757,026	30,549	5,988	36,537	2.1
ACLIMA	76	18	24	2,526	215	9	1,003,539	12,289	3,548	15,837	1.6
ADIMDE	128	13	10	1,605	225	14	388,040	22,791	3,847	26,638	6.9
AFM	67	32	48	3,566	382	11	552,611	22,463	3,823	26,286	4.8
EIKEN	38	8	21	644	110	17	326,296	6,181	555	6,736	2.1
ENERGY	69	29	42	10,172	713	7	5,810,133	54,089	10,501	64,590	1.1
GAIA	196	85	43	6,145	1,062	17	1,156,404	54,418	10,844	65,262	5.6
HEGAN	32	13	41	1,541	281	18	529,722	44,518	28,047	72,565	13.7
PAPER	14	5	36	808	21	3	265,398	1,083	169	1,252	0.5
UNIPORT	95	7	7	3,678	45	1	1,493,955	2,631	315	2,946	0.2
TOTAL CA	804	254	32	44,054	3,625	8	14,523,669	274,974	71,413	346,387	2.4

Source: Prepared by Eustat and the authors
All data from 2005, except number of firms, which is for 2006.
Economic data in thousands €

R&D personnel (FTE – full-time equivalent) represent 8% of total personnel in CAs. Again, this is far higher than the average for companies in the Basque Country (which is less than 0.1%). The CAs with a particularly high percentage of R&D personnel are Hegan (18%), Eiken and Gaia (17%) and Foro Marítimo (14%).

As for the R&D spending over sales ratio, the CAs dedicate an average of 2.4% of their turnover to R&D. Yet again, this is significantly higher than the average for the Basque Country (1.2% of GDP allocated to R&D). The CAs that stand out for their high percentage of spending on R&D are Hegan (13.7%), Foro Marítimo (6.9%), Gaia (5.6%) and AFM (4.8%).

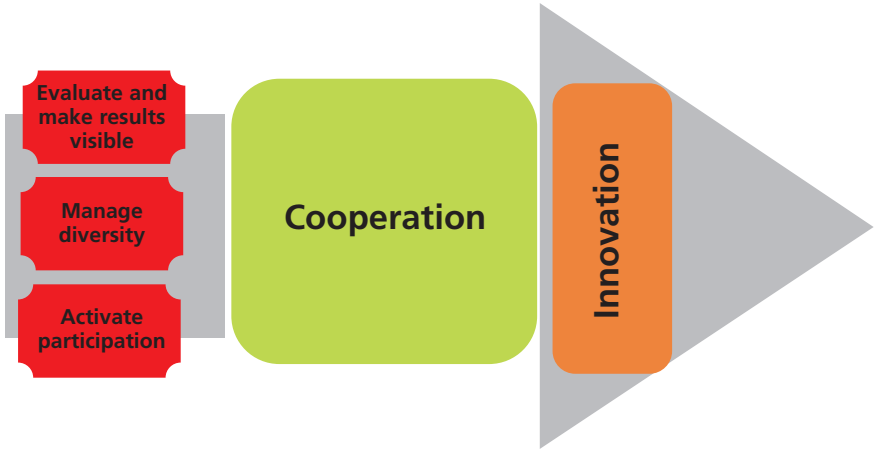
Based on the indicators considered, we can conclude that companies participating in cluster associations have achieved significantly better than average results in terms of sales growth, internationalization and innovation. In view of their number and, most importantly, their qualitative characteristics, these firms can play a critical role in the transition to the new competitive stage. In this light, the points discussed in the next section, which concern the challenges facing cluster associations, are of particular significance.

6.5.2. *Challenges for cluster associations in the new stage*

According to the study "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute), the main challenge facing CAs is to progressively step up cooperation. Innovative approaches need to be taken to encourage collaboration between cluster members and with external actors. The study identifies four additional areas to work on with the aim of facilitating achievement of the main goal of promoting cooperation (see Figure 6.1):

a) evaluate and make results visible
b) manage the diversity of associated firms
c) activate the participation of different types of actors
d) strengthen links between clusters

Figure 6.1. Challenges related to the main goal of fostering cooperation



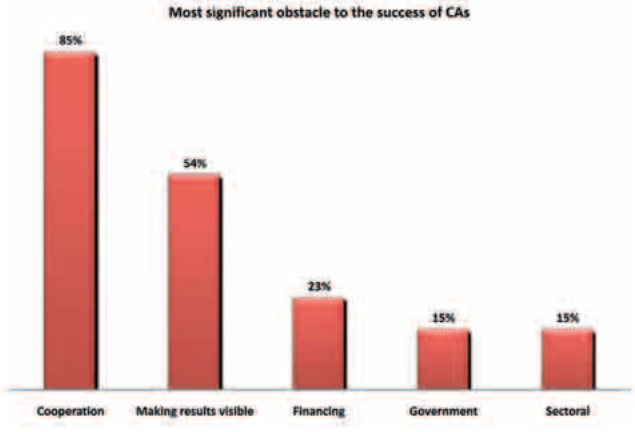
Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

6.5.2.1. The main challenge: innovative approaches to cooperation

The main focus needs to be on fostering cooperation

In addition to encouraging cooperation, clustering processes facilitate the pursuit of a broad range of other objectives. They enable the actors involved to seek new growth-oriented visions and identify new opportunities, activities and business models; break down traditional sectoral boundaries; define new innovative and creative instruments; increase interdisciplinarity; generate networks and alliances; open up new spaces to move into, and achieve greater inter-ministerial and inter-agency coordination. However, in the study on which the following discussion is based, fostering and achieving cooperation are identified as the main focus of the activity carried out by cluster associations in the Basque Country. This observation is supported by a number of conclusions drawn in the study. First, CA directors underscore that cooperation has been a key priority for the associations since they were first set up, though they also recognize that initially the level of cooperation within clusters was low (assigned an average score of 2.9 out of 7). They also report that CAs have worked hard to create mechanisms for cooperation. In fact, when asked to evaluate areas in which the associations have made a contribution in recent years, the two contributions that receive the highest scores (4.6 out of 5) are "increasing cooperation between firms" and "creating a cluster organization." These results highlight the effort made by CAs to foster cooperation. Nevertheless, CA directors also say that the most significant obstacle to the success of CAs at present is that the advantages of cooperation have not been internalized. As the graph below shows, 85% of those who head up CAs think that a lack of belief in cooperation is the biggest obstacle to the success of the associations.

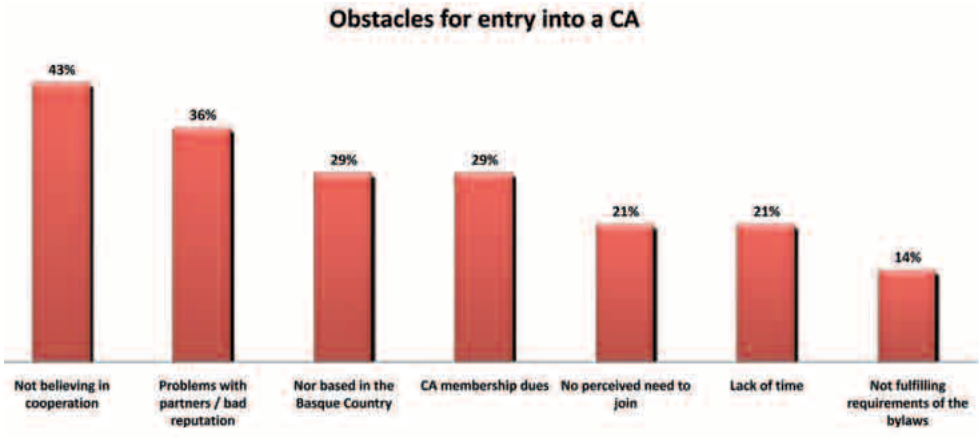
Graph 6.5. Obstacles to the success of CAs



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

This concern is shared by potential CA members; the factor most frequently cited by CA directors as an obstacle to attracting new participants is a lack of belief in the advantages of cooperation.

Graph 6.6. Obstacles to the entry of new members



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

Graph 6.6. Obstacles to the entry of new members

In conclusion, it is clear that more work needs to be done on cooperation and that mechanisms should be sought to improve the quality and extent of collaboration. This means gradually training people in the necessary skills and working to generate a culture of cooperation—clearly a long-term goal. The education system (particularly universities) can make a significant contribution to this process.

While fostering cooperation between cluster members is a key area to work on, cooperation with external actors is another challenge. In principle, being established in the Basque Country is a requirement for CA membership. Nevertheless, depending on the projects they wish to undertake, CAs do work with other participants (though their number is limited). These may be either external to the CA but located in the Basque Country, or from outside the autonomous community. For example, it is increasingly common for one CA to collaborate with other CAs (43% of CAs report that they regularly cooperate with at least three others) and other agencies based either in the Basque Country or outside the region (80% regularly cooperate with agencies that are not CAs, though generally these are located in the Basque Country).

One of the challenges facing CAs in the coming years is to seek synergies and define projects in cooperation with other CAs. This would have a positive impact on the development of clusters and in terms of enhancing competitiveness in the Basque Country, given that the competitiveness of a geographical area improves when there is diversification of economic activities (provided they are related) or when there are stronger clusters.

Finally, if interaction between Basque CAs and actors from outside the Basque Country is to be strengthened, it is important to establish mechanisms that facilitate collaboration with two particular types of external CAs:

a) associations that can work more intensively on other stages of a cluster's value chain, thus complementing the stages executed in the Basque Country; and
b) associations with valuable experience in the area of collaboration, regardless of the activity involved.

Strategic observatories set up within CAs—an initiative of the Ministry of Industry, Commerce and Tourism—can serve as a strategic tool in the process of opening associations up.

6.5.2.2. The challenge of facilitating cooperation: evaluating and making results visible

If cooperation is the critical component of a participatory policy aimed at promoting collaboration between actors and different institutions, then evaluation has a key role to play in making the advantages of collaboration visible.

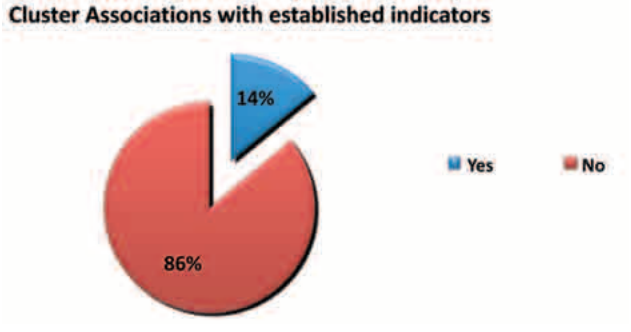
One of the conclusions reached in the study is that the fact that results are not visible is the second most significant obstacle to the success of CAs. The study also concludes that almost all CAs have indicators for tracking progress on strategic plans (see graph below), but that there are almost no indicators for measuring the impact of the work done by the CA on the competitiveness of member firms and the cluster. This point needs to be addressed in order to understand why companies decide to join a CA.

Strategic for the firm versus strategic for the cluster: closing the gap

Surveys conducted by the Institute have found that while a considerable number of projects are carried out within the framework of associations, member firms do not perceive these projects as having a high strategic value. One reason for this is that clustering is a long-term project in which relationships of trust develop slowly. Another is that the assessment of strategic value is based on evaluation by firms that belong to the cluster. In the absence of a shared vision, each company applies its own definition of what is strategic rather than considering what is strategic for the cluster as a set of actors. It is therefore difficult for companies to see that projects undertaken within the context of the association are strategic, as it is difficult to feel engaged with goals that are assumed but not shared. If progress can be made in building a shared vision in line with the priorities of association members, firms will be more likely to see clusters as a tool for carrying out strategic projects.

In the absence of other indicators that would permit a more detailed analysis, the evaluation of the cluster associations is positive, as reflected in Graph 6.8, which shows that the level of satisfaction of member firms is very high. When companies are invited to evaluate their cluster membership, the results are positive, particularly when it comes to the

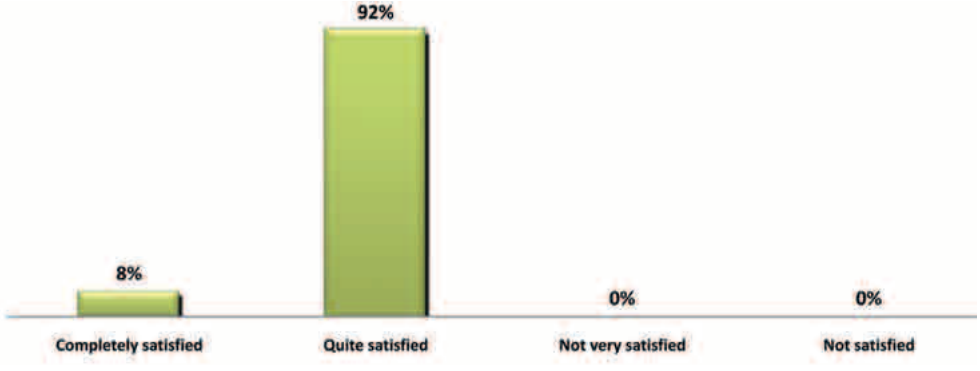
Graph 6.7. Percentage of associations with indicators for monitoring their activity



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

role CAs play in generating two elements that facilitate their mission: social capital (relationships of trust) and synergies or shared interests. Thus it seems that the evaluation of achievement of these intermediate objectives (necessary to reach the final goal) is positive, despite the difficulty of achieving the ultimate aim: strategic projects pursued on the basis of cooperation.

Graph 6.8. Satisfaction of member firms with their association



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

Challenge: the need to define evaluation tools

To sum up, while the level of satisfaction of member firms is high, evaluation tools need to be defined that go beyond simply monitoring progress on plans. Such tools should make it possible to evaluate the impact of cluster policy and improve cooperation mechanisms, which is the main challenge we have identified for the associations. At a stage in which knowledge and learning are crucial to support innovation, evaluation must serve as one more tool for facilitating the co-generation of new knowledge. With this objective in mind, the Basque government, with the collaboration of Orkestra, has initiated a participatory evaluation project. As a process in which all participants work together to reach a consensus on what their strategic objectives are and define the elements required to achieve them, participatory evaluation can contribute to the achievement of this objective. Measuring commonly agreed indicators generates material for shared learning and makes it possible for participants to initiate a process of ongoing discussion about objectives and the degree to which they are being reached. Participatory evaluation is thus an approach oriented towards collective learning and underpinned by a systemic vision, characteristics that are associated with processes at the innovation stage.

6.5.2.3. The challenge of facilitating cooperation: managing the diversity of members

If the challenge of increasing cooperation is to be tackled in an innovative way, CAs also need to be able to manage the diversity of their members. The membership of CAs is highly

heterogeneous, particularly in the associations with most members. This diversity is manifested in the size of firms, presence of foreign capital, the fact that companies belong to different sectors, and differences in where members are based. In the future, mechanisms for managing this diversity will need to be defined so that CAs can adopt an approach to fostering cooperation that reflects the specific characteristics of each type of member. According to CA directors, the challenge is to manage this diversity in a way that avoids excluding any members (particularly SMEs) and contributes to attracting new ones.

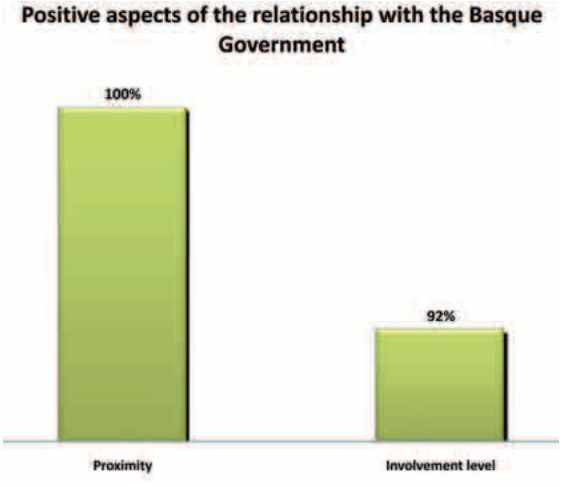
6.5.2.4. The challenge of facilitating cooperation: activating the participation of different actors

Little confidence in training and research institutions

According to the first of the study conclusions that identifies a weakness, training centers and public authorities (with the exception of the Basque government) do not play a very active role and therefore contribute little to advancing clustering processes. The second conclusion, which follows from the first, is that members distrust training and research institutions because they do not think they are attuned to the business world and the market. As a result, these institutions are perceived as being of little value as partners or allies.

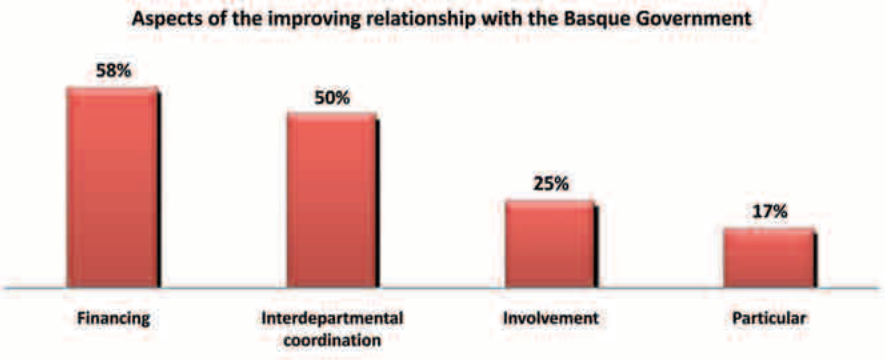
In contrast, all the associations take a very positive view of the role played by the Basque government. The third conclusion reflects the fact that the proximity and involvement of government actors in recent years has been perceived and evaluated positively. Nevertheless, the CAs stress that Basque government funding mechanisms and coordination between regional ministries should be priority areas for improvement. Specifically, they argue that the cluster policy should be adopted by the entire government, rather than being confined to one specific ministry. This broader perspective would improve coordination between different ministries.

Graph 6.9. Points evaluated positively by CAs in relation to the Basque government



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

Graph 6.10. Areas for improvement in relation to the Basque government (according to CAs)



Source: "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (soon to be published by the Institute).

Several specific objectives can be formulated based on these conclusions. Specifically, to facilitate cooperation, an effort should be made to:

a) improve involvement of training and research institutions;
b) increase the engagement of the rest of the government, beyond the ministries currently involved;
c) improve funding and inter-ministerial coordination.

To sum up, from the perspective of cluster associations the cost-benefit picture is positive; a minimal investment makes it possible to create spaces for dialogue between public and private actors, which are critical to move ahead to the new innovation stage. One of the most positive aspects of the policy is that members of the Basque government and the development agency SPRI participate in processes carried out within clusters, rather than limiting their involvement to evaluation. The institutions take organizational steps to ensure that they are represented in the associations through a matrix structure. The CAs have a stable matrix structure for coordination with Basque government ministries and the SPRI. This allows government and SPRI technical experts to participate in discussion processes. Being involved in this way enables them to identify the real needs of companies and adapt policies accordingly.

6.5.2.5. Other challenges

Based on the study "Cluster Associations: Competitiveness in the Basque Country through Cooperation" (referring to above in this chapter), we can identify a number of challenges for CAs:

- CAs are not focusing on integration of the value chain within each association. This is one of the challenges they need to address in terms of cooperation.
- Another of the challenges identified for CAs is the need to attract companies and investment. The study concludes that CAs have not contributed to accomplishing this goal, which is seen as critical because it is a way to create a nexus between local firms and multinationals.

- Finally, CAs have also made a limited contribution to increasing competition and generating spin-offs. A related point (and one of the conclusions drawn from the analysis of entrepreneurial activity presented in the chapter on business performance) is that the manufacturing sector is the one that has the greatest impact in terms of entrepreneurial activity and is therefore also the sector with the most potential to create employment and generate added value. In short, CAs face a major challenge going forward; they need to facilitate the establishment of new companies in manufacturing sectors, which are the areas in which the associations are active.

6.6. **The historical background of clusters and implications for their present-day competitiveness**

Over the last several years, the Institute has sponsored studies aimed at examining the historical roots of the paper cluster and the electronics, information technology and telecommunications cluster[29]. Despite the differences between the two clusters (industries with very different technological systems and life cycles, and clusters that also have very different life cycles), comparative analysis raises a number of points for discussion and enables us to draw some interesting lessons about the factors that explain the emergence of clusters, the effect of the four facets of Porter's diamond framework on the competitiveness of the clusters, and the role of different levels of government in facilitating the competitive advantage of the clusters.

6.6.1. *Factors that explain the emergence of clusters*

First, we will look at the factors that led to the emergence of the clusters. In both cases they developed thanks to the initiative of entrepreneurs in the Basque Country who identified and exploited new business opportunities (associated with a specific technology and/or market). Their efforts were facilitated by favorable factor conditions (natural resources and a skilled workforce) and demand conditions (a regional-national market that was relatively protected from international competition). These two factors are sufficient to explain the emergence of the paper cluster in the mid-19th century, at a time when the Basque Country and Catalonia were at the forefront of the industrial revolution in Spain (a country that was relatively backwards economically speaking), and when the international economy was not very integrated. The first companies specializing in electronic technologies appeared in the Basque Country about a century later, in the 1940s. They were set up by relatively well educated entrepreneurs, who introduced, imitated and copied modern technology from abroad and soon went on to develop their own technology as well. The firms had access to a skilled workforce in the region and benefited from regional and national demand for electronic products and solutions for use in industrial processes that were relatively complex and sophisticated. Right from its early days, the electronics cluster was also in a strong position in terms of two other facets of Porter's diamond model and had the support of the government, which put in place policies to create a trained workforce and promote R&D.

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[29] See J.M. Valdaliso, A. Elola, M.J. Aranguren and S. López, Los Orígenes Históricos del Clúster del Papel en el País Vasco y su Legado para el Presente (San Sebastian: Orkestra – Instituto Vasco de Competitividad and Eusko Ikaskuntza, 2008); and S. Lopez, A. Elola, J.M. Valdaliso and M.J. Aranguren, Los Orígenes Históricos del Clúster de Electrónica, Informática y Telecomunicaciones en el País Vasco y su Legado para el Presente (San Sebastian: Orkestra – Instituto Vasco de Competitividad and Eusko Ikaskuntza, 2008).

Entrepreneurial initiative, along with other factors such as a willingness to cooperate, played a key role in the appearance of both clusters. However, it is also the important to note the impact of:

a) The different technological systems used in the industries involved. In the case of the electronics industry, the knowledge base is more complex, heterogeneous and intensely science-oriented.

b) The difference in the type of demand. In the case of the paper cluster, demand is final and is for standardized products; in the electronics cluster demand is intermediate and must be met by supplying a broad range of technologically sophisticated, design-specific products and solutions.

Lessons for the future

We can draw three lessons for the future based on the history of these clusters. First, a systemic vision and interaction between the different elements of Porter's diamond model is clearly important, a point we have already underscored in the section of this report that focuses on the diamond framework. Second, there is no doubt that entrepreneurs who see opportunities and set up businesses play a key role. Finally, the future should be built on real capacities and strengths, such as the legacy we inherit from the past and the institutionalization of knowledge.

6.6.2. *The role of the four points of the diamond*

We will now discuss a series of points that show how the four facets of the diamond model affected the emergence and development of the clusters.

In terms of ***factor conditions***, while in both cases the availability of factors of production in the region was one determinant of the origin of the cluster, the pressures of increasing globalization and ever-greater mobility of factors of production mean that only clusters that have developed factors of production that are more specific and difficult to imitate will be able to maintain their competitiveness in an increasingly global economy.

The factor conditions the paper cluster has based its competitiveness on are natural resources (in particular water), physical capital (modern technology) and human capital (a skilled workforce), but these factors have ended up being imitated by competing regions with lower costs, a development that poses a threat to the sustainability of the cluster.

The electronic technologies industry involves technology that is more science- and knowledge-intensive. There is more interaction between suppliers and clients, knowledge is more heterogeneous, and there is greater diversity of related industries and sectors. For all these reasons, the industry is much more open to collaboration between firms and more inclined to generate relational capital. These factors are more region-specific and difficult to imitate. This cluster has managed to reorient its competitive approach towards a type of knowledge based not only on physical and human capital, but also on social capital—relational capital that ties together the different facets of the diamond of regional competitiveness, creating advantages that are highly specific and sustainable. This relational capital—sustained by geographical proximity, the proactive approach taken by the association-cluster, social networks of graduates and researchers, and the high mobility of skilled human capital—ties together firms (in the cluster and related sectors), universities and technology centers, clients (regional and national) and government institutions, generating a dynamic of collective learning and continuous innovation.

Lessons for the future

Our analysis of these two clusters leads us to conclude that intangible factors such as social capital (based on the quality and quantity of relationships) play a critical role in competitiveness. This is the case primarily because they are difficult to imitate. At the innovation stage, in which knowledge is one of the keys to competitiveness, these intangible factors will play a more significant role than traditional factors such as the availability of raw material.

With respect to ***demand conditions***, for over a century companies in the paper cluster benefited from relatively captive demand (protected from international competition by tariff barriers). Consumer products were relatively simple and standardized (low quality newsprint, where cost was the key factor, and medium- to high-quality paper for printing and writing, products for which competition was based on price and quality). The protected nature of the market, which only began to open up to international competition in the 1970s, weakened competitive rivalry between firms.

Companies in the electronics cluster, on the other hand, have benefited from intermediate demand for products and solutions that are relatively complex and sophisticated (less standardized and more experimental), and demand from new segments and market niches. This type of demand requires a much greater effort in terms of R&D and goes a long way towards explaining the innovative strategy pursued by firms in the cluster. The existence of clients with an experimental orientation and new market niches acts as an incentive for innovation in suppliers. It also necessitates greater collaboration and interaction between manufacturers and their clients, thus contributing to the development of relational capital in the cluster.

Lessons for the future

As we look ahead, another lesson we can learn from the past is that it is important to have demand that pushes suppliers, forcing the sector to innovate continuously to meet market needs. Removing this pressure can have very negative consequences for the competitive capacity of firms. This suggests that breaking down the traditional sectoral focus by incorporating clients in clusters and their associations could be a good move.

In terms of ***firm strategy and rivalry***, there are also significant differences between the two clusters. In part these are determined by the different technological systems used in each industry, but different demand conditions also have an effect. As indicated above, firms in the paper cluster emerged to supply a regional and national market protected from foreign competitors. They built their competitiveness on cost advantages (large companies with economies of scale) or product quality (small and medium-sized enterprises), the availability of a skilled workforce and modern technology, and returns to scale associated with agglomeration economies developed in the Tolosa area and to a lesser degree in the valleys of Bizkaia. However, because production was for the national market, the volume involved was smaller than in the case of competing firms in other countries. This reduced earnings from economies of scale and lowered the level of competitive rivalry. The opening-up of the Spanish economy to the international market and globalization have increased competitive rivalry, but these developments have also eroded the competitive advantages of Basque paper

firms. Various collaboration initiatives were set in motion at the state level but ultimately never yielded significant results. Only recently was a cluster association established at the level of the Basque Country.

In contrast to firms in the paper cluster, the majority of companies in the electronics cluster (all established from the 1980s on) have emerged in a market that is open to international competition and in a sector characterized by great turmoil and creative destruction (intense competitive rivalry), in which the only way to compete is by innovating. They have appeared on the scene during a stage of the industry life cycle characterized by low barriers to entry and intense turmoil (firms entering and exiting the market), a period marked by a dynamic of change and technological discontinuity, a high level of uncertainty and innovation. Moreover, almost from the start there was an association for the sector. It was eventually transformed into a cluster association which, with the support of the Basque government, developed a proactive strategy for inter-firm collaboration. The strategy was particularly successful in three areas: training of skilled workers, R&D activities and internationalization. Firms in the cluster are open to forming relationships with other companies (competitors, clients and suppliers) based in the Basque Country and around the world. So far, this approach has enabled the cluster to avoid becoming isolated or cut off. Increasing internationalization has led larger companies to form bigger and more diversified business groups.

Lessons for the future

The cases discussed show the positive influence of rivalry on the competitive capacity of firms, as well as underscoring how important it is to strike the right balance between competition and cooperation. These are key factors to bear in mind when defining policies aimed at developing intangibles, which are likely to become increasingly important in the coming years.

Finally, in terms of heterogeneity of knowledge resources and the existence of ***related and supporting industries and services***, there are significant differences between the two clusters in two closely related variables: the heterogeneity and complexity of the knowledge base in the industries involved, and the diversity of the cluster and of related and supporting industries and services.

In the paper cluster, the business is based on knowledge that is relatively focused on the production of paper, semi-finished products and converted paper products. Some knowledge of a related/supplier industry—the manufacture of machinery—is also required. In fact, given that competitiveness is now threatened by the pressures of increasing globalization, this small subsector of machinery manufacturers is the one with the strongest competitive advantages and best prospects for the future. In contrast, the electronics cluster is based on much more science-intensive knowledge. It is also more heterogeneous, with firms initially coming from a broad range of sectors (microelectronics, IT, telecommunications and content), which have progressively converged since the 1980s. Companies in the electronics cluster have also benefited from the existence in the region of firms that produce and distribute power, engineering firms, and sectors that have created a demand for innovative and sophisticated products and solutions (the financial sector, automotive supply industry, manufacturers of machine tools, etc.). These enterprises have often ended up becoming technology partners, partners in joint undertakings, or allies in a broad range of projects and R&D-related competitions.

Lessons for the future

Past experience shows us the benefits of diversity, which—in contrast to the specialization that has often been viewed as central to localization economies—enables companies to identify advantages in their environment. The key is to look for related diversity, i.e., activities which though different can capitalize on synergies vis-à-vis the market.

6.6.3. *The role of government policy*

Significant differences between the two clusters in terms of government policy also offer some useful lessons. When it was first developing and in its early stages, the paper cluster benefited from a commercial policy that protected the internal market from foreign competition. However, this policy, kept in place for over 100 years without significant changes, weakened the resource and skills base of firms, which had to pay more for imported raw materials and technology. It also allowed them to grow accustomed to an environment in which the level of business rivalry was low.

In the recent literature authors have expressed their skepticism about the role of government as a driving force. Nevertheless, the electronics cluster benefited from support provided by the central government and, in particular, from actions taken by the Basque government. However, it is important to stress that the policies in question were aimed at improving the training and qualifications of skilled workers, facilitating learning and acquisition of knowledge, and creating the infrastructure to support research and a culture of collaboration between actors engaged in innovation (firms, universities and technology centers). Their purpose was not to protect, subsidize or interfere in the sector.

Lessons for the future

The main lesson that can be drawn for the future is that government action per se is not necessarily either harmful or beneficial. Some government interventions, such as those aimed at protecting sectors and firms, can have an adverse effect in the long term. On the other hand, other actions, particularly those aimed at generating factors that contribute to competitiveness without restricting rivalry, can generate long-term advantages.

6.7. **Conclusions and recommendations**

The purpose of this section has been to analyze another element of the competitiveness model—clustering processes—in relation to the emblematic experience of the Basque Country in this area: the cluster policy of the Basque government and the cluster associations created under it.

Before providing specific recommendations for researchers, public authorities and cluster associations, we would like to offer one recommendation for all parties involved based on our analysis of the historical roots of the two clusters discussed above. The recommendation is that a systemic view should be taken of the various actors that determine competitiveness and their interactions. The analysis we have presented shows that the success or failure of a cluster can rarely be explained by a single factor. What affects a cluster at any given time and causes it to evolve in one direction or another is the combined effect of the relevant factors and interactions. Therefore, though the following recommendations are aimed at specific

groups, all of the goals and challenges are interrelated and should be borne in mind by all of the actors concerned.

6.7.1. *Recommendations for universities and research institutions*

Collaboration skills need to be developed

Our specific recommendations for researchers are based primarily on our analysis of cluster associations. As we indicate below, if associations are to take the cluster philosophy a step further, they need to develop collaboration skills. A profound knowledge of clustering is needed. It is also necessary to distinguish between institutions that facilitate clustering and the realities of clusters, and the role of each actor involved must be clear. Researchers should support processes aimed at defining the skills required and then create the training tools needed to help develop these skills. In the case of the Institute, this means going further in the direction exemplified by the MOC (Microeconomics of Competitiveness) course.

Creating tools for managing complexity

Researchers should also provide practical tools for managing complexity. The development of tools designed to facilitate participatory processes could play a key role. With this goal in mind, the Institute is working in the area of action research, a field that could provide elements that contribute to progress on this point. Participatory evaluation, referred to at various points in this report, is another area in which researchers should contribute to methodology in the coming years.

Finally, in light of the negative view cluster firms have of the contribution that researchers (among others) make to the activity of their associations, it is recommended that the role researchers currently play in cluster associations be analyzed with a view to establishing mechanisms aimed at increasing the value of their contribution. This recommendation does not apply exclusively to cluster associations and can be extended to other networks that currently exist in the Basque Country.

6.7.2. *Recommendations for government*

The first recommendation for public authorities follows from the evaluation of the activity of cluster associations and the significance of member firms. Based on these considerations, it is clearly worth **maintaining the policy** that acts on factors such as social capital and shared interest, which are regarded as critical to generate interaction between the different facets of the model as required at the innovation-driven stage of competitive development.

The second recommendation is also aimed at the Basque government, the authority that currently has a cluster policy in place, but could apply to other levels of government if they define policies aimed at promoting clustering. It is based on the analysis performed to identify clusters and the lessons for the future drawn after examining the historical legacy of certain clusters. The recommendation is that policy must always remain open to new clustering processes. Our analysis of the clusters currently being stimulated indicates that while they generally remain relevant in the Basque Country, some are losing impetus. As it evolves towards the new competitive stage, the Basque Country's structure of production needs to progressively shift its focus to activities that generate greater added value. Cluster policy can facilitate this transition if it is open to clustering processes for activities already going on in the region, but not within the framework of any cluster, and activities that are not traditional in the Basque Country but could be emerging activities.

More specifically, the recommendation could be acted on by trying to provide a response to the four questions presented in this report regarding clusters that have been identified but do not have associations at present. As we have indicated, the Basque government is already working to address this challenge.

6.7.3. *Recommendations for cluster associations*

Taking cooperation a step further

According to our analysis, if the Basque Country's cluster policy is to evolve, more effort needs to be made to **take cooperation a step further**. Before this can be accomplished, the advantages of cooperation need to be recognized and internalized. Therefore, the first recommendation for cluster associations is that they set in motion processes that allow them to engage more deeply with the cluster philosophy. Training and participatory evaluation (both discussed in this report) can play a significant role in such processes.

Seeking synergies between clusters

Another recommendation that follows from our analysis is that clusters should open up and seek synergies through collaboration with other clusters, both within the Basque Country and beyond its borders. In this case, there are already a number of interesting initiatives underway.

The goal of developing tools for managing diversity and facilitating participatory evaluation, identified above as objectives for researchers, should also be pursued by cluster associations. But the task that needs to be tackled by CAs differs from that of researchers. The role of the associations is not so much to design these tools as to raise awareness among the different actors involved in CAs in order to ensure that the tools can be put to effective use. They need to bring about changes in the way the advantages of these tools—characteristic of collaboration in the new stage—are perceived.

6.7.4. *Recommendations for business*

Internalizing the view that cooperation between firms is necessary and useful

As indicated in the section on innovation, public authorities and other support institutions can take action to foster clustering processes, but if firms do not see their value and internalize the potential of cooperation, it will be impossible to make progress on processes of this type. Therefore, the most important recommendation is aimed at companies, which need to approach clustering processes with the aim of understanding the underlying philosophy and work on the task of identifying new opportunities with an open mind.

However, this should not be understood as a recommendation that firms place all their bets on collaboration. As we indicated in our discussion of the historical legacy of clusters, the aim is to strike just the right balance between competition and collaboration. Firms need to develop their capacity to achieve this—to make the right decision at any given time and opt for the combination that will do the most to enhance their competitive capacity. If clustering is to be one of our differential factors in the new competitive stage, companies will have to internalize this principle and actively pursue a collaborative approach to the projects they regard as strategically important. It should also be noted that clusters have the potential to play a supporting role in the process of defining regional, national and even European industrial policies by using their influence and exerting pressure to promote the interests of member firms.

7. Institutional framework and institutions for collaboration

7.1. **Introduction**

Rich institutional framework: a strength of the Basque Country

One of the strengths of the Basque Country is its rich institutional framework: the Basque government, which has critical competencies with respect to policies relating to competitiveness at the microeconomic level; provincial councils, which have competencies and resources that are unmatched in any of Spain's other autonomous communities, and a network of county development agencies that channel the efforts of city councils in this area and cover a high proportion of the territory. The region also has a closely-woven fabric of instruments and facilitative alliances. The region also has a closely-woven fabric of instruments and facilitative alliances.

In the first competitiveness report, institutional factors were analyzed as one of the factors that explained how the Basque economy had developed from 1980 up to the time that the report was issued. In this second report, we raise the question of whether the Basque Country's institutional framework and institutions for collaboration are in transition to the new innovation-driven stage of competitive development. The evidence suggests that indeed they are. However, this is a difficult transition and requires that we modify the mindsets and patterns of interaction that have characterized actions carried out up to this point. In this part of the report, we will therefore focus on identifying elements that can act to reinforce this trend and consider how they can serve as a basis for continued progress.

7.2. **Key factors in the transition to the new stage**

A shift from investment-driven to innovation-driven competitiveness is now under way

The Basque Country is currently in transition from investment-driven to innovation-driven competitiveness. With respect to the institutional framework, we need to ask what characteristics such a framework should have in the new stage. We can then go on to consider whether there are really elements in place that support the view that this transition is underway.

The argument presented here focuses on the need for the different levels of government in the Basque Country to participate in new governance configurations (see explanation in box).

Governance

In the context of this report, governance means the structures and processes which make it possible to coordinate the activities of actors that affect competitiveness. Public authorities or related institutions are not the only actors involved in coordination; the private sector also needs to be brought into the process. For the purposes of this report, in addition to companies, the private sector encompasses civil society, social actors, etc. When we refer to new modes of governance, our intention is to stress the participatory and public-private character of new approaches to coordination.

Before continuing, it is worth considering why the development of governance is important. We can draw an analogy with companies and ask why they need to move towards models based on greater participation on the part of all their employees. The key idea is that innovation is no longer a matter of a few people doing the thinking while the rest are involved only at the execution stage. To be able to innovate at the rate the environment demands, an organization needs to be able to bring the **contributions of each and every one of its members into the innovation process**. For this to happen, everyone must know about the project and it must be shared by all. Individuals need to be clear about their specific roles and assume their responsibilities. By analogy, if the Basque Country wants to be innovative and competitive, we need a project that is owned by everyone and a shared vision in which all those involved assume their share of responsibility. This means it is no longer enough for public authorities to define and execute plans and programs; mechanisms must be found to ensure that the private sector is willing and able to participate in the process.

That said, it is important to stress that while different levels of government will need to undergo a process of transformation to evolve towards new modes of governance, this does not imply the disappearance of previous mechanisms. The structures and ways of operating now in place have proven to be effective means of responding to a significant number of challenges and remain the most efficient way to continue doing so. Nevertheless, the new innovation-driven stage poses new challenges to which it is not always possible to respond using established mechanisms. In these cases a new mode of governance is required. New modes of governance are thus aimed at providing new responses to new challenges on which progress would not be possible with existing mechanisms.

New governance mechanisms: a challenge

Having identified the need to define and implement new governance mechanisms as the main challenge that needs to be addressed by the institutional framework to progress towards the new stage, we will now consider what the key features of the new mode of governance are in order to determine whether the transition is on a solid footing. The conclusion drawn is that well-defined structures and processes are both needed to move forward.

The structures in question are the platforms in which the public and private sectors come together to coordinate the transition process. Networks, understood as stable structures for cooperation, play an important role. The key process involved is the co-generation of new knowledge within these networks (see box below).

Co-generation of new knowledge

The environment is changing so rapidly that no actor (neither public authorities, nor the private sector) can on its own possess all the knowledge required to advance to the new stage. Efficient mechanisms are needed to combine the knowledge of all parties involved and generate new knowledge that leads to collective action. But learning together is a complex, long-term process because it requires two elements that are very difficult to achieve: a shared vision and trust in the other parties involved. Co-generation of knowledge entails creating new knowledge by combining that of all the actors engaged in the collaboration process.

7.3. **Evidence that the transition to the new stage in underway: governance structures**

In the preceding section we identified the key factors for the transition of the administrative framework to the new stage in terms of generating new modes of governance. This requires networks and processes for the co-generation of knowledge, which in turn require a shared vision and trust.

In this section we will take a look at the institutional framework in order to consider whether progress is being made in the new competitive stage. As we have already suggested, there is evidence that this is indeed the case. This evidence relates mainly to the creation of networks that constitute the structure of new modes of governance. Based on the structures that have been created, we can say that the need to shift from models in which "government" clearly predominates to models that incorporate elements of new modes of governance (more participatory, with greater public-private collaboration) has been internalized, and that progress is being made in this regard.

Our aim is not to discuss every initiative that may contribute to this transition, but rather to present a selection of projects that illustrate the progress being made.

7.3.1. *Representative initiatives linked to the Basque government*

We will start at the level of the Basque Country, with elements that enable us to better understand how the Basque government is moving forward in terms of new modes of governance.

In the Basque Country there are many tools and platforms in place that make a significant contribution to governance. In this section, by way of example, we will discuss three of these. One is the **Basque Competitiveness Forum 2015**, a space for public-private collaboration aimed at generating a shared vision. Another is the **cluster policy of the Basque government**, which in the context of the value chains operating in our region, foments public-private collaboration to improve the competitiveness of businesses and the region. Finally, we will also consider **Innobasque**, whose aim is to generate platforms for knowledge co-generation processes.

The Basque Competitiveness Forum 2015: a stable platform for public-private collaboration

According to its mission statement, the Basque Competitiveness Forum 2015 is a stable platform in which actors representing public authorities and the private sector sustain a process of analysis and discussion aimed at generating new shared knowledge to facilitate the transition to the new stage and the formulation of different plans.

According to its mission statement, the forum also seeks to provide an example of social innovation based on

participation networks, thus reflecting the modern notion of governance and embracing social processes which contribute to defining public policies through participation. Therefore, based on its goals and approach, the forum is a structure of the type needed to advance towards the new stage.

Cluster associations: characteristic of the Basque Country's industrial policy

Cluster associations are another paradigmatic element of the Basque Country's competitiveness model. These institutions for collaboration were initially created under the industrial policy defined by the Basque government. The 12 existing associations[30] are non-profit organizations created to improve, through cooperation, the competitiveness of all actors involved in the value chains and production processes they represent. The Basque Country was a global pioneer when it implemented a regional cluster policy in the early 1990s. As a result, a good deal of knowledge has been gained in this area. If this knowledge is socialized, it could be a key factor in enabling other initiatives to take a more efficient approach to the transition process.

Cluster associations, made up largely of companies, along with technology centers, training centers, etc., have a stable matrix structure for coordination with various regional ministries of the Basque government and with the SPRI (regional development agency). This enables government and SPRI technical experts to participate in discussion processes. The structure is a stable one for public-private coordination and opens up a channel for processes for the co-generation of new knowledge that can lead to collective action and ultimately to an improved competitiveness. It is certainly a key tool for the transition from government to governance and, therefore, in the process of adapting the administrative framework to the new stage.

Innobasque is the most recent of a series of initiatives aimed at creating stable platforms for public-private cooperation.

Finally, the third element selected as evidence of the progress being made towards the new stage is Innobasque. Innobasque, an initiative supported by the Basque government, has a shorter history than the two mentioned above. Nevertheless, it is pertinent to any discussion of the stable platforms being created for co-generation of new knowledge by public and private actors.

According to the document that sets out the nature and purpose of the organization, Innobasque, the Basque Innovation Agency, is a non-profit association set up to coordinate and promote innovation in the Basque Country (in all areas), and to foster entrepreneurial spirit and creativity.

Innobasque is made up of the actors participating in the Basque Science, Technology and Innovation Network, private firms, Basque public institutions, institutional representatives of Basque employers and workers, and a broad range of innovation-related organizations. The agency seeks to provide a strong platform and network for collaboration for all these actors, enabling them to pursue activities that promote the values and attitudes associated with innovation in Basque society, carry out actions that disseminate abroad the image of the Basque Country as an innovative region and an attractive center for advanced RDI, and undertake any other actions that contribute to driving innovation in Basque companies and organizations.

[30] The existing cluster associations: are ACEDE, AFM, GAIA, ACICAE, UNIPORT, ACLIMA, Energy CA, HEGAN, Maritime Industries CA, Paper CA, EIKEN, and Transport and Logistics CA.

7.3.2. *Representative initiatives at the level of the provincial councils*

Creation of stable platforms for public-private cooperation by provincial councils

Initiatives undertaken by the provincial councils of the Basque Country also provide evidence that the importance of creating stable platforms for public-private coordination is being taken on board. In this section we will present a number of examples that support this view. Most of the projects discussed are recent initiatives, significant mainly for their future potential.

The Provincial Council of Gipuzkoa has made progress on this point by taking a number of steps. One was to launch **Gipuzkoa Berritzen**, which is now integrated in Innobasque. Another relevant initiative is the **G+20** process of strategic reflection. Set in motion by the Provincial Council of Gipuzkoa, G+20 provides a space where the region's public institutions and social and economic actors can come together to design a blueprint for the future of Gipuzkoa for the next 20 years. The project reflects the recognition that it is vital to adopt strategic approaches, which means engaging in a process that is consensus-based, effective and interactive in order to develop a core vision of the direction to be pursued. Finally, it is worth mentioning the philosophy adopted by **Gipuzkoa Aurrera**, which calls for a new political culture—a new approach to working on public issues based on three pillars: shared leadership by public institutions, public-private collaboration between institutions and regional actors to move forward in addressing major strategic challenges, and the involvement and participation of citizens in public policy.

Another example is the **Bizkaia Innovation Agency (BAI)**, set up in 2006 by the Department for Innovation and Economic Development of the Provincial Council of Bizkaia. The agency networks with other actors in the Basque innovation system (the Basque government, provincial councils, technology centers, universities, local development agencies and advanced services firms) to ensure that actions undertaken are as effective as possible.

In the case of Araba, undertakings such as the Araba Business and Innovation Center (CEIA)—which with over 30 years of experience has become an effective instrument for driving the incorporation of new business projects in the productive fabric—can help generate the social capital that provides the foundation for establishing platforms in which new approaches to participation can be put into practice.

7.3.3. *Representative initiatives at the level of city councils and county development agencies*

One level remains to be considered in this examination of the institutional framework of the Basque Country in terms of public authorities: city councils. Local authorities have promoted socioeconomic development by working hand-in-hand with county development agencies. Some of these agencies were set up by a single city council, and many others were established through cooperation between councils. In their early stages they received support from provincial councils, and in some cases from the Basque government. Therefore, discussion of the transition of this level of government to the new stage will focus on how these agencies are shifting towards new modes of governance. The existence of these agencies is one of the defining elements of the Basque Country's rich institutional landscape. They constitute a piece of the puzzle that is often overlooked when competitiveness-related issues are discussed, but were identified as an element of the Basque Country's unique value proposition in the first competitiveness report issued by the Institute.

The **agencies** began to appear in the late 1980s, mainly in provincial capitals and some of the industrial counties of Gipuzkoa. The model has been widely adopted, and there are

now 32 agencies, 31 of which are associated with **Garapen (a Basque association of county development agencies)**. While their initial focus was on dealing with the problem of unemployment, they now work on the basis of a broader notion of local development.

Creation of networks for public-private cooperation oriented towards local development

Evidence that these agencies are shifting from government models to governance models oriented towards improving competitiveness can be seen in the creation around them of networks for public-private cooperation which focus on achieving local development by improving the competitiveness of companies. Projects that have been defined and presented publicly include the Azaro Fundazioa, the Deba Business Forum, Ezagutza Gunea and Lehiberri. Initiatives that are less defined or still in their early stages are currently being developed by a number of other agencies, though they have not been made public outside their respective counties. There is every reason to believe that in the coming years networks of this kind will play a crucial role in the transition of the institutional framework at the municipal and county level to the new stage.

In general, based on the initiatives cited, we can conclude that elements characteristic of the new stage can be identified at all levels of government in the Basque Country. This does not mean that there are not differences between them in terms of the progress that has been made.

7.4. **Main challenges in the transition to the new stage: governance as process**

As we have indicated above, efficient governance requires **structures** (discussed in the preceding section) and **processes** (which we will now consider). While the analysis of structures has led us to conclude that there is evidence of progress towards the new stage, the discussion of processes that follows points to major challenges to be addressed in the coming years.

The analysis of processes focuses on three very simple schemas that help us understand the characteristics governance processes must have:

1. a schema concerning how to approach regional complexity, which will allow us to consider to what extent there is a shared vision of the direction the competitiveness model should be evolving in.
2. a schema for analyzing to what degree a balanced approach is being taken with respect to the three key factors that can provide the basis for a process for co-generation of knowledge (research, action and participation).
3. a list of six questions which, in line with the theory, point to areas where progress should be made in terms of not only governance structures but also the processes involved.

7.4.1. *Regional complexity: building a shared vision*

As we have indicated above, a shared vision and trust in others are essential if we are to progress towards the new modes of governance required by the innovation-driven stage. The table below presents a schema for thinking about where we stand in terms of developing a shared vision.

According to this schema, there are four possible stages at which the Basque Country could find itself in terms of the level of difficulty it faces in moving from government to regional governance, which would encompass all the actors referred to above:

	Consensus about objectives, strategies and order of priorities	Conflict about objectives, strategies and order of priorities
No consensus about organization, authority, roles, types of resources and use of resources	Harmony	Type I complexity
Conflict about organization, authority, roles, types of resources and use of resources	Type II complexity	Type III complexity

Source: Karlsen (2009). Action research and regional complexity. Workshop Learning through Dialogue about Action Research and Participatory Research, Kristiansand, 4-5th. February 2009

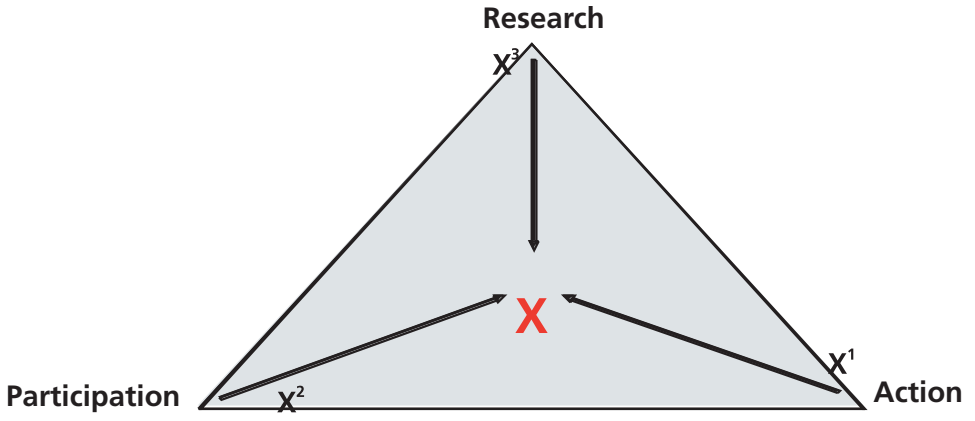
1. The first possible scenario is one of **harmony**. In this case, public and private actors involved in governance at the local, provincial and regional level share a single vision in terms of objectives, strategies and order of priorities. They also agree on how to organize their activities, authority, and the roles and resources needed to make progress towards achieving these objectives.
2. The second scenario (Type I complexity) is one in which actors have clear criteria regarding authority, roles and use of resources, but lack a shared vision of the objectives to be pursued.
3. Type II complexity describes a situation in which actors have a shared vision but cannot reach a consensus about how to organize their activities.
4. Finally, the scenario corresponding to Type III complexity is characterized by conflict over the vision and resources, as well as over organization and the use of resources.

In terms of the development of governance processes in the Basque Country, the actors involved share a strategy, but in each instrument, management issues, conflict over roles, and areas of activity make it difficult to implement the strategy. This puts the Basque Country in a scenario of Type II complexity; the region's competitiveness actors are working in a context in which, despite having a shared strategy, they come into conflict over areas of influence, power and management of resources. Therefore, to move ahead with these processes, those involved need to reach a consensus about how to organize their activities, authority, roles, types of resources, and use of resources. The goal is to progress from Type II complexity to a situation of harmony.

7.4.2. *Action research: working towards a balanced approach to co-generation of new knowledge*

The central idea discussed in this section is that in order for processes leading to the co-generation of knowledge to occur and directly reinforce action, there must be a balance between three elements: research, action and participation.

The following framework for thinking about these issues is derived from contributions made in the field of action research.



Source: Karlsen (2009). Action research and regional complexity. Workshop Learning through Dialogue about Action Research and Participatory Research, Kristiansand, 4-5th. February 2009

Discussions conducted in the context of collaboration with Norwegian researchers on processes for the co-generation of knowledge involving public and private actors in Norway and the Basque Country have led us to draw several conclusions.

First, it is important to note that the role of social science researchers is not the same. In the Nordic country, researchers of this type play a significant role at the design and execution stages of projects like the ones referred to in the previous section. In the Basque Country, on the other hand, this role is often fulfilled by consulting firms. The approach used in Norway is possible because there are special researchers with specific qualifications and experience, known as action researchers, who act as a bridge between the academic world and the real problems experienced by actors involved in processes aimed at improving competitiveness.

One of the key aspects of the Norwegian experience is the importance placed on involving those who are actually experiencing the problem and can act on it in knowledge co-generation processes. This way the knowledge generated within the framework of structures created to facilitate public-private cooperation is automatically translated into action. This is possible because the person who was already acting on the problem is the one who has learned in the cooperation process.

Finally, it is important to note that the process only works if the knowledge co-generation process is participatory. Moreover, consultation—simply providing an opportunity for actors to express their views—is not participation. Participation will be optimal when the participants in the knowledge co-generation process are those who can make decisions in relation to the problem being addressed. These requirements make participation a highly complex issue. Effective participation requires that the process be properly defined in terms of who will take part and their level of involvement. Each participant's representative role, legitimacy and commitment must also be clearly established.

In light of the points discussed in this section, we can pose a series of questions about public-private collaboration in the Basque Country:

- Is the contribution researchers could make to the processes required by the new mode of governance being optimized?
- Are there researchers with the training needed to engage in action research?

- Have networks and platforms for discussion and shared learning been designed to ensure that those who come together to learn are actually the people working on the problem being addressed in their day-to-day activities?
- Does the design of discussion and shared-learning processes enable those involved in co-generation of new knowledge to make decisions about how to translate this knowledge into action?
- Do private and social actors undertake commitments and assume a real leadership role in the co-generation process within the context of public-private alliances?
- Are universities and training centers really engaged with their environment and working to improve it?

The cases presented in the previous section as being representative of new modes of governance in the Basque Country are many and varied. Answers to these questions cannot be given for all of them. In general terms, however, it can be said that the contribution researchers could make to these processes is not being optimized. Without doubt this is largely because there are very few social science researchers with action-oriented qualifications and experience. In addition, participants in processes aimed at providing a forum for discussion and generating new knowledge in these networks are often not learning about the problems they need to solve in their day-to-day activities. Neither are they in a position to make decisions that directly translate the new knowledge generated into action. If this aspect of the design of knowledge-generation processes could be improved, the effort made by governments, decision makers, firms engaged in the process, workers and social actors could be focused more directly on achieving results.

7.4.3. *Building the new governance: is action being taken on all fronts?*

The third framework for examining the approach being taken to governance processes is a schema (Wallis, 2003)[31] according to which the transition from government to governance (the goal for the institutional framework) must be accompanied by five other changes:

- from emphasis on structures to emphasis on processes
- from a closed conception of the region to an open one
- from coordination to collaboration
- from accountability to trust
- from power to empowerment

The importance of understanding governance in terms of process rather than just structure has already been made clear. Therefore, this point will not be discussed again in this section.

The change from a closed conception of the region to an open one, however, poses a new challenge that has not yet been addressed: that of internalizing the notion that the governance model must be a multilevel one. There needs to be an understanding of how to integrate the dynamics generated at the municipal-county level, the provincial level, and the level of the Basque Country as a whole. These levels also need to be integrated with dynamics at the state and international levels. The Innovanet network, created within the framework of the Euskadi+Innova initiative, has been a step forward in terms of integrating dynamics at the local, provincial and autonomous community level. Euskadi+Innova is the strategy shared by all individuals and organizations working to promote innovation in the Basque Country,

[31] Wallis (2003), The New Regionalisms.

and the aim of Innovanet is to provide a forum that brings together actors working to promote innovation in the Basque Country. Integration occurs at the policy-execution stage, but less so in the process of defining and designing policy. It is therefore important that this approach be taken further. The steps being taken by the Ministry of Industry, Commerce and Tourism to integrate the regional level in cluster policy—by analyzing the possibility of supporting projects at the municipal or county level—are another example of the progress being made in this area. It is also worth noting other specific collaborations involving organizations such as Euskalit and a number of technology centers with county-level networks. These initiatives may point the way ahead in terms of how the relationship between such networks and members of the regional innovation system could be approached in the future.

Public authorities are opening their processes up to private actors and in some cases taking part in such processes as just one more participant, without any special status. In relation to this shift from coordination to collaboration, it is worth considering to what extent the latter approach is maintained throughout the process, from the definition of needs to implementation of plans and programs. This is perhaps one of the points where most work needs to be done in terms of changing mindsets. Public authorities need to give up decision-making turf that has traditionally been theirs so that other actors can be involved in decisions. In addition, private actors must assume responsibility for the decisions they are involved in, something they are not used to doing. In some of the cases cited as emblematic of the transition to a new mode of governance we can see interesting steps in this direction, but in general the transition is happening very slowly.

In the early stages of a transition from a relationship based on accountability to one based on trust, networks of relationships between public and private actors are characterized largely by one group or the other seeking to justify that they are meeting their commitments. When those involved reach a stage where there is enough trust, this accountability becomes more of a background issue. At the moment, accountability remains central to the relationship between actors.

Finally, according to the theoretical framework applied, there needs to be a shift from relationships based on power (the type that predominate in the "government" model) to relationships that focus on empowerment, which are characteristic of governance. Empowerment means giving the actors who in principle are weaker the capacity to cooperate with other actors on an equal footing. One of the critical processes to be undertaken in the coming years is therefore to empower private actors who are going to participate in decision-making processes to ensure that they can contribute to these processes as equal partners. Once again, these processes are occurring, but slowly.

To sum up, the points analyzed in this section underscore the need for public authorities to engage in processes that involve them giving up power, and for private actors to take on responsibilities. In the case of companies, these processes are synergistically related with internal changes involving a shift to more participatory models. It is also important that unions are committed to this process.

7.5. **Conclusions and recommendations**

The institutional framework is evolving towards the mode of governance needed in the new competitive stage.

In terms of the question of whether the institutional framework is moving towards the type of governance required in the new competitive stage, the overall conclusion is that there is indeed evidence that such a change is underway. This view is supported by the fact that over recent years structures have been created to meet the

requirements of the new stage. Nevertheless, the approach to governance appears to be biased towards the creation of structures. In contrast, progress is slower when it comes to the processes that need to be set in motion through these structures. Thus, the general challenge for the coming years is mainly to strengthen processes in which public and private actors are involved in the co-generation of knowledge. This knowledge, translated into action, will facilitate progress in the new competitive stage.

7.5.1. *Recommendations for universities and research institutions*

Train action researchers

One of the recommendations that follow directly from the points discussed in this chapter is that researchers should receive training in action research. This would improve the balance between research, action and participation within the cooperation networks and platforms discussed.

A second recommendation, directly related to the first, is that researchers of this type should be involved in designing and implementing knowledge co-generation processes. In this way, they could act as a bridge between the latest knowledge in competitiveness-related disciplines and the reality of actors in the Basque Country.

Another recommendation, in this case directed at Orkestra, is that the Institute and the networks identified at the various levels (county, province and the Basque Country) should establish a process for the co-generation of new knowledge that focuses on developing a multilevel vision of the governance model and defining the role that the networks at each level play in the overall system.

7.5.2. *Recommendations for networks and platforms for public-private cooperation*

Training of relational leaders

Just as researchers need to be trained to focus more on action, networks need to provide training to produce relational leaders. Relational leaders are people who recognize from the start that they do not know everything, but they have the skills needed to activate relationships and spaces for the exchange of ideas. As a result of the kind of approach they take, they are often seen as being weak (they have to listen, be patient, spend time as needed, and be willing to accept proposals made by others). Despite this perception, they can be very influential. They are not above everyone else, but in the middle; they do not tell others what to do, but articulate and drive processes to ensure that things get done. They are not leaders who focus on executing tasks; essentially their role involves intermediation and fostering action. They do not work on the basis of plans, concentrating instead on something much more important: the project[32].

Relational leadership is the key to making progress on processes aimed at generating trust and empowering weaker actors.

The recommendation for researchers made in the previous section—that they should conceptualize the role of each network within the multilevel governance model (and consequently also in relation to the Basque Country's competitiveness model)—also applies to networks themselves. However, it is important that this conceptualization should be a process that involves co-generation of new knowledge among all those involved. If each actor engages in its own separate process of analysis, the potential benefit of having the knowledge feed into common action will be lost, and the development of governance

[32] Quim Brugué; Tormella (2005), Redes y Gestión, en Redes y Desarrollo Local. Garapen.

processes that fit the new competitive stage will be slowed down. Currently there are no spaces where networks come together to discuss the structure they collectively comprise.

The final recommendation for these networks is that they should make a greater effort to ensure real participation on the part of the actors involved. This means that private actors need to assume responsibilities in addition to public authorities giving up ground so they can finally start to exercise real power. This is a difficult process, but without real participation it is impossible to move towards a shared vision and reach a stage at which knowledge generated is translated into action. To move in this direction, we recommend that discussion and working groups be designed to ensure that participants are those who are experiencing the problem being addressed and can feed the knowledge generated into their day-to-day activities.

Private actors must assume responsibilities in relation to their participation in networks.

7.5.3. *Recommendations for government*

The public authorities that have fostered the creation of networks also participate in them in one way or another. Therefore, the recommendations for networks also apply to public authorities.

There is, however, an additional recommendation worth making to representatives of public authorities who participate in or monitor the activity of networks. The shift from government to governance means that projects once defined and executed by the government will now be discussed and defined in a forum where the government is simply one participant among many. In many cases this slows projects down, and the collective view may not coincide with what the government had initially envisioned. As a result, government representatives may at times feel that progress on the issues being addressed is slow and inefficient. Nevertheless, if knowledge co-generation processes are carried out in the right way, execution will be much faster and more efficient once a decision has been made. This is the case because the actors affected by the plan or program have participated in its development, internalized it, and integrated it in the shared vision generated in the process. With this in mind, the recommendation for public authorities is a two-pronged one. First, they must make sure that each network set up is seeking to solve a well-defined problem; that the participants in knowledge co-generation processes are the people experiencing the problem; and that the people learning from this process are the ones in a position to make decisions about how the problem is to be solved. Once this has been ensured, it is important that networks be given sufficient leeway to build up trust among their members. It should also be borne in mind that these are long-term processes and results will not be apparent immediately.

Projects are shared, so affected actors are more efficiently engaged in plans and programs.

7.5.4. *Recommendations for private actors involved in governance*

The transition from government to governance clearly poses a challenge for public authorities, but this is also true for private actors, including companies. The change under way means they are now being invited to participate in decision-making processes which up to now were outside their natural sphere of action.

Participation in networks and processes often involves a considerable investment of time and money on the part of companies, and the outcome of processes aimed at facilitating

The shift from government to governance opens the door to the participation of private actors.

cooperation and co-generation of knowledge is not always clear. Capitalizing on the potential of these networks requires specific competencies, which include skills and attitudes as well as knowledge. Our recommendation for private actors is that they invest in developing these competencies, which are essential if the knowledge generated in networks is to reach firms and contribute to improving their competitiveness.

8. Final conclusions

This document, the second competitiveness report issued by Orkestra, the Basque Institute of Competitiveness, has allowed us to move ahead, following the trail marked by the first report, towards a better understanding of the competitive positioning of the Basque Country. Based on this understanding, in this final section we can turn our attention to the challenges the various actors now face when it comes to maintaining the strong position diagnosed.

The crisis and the current period of uncertainty

We cannot ignore the fact that the two years that have passed since the publication of the first report have been a period of crisis, marked by a sea change in the economic scenario. Consciously or unconsciously, this affects our perception and attitudes in relation to competitiveness. It is difficult to think about the long-term at a time of such uncertainty. We may at times be tempted to think that in a period when paradigms are changing it makes little sense to attempt to build a vision to guide us going forward. It is true that we cannot predict what is going to happen. Our aim in this second report, however, is to seek to understand the past and identify future challenges based on what we have learned, proceeding on the basis of a systemic way of thinking about competitiveness. The report is thus an exercise in long-term thinking, carried out at a time when the long-term seems disturbingly unclear. Yet it is precisely at this time of crisis that it is essential to think about and design a different future, and accomplishing this requires a long-term vision, a commitment to change, and the involvement of all relevant actors.

Advancing to the new stage: more lights than shadows

The first report established a good starting point for thinking about competitiveness in the Basque Country by analyzing its strengths and weaknesses based on the diagnosis performed (which involved looking at the elements of the diamond model, explained in Chapter 5). In this report the question that has guided our analysis of each element of competitiveness is whether or not we are evolving towards the innovation-driven stage of competitive development. Reaching this stage is an objective in all the discussion processes aimed at defining the strategy to be pursued by the region. The general conclusion is that there is indeed evidence that we are moving in this direction by building on strengths acquired in the course of pursuing a range of strategies in the past. Nevertheless, the new scenario requires that crucial new elements be developed.

The indicators analyzed for each critical facet of competitiveness have enabled us to paint a picture which, when viewed in perspective, is characterized by more lights than shadows in terms of the Basque Country's evolution towards the innovation stage. Some elements

indicate we are about to make the transition, while others suggest we have just entered this stage and are starting to advance within it.

Based on the analysis carried out, we can say that the Basque Country shows a good level of competitive performance. This conclusion follows from an assessment of both general economic and company data. The approach we have taken is an exacting one. We have tried to do more than simply examine widely used and comparatively positive indicators by taking a close look at each indicator and recognizing the changes that need to occur to achieve excellence. In this transition there are many questions with no answers and huge leaps forward without definitive conclusions. Moreover, we need to conduct our analysis in a sphere where indicators have not yet been defined.

Based on the analysis of performance carried out, we can conclude that the Basque Country is in a strong position in relation to its competitive level, measured in terms of per capita GDP. Therefore, the starting point for this report is that the Basque Country is competitive. The analysis of the other elements of the model has enabled us to identify the levers that have activated this competitiveness, which at this point are the critical strengths on which to continue building a competitiveness strategy. Based on the positive trend observed for innovation indicators in recent years, there is evidence that this level of competitiveness has been achieved thanks to the capacity for innovation inherent in the component parts and levers of the model chosen.

To assess ***business performance*** we have presented an economic and financial analysis based on data available for the period up to 2007. The results indicate that Basque businesses are on a firm economic and financial footing. The fact that Basque businesses have performed well in recent years in terms of their economic and financial structure is likely to be a positive factor when it comes to dealing with the current crisis. A positive trend is also observed for the size of Basque businesses. The data available disproves the widely held view which holds that manufacturing firms in the Basque Country are relatively small. Over this decade the tendency of Basque companies to become progressively smaller appears to have been interrupted. In terms of creating business groups, Basque companies have actively pursued policies that focus on developing or participating in such groups. Consequently, they now lead Spain's autonomous communities for the indicators we have used. In contrast, when it comes to the Basque Country's export intensity index, a good deal of progress still needs to be made, though the data available shows a positive trend up to the point when the effects of the economic crisis began to be noted in 2008. Moreover, if we analyze the characteristics of exports rather than focusing exclusively on volume, the fact that Basque companies have succeeded in innovating in products and markets is a positive development. This innovation has enabled Basque businesses to progress towards more complex export stages.

Another positive sign cited in this report is that the Basque Country is one of the three autonomous communities whose percentage share of Spanish foreign direct investment is greater than its share of GDP. In contrast, the percentage of foreign direct investment from the Spanish state that goes to the Basque Country is lower than its proportion of GDP. (One reason for this is the distorting effect of large volumes of foreign investment associated with the economic structure of the state—which is currently in crisis and in need of profound transformation. Such investment goes into construction, property-related and tourism operations, and the bulking-up of the financial sector with "flighty, unstable capital." Another factor is the capital-city effect, which tends to concentrate corporate growth—in terms of commercial and corporate organization—in Madrid and other autonomous communities.) Overall, there are grounds to conclude that the business fabric is progressively taking on the characteristics typically associated with an innovation-driven economy. Evidence that this is the case includes, for example, the positive trend observed for the Basque Country's export intensity, the creation of business groups, the innovation in products and

markets identified in the breakdown of export growth, the trend observed for the sophistication index, the weight of foreign direct investment, and the extent of foreign shareholding (production related) in the manufacturing activities that the region specializes in.

A number of conclusions can also be drawn regarding the factors driving the transition to the new stage. In relation to the diamond models analyzed, our main conclusion is that there are clear signs that a systemic vision is being integrated in diagnostic and planning processes at the county level, and that this is leading to the definition of clustering processes. These dynamics have already yielded results in terms of greater penetration of innovation policies developed by the Basque government, for example, in the area of innovation agendas. This suggests that the systemic view is occurring not only on the intracounty level, but among the different territorial levels. Although there is no quantitative data on this point, in some of the counties analyzed there are also signs that clustering is affecting company attitudes (particularly in the case of smaller firms), leading to a greater recognition of the need to develop more sophisticated strategies.

As for clustering processes, we have seen how the policy pursued has succeeded in bringing together a significant number of companies. Once again, this shows that progress is being made in terms of the defining parameters of the new competitive stage. As we have noted, this is a slow process because it requires a major change in the mindset of participants. Our analysis suggests that if the cluster philosophy is assimilated by companies, this could make a significant contribution to accelerating the clustering process. Today it is satisfying to see that clustering is broadly accepted and recommended throughout the world. This development reinforces the process undertaken here, which is moving forward as a series of significant transformations take place.

As for the ***framework for political action, governments*** and ***institutions for collaboration***, there has been a flurry of activity in recent years in terms of forming public-private partnerships. This indicates that progress is being made towards the new stage. The next few years will be critical to see whether the competitiveness actors involved in these partnerships (both public and private) are able to define processes that breathe life into these structures and facilitate progress towards the new stage. This is without doubt one of the most significant challenges we face going forward.

In the context of the current financial and economic crisis, no one can doubt just how interconnected the economy and society are. The present situation underscores the importance of "socially responsible competitiveness," which stresses the need to integrate economic and social policies—a concept that has guided the process undertaken in the Basque Country. While the relative positioning of the Basque Country is good, the period that lies ahead will require a major effort on the part of all actors. The future of the region as a whole will depend on how effectively these efforts are aligned. The crisis affects everyone, the future of all parties involved and their ability to get out of the current situation will depend on the capacity of each to define the right strategies and gain the support needed to drive implementation. It is therefore more important than ever that we maintain our ability to think long-term, and it is essential that public-private coalitions and alliances continue to play the extraordinary strategic and support role they have up until now. The crisis has also led to a greater recognition of the essential role of government (at all levels) and the importance of not letting markets run themselves without any external control or involvement in decisions.

One of the characteristics of the innovation-driven stage is that it is grounded in a systemic vision. It is no longer enough for everyone, whether business, government, partnership support organization or researcher, to understand their own situation. In order to build a common vision that translates into joint strategies and shared commitments, we need to start with tools that enable the various actors involved to perceive how they fit into an overall system. They need to understand the role of each party and be able to see how they interact. In such a system, each actor, in addition to

A systemic vision of competitiveness

understanding how it is affected by its own decisions, understands how its decisions affect other actors and how the decisions of other actors affect it. This systemic vision is very difficult to measure quantitatively, but it is one of the keys to advancing towards the new stage

In view of the current situation of crisis, and bearing in mind the favorable initial position of the Basque Country, one of the conclusions of this report (which should serve as a roadmap for the future) is that the region has enormous potential for learning and innovation, provided it is able to activate mechanisms that enable competitiveness actors to learn from the experience of others. The region can draw on valuable experiences in most of the critical areas that affect competitiveness, but often there are no mechanisms for translating this experience into action in a useful way.

Today innovation is understood as an open concept. Working out how to learn together and efficiently apply what we have learned to improve competitiveness is one of the major challenges that lie ahead. If we are committed to improving competitiveness in a socially responsible way, innovation need not always be market-oriented. Social innovation is another of the central ideas that will need to be understood and built on. If we are to advance along the path of open learning and innovation, we face a number of collective challenges (specific recommendations for each type of competitiveness actor are provided in the corresponding sections above):

Knowing what we know

1. Actors need to become aware of what they know and present their knowledge in a way that is understandable to other competitiveness actors who may benefit from it. Knowledge is not always of a technical or theoretical nature; companies, public authorities, universities and technology centers have developed know-how that has not been made explicit. Yet this type of knowledge could be what really counts when it comes to identifying the unique value that differentiates the Basque Country from other territorial jurisdictions. The cluster associations, forums and networks mentioned in this report have an important task ahead of them: to inventory the knowledge that can contribute to improving competitiveness.

Combine knowledge

2. Combine explicit knowledge. The framework that exists in the Basque Country is a rich but at times disjointed one. The value of knowledge generated could be multiplied if it were linked to shared projects. Progress will require a more interdisciplinary approach. Teamwork involving people from the business world, the science and technology system, different levels of government and associations should come to be seen as a natural form of collaboration. Only if knowledge is exchanged in this way will it be possible to construct the shared knowledge that must underpin a common project.

Bring action into line with discourse

3. Assimilate the new knowledge generated. Over recent years a significant effort has been made to incorporate terms like open innovation, cluster, social capital, network, governance and cooperation into the discourse on competitiveness. But actually internalizing these new paradigms so that actions are consistent with the discourse is a long process. It may even require a change of generation. But steps can be taken to accelerate this process if we recognize that it is necessary and are committed to making it happen. Lifelong training is a tool that could facilitate achievement of this goal.

Socialize knowledge

4. Socialize knowledge. Share not only what can be made explicit in formal documents, but also the experience, expectations, concerns and hopes of each actor. In our discussion of clustering and the administrative system, we have referred to a number of institutions for collaboration. Platforms in which socialization processes can be set in motion exist now. However, we need to learn to develop processes which ensure that the learning that comes out of the socialization of knowledge can be efficiently oriented towards action.

Co-responsibility in addressing challenges

5. Develop a sense of co-responsibility. In addition to learning together as a step towards action, generating a shared project requires that all actors feel they are responsible for the initiative. In this report we have analyzed public-private co-responsibility and have found that striking the right balances in this area is one of the major challenges that must be tackled to make progress in the new stage.

Working on these five points will facilitate the generation of new knowledge, which will bring into focus a shared strategy that can guide coordination of collaborative work. For this to happen, all of the actors that influence competitive strategy need to be brought into the process. At various points in this report we have noted the significant efforts made by different levels of government to build a consensus on visions and strategies. Unfortunately, the results have not always been clearly perceived by private actors, a situation that constitutes an obstacle to them assuming responsibilities in the process. Mechanisms need to be put in place to ensure that visions and strategies are more widely shared among competitiveness actors. Only if this happens will we see a greater convergence of strategic agendas going forward.

As for the contribution of Orkestra (the Basque Institute of Competitiveness) in relation to the challenges identified, it is helpful to return to the analysis of strengths and weaknesses presented in Chapter 5. Based on this analysis, we can conclude that the strengths that need to be exploited to make real progress in enhancing competitiveness over the coming years are:

- a strong network of technology centers and new infrastructure (including CRCs), which are progressively strengthening an increasingly complete business-technology system;
- public authorities with competencies and resources, and a rich, plural administrative and institutional framework;
- a high level of dialogue between local and regional authorities and companies—which facilitates the alignment of policy with needs—supported by a permanent, well-established process for generating and structuring public-private partnerships and an exceptional public-private competitive capacity;
- strong development of cluster initiatives and increasing ad hoc training, with shared language which fosters a rich process leading to new initiatives and the transformation of existing vehicles and instruments into an ever more robust framework for collaboration.

In building on these strengths, it is critical to continue developing the shared strategy referred to in the general conclusions. Autonomy and appropriate tax incentives for investment, innovation and internationalization are another strength cited but not specifically analyzed in this report. This is one of the areas Orkestra needs to take a closer look at in the coming years. These instruments should not be seen as isolated measures; they become especially relevant within the framework of a system of self-government that enables the region to differentiate itself and facilitates the interaction of selective policies that reflect the competitive demands of different actors, in differentiated clusters.

Two weaknesses that must be worked on are the relatively low penetration of foreign capital (financial, technological and talent) and the low weight of high-tech manufacturers and services that are highly knowledge-intensive. These are other points the Institute should work on in the coming years to ensure that the next report it issues helps point the way ahead in terms of improving the competitiveness of agents in the Basque Country.

To sum up, there are elements in place to move ahead in the new competitive stage, and there is evidence that significant basic steps in this direction have already been taken. The biggest challenge at present is to activate the right interactions to facilitate co-generation of the new knowledge that will put this progress on a firm footing.

Orkestra
BASQUE INSTITUTE OF COMPETITIVENESS

Report for the "Competitiveness in the Basque Country" series

Second in a series of periodic reports about competitiveness of the Basque Country published by Orkestra-Basque Institute of Competitiveness this report measures the competitive performance of the Basque Country and of its firms, linking their performance to the region's positioning in innovation. In the second part it analyzes a number of critical factors of regional competitiveness as driving forces for the transition to the new innovation-based competitive stage.

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