Executive Summary

The study of knowledge-intensive service activities (KISA) is a case study in innovation that forms part of the OECD's continuing work on national innovation systems. The project examines the value of KISA in facilitating the growth of innovation capacity within recipient organisations by focusing not on service sector industries *per se*, but on the role of knowledge-intensive services as carriers and sources of knowledge that influence the performance of individual organisations, value chains and clusters across industries. From this perspective, the impact of services on innovation performance is understood through their specific functional role rather than as a set of distinct industry sectors.

As defined in this study, KISA refers to the production and integration of service activities undertaken by firms or public sector actors in the context of manufacturing or services, in combination with manufactured outputs or as stand-alone services. Typical examples of KISA include research and development (R&D), management consulting, information and communications services, human resource management and employment services, legal services (including those related to intellectual property rights) accounting, financing, and marketing-related service activities. Most businesses and public sector organisations make use of such KISA in their daily operations, whether they provide them internally or source them from external suppliers in the private or public sectors.

The KISA project was a major research undertaking that involved 11 countries. Australia, Denmark, Finland, Ireland, Japan, Korea, New Zealand, Norway and Spain produced a total of more than 20 case studies, 230 personal interviews and survey data from over 1 000 respondents examining KISA in four broad industry groups: *1)* software services, *2)* health care, *3)* tourism and leisure, and *4)* resource-based industries. The Czech Republic and United Kingdom provided national data for the project. Together these contributions provide a diverse range of industrial settings in which to examine and better understand the role of KISA in innovation. They provide considerable insight into KISA-related processes that underlie innovation capabilities and performance of firms and organisations – subtle processes do not lend themselves to traditional statistical analysis.

The objective of the KISA project was to generate a comparative analysis of different kinds of service inputs to the management of innovation in firms. As an exploratory effort, the study followed an open approach that aimed to further develop key analytical concepts and allow an understanding of the processes related to KISA. There were two original research questions: *1)* What kinds of KISA occur in different countries and industries? *2)* How do KISA work? The first question was the target of survey research, while the second was examined by firm-level case studies of firms. This report identifies key lessons from the case studies, highlighting the importance of KISA to innovation policy and offering insight into ways to build the KISA perspective into innovation policy.

KISA in innovation

The study confirms that knowledge-intensive service activities play several important roles in innovation processes. They serve as *sources* of innovation when they play a role in initiating and developing innovation activities in client organisations. They serve as *facilitators* of innovation when they support an organisation in the innovation process. Similarly, they serve as *carriers* of innovation when they aid in transferring existing knowledge among or within organisations, industries or networks so that it can be applied in a new context. These different roles depend partly on the response of the user (or client) organisation: how it engages with the supplier of the service, how it retains learning from the service, and how it manages knowledge throughout the organisation. All these features are part of the interactive nature of KISA.

KISA affects innovation processes in different ways

The case studies indicate that different types of KISA contribute in different ways to innovation (Table 0.1). Some KISA, such as R&D and strategic management, aid in firm renewal. Such *renewal services* are closely linked to innovation, but are relevant and accessible to a limited number of highly capable recipient organisations equipped with sufficient resources. Other, more *routine services*, such as accounting help maintain and improve existing systems and activities within organisations. Their significance for performance enhancement is highly important for most organisations. *Compliance services*, such as auditing and some legal services are not obviously linked with innovation, except to the extent that compliance with regulations related to health, safety, environment, etc., can stimulate innovation. Such KISA also offer an access route by which a wide range of organisations, among them the bulk of small businesses, can recognise the importance of KISA to their firm's performance and begin to engage a broader set of KISA providers. *Network services* provide an important platform for knowledge exchange within formal and informal networks. They also represent a flexible resource base for the members of the network.

Table 0.1. Types of KISA and their role in innovation

Renewal services	Directly related to innovation, for instance R&D and strategic management consulting
Routine services	Contribute to improvement of maintenance and management of various subsystems within organisations, *e.g.* accounting
Compliance services	Help organisations to work within the legal framework and various other regulatory regimes, *e.g.* auditing and some legal services
Network services	Facilitate communication, knowledge exchange and flexible resource allocation, *e.g.* informal personal networks and production related networks

Use of KISA varies across industries and across time

Reflecting their different roles, KISA are used to different degrees at different points in the innovation process. In the case studies, the type of KISA needed within a firm, irrespective of sector, was found to be closely related to the stage of the innovation life cycle. Services related to R&D are important in early stages of innovation, while those related to intellectual property rights, commercialisation, marketing and production processes tend to be more important during later stages of the innovation life cycle. In the *software* sector, for example, most firms reported that they specify, design and implement

new products using internal resources; the first service they typically seek outside is strategy formulation and finance, followed by legal services. Examples of other important KISA used at different points in the innovation process are consulting and research services related to strategy, business development, engineering ICT, marketing, and financing (Box 0.1). The role of KISA in innovation, therefore, depends on a number of dimensions, including the nature of the organisation, characteristics of the value chain, the type of the industry and the life cycle of the innovation process.

Box 0.1. Lessons from the study of KISA in software

The innovation capabilities of software firms show strong correlations with their use of knowledge intensive services. The influence of externally sourced services on learning and innovation depends, however, on the motivations and absorptive capacity of the user. As illustrated by the Norwegian case study, management training, sales training and public relations activities that are supplied by external sources typically contribute the development of working methods in customer firms. In other cases, client firms use externally provided KISA as additional, complementary resources, without development/innovation objectives.

Software firms integrate information and knowledge from various sources into their innovation processes. R&D in software firms is typically solution-oriented, based on identifying industry problems and developing technical solutions that can be easily customised. New product ideas are often obtained from engineering and marketing departments, as well as directly from customers. As seen in the Irish case study, improvements are based on feedback from engineers working with clients. Business service providers and research technology organisations are often used to support business management and development functions, and they appear to be especially important for firms that are expanding into international markets (see the Finnish case study). Relationships with large firms, such as telecommunications, automotive companies and major commodity producers also have an important role in product development and in building international customer and knowledge networks. Such networks are especially important in strategic areas such as the development of future business and new solutions. Hence, an environment that encourages co-operation and joint ventures between large firms and small service firms is an important element of the innovation system (as seen in the case studies of Korea and New Zealand). Books, trade journals, conferences and shows also appear to be important sources of new ideas for software businesses (New Zealand case study).

Use and demand for knowledge-intensive services changes during the product and business life cycle. As seen in the Australian and Finnish studies, the use of externally sourced services typically increases at more mature stages of the product life cycle. Many software firms specify, design and implement new products using internal resources, and then seek outside assistance with business strategy formulation and finance, followed by legal services. While some software firms argue that the use of external services stifles creativity, others consider fresh input from outsiders useful. Nevertheless, in research undertaken for this project, most firms using outside services aspire to develop the competences in-house as they grow in size and become more successful. Continued reliance on external services was foreseen for ensuring compliance with regulations and other administrative requirements, such as those related to taxation and patenting (Australian study).

Source: Case studies contained in Chapter 3 of this report.

Innovation is a collective process that requires access to multiple skill sets

The KISA study illustrates the degree to which innovation is an interactive process among various participants. KISA influence innovation via collective or collaborative problem-solving processes in which organisations work together to meet a market need or opportunity. Since innovation tends to be increasingly complex, a wide set of skills is an ever more crucial element of success. For instance, the development of a new type of printing paper brings together a diverse range of KISA including expertise in fibre research, biotechnology, chemistry, electronics, engineering, business management, marketing, logistics, key clients, software development and printing technology. Such examples highlight the multidimensional nature of innovation and the diverse range of knowledge needed to bring new products, processes and services to fruition. Innovative firms must mobilise a wide set of skills, often extending beyond their internal capabilities. These skills include not just technical skills, but market analysis, logistics and behavioural sciences. As shown in the *leisure and tourism* study, three central challenges in innovation include the integration of expertise in product development, the integration of style and technology, and the role of the customer/user and the importance of understanding emerging lifestyles. All of these involve knowledge-intensive service activities.

Users and customers are important drivers of innovation

The KISA study highlights the importance of users and customers in the innovation process. Customers are important partners for learning: new knowledge is often developed from the interaction between a firm and its customers. In the *software* study, for example, ideas for new software products were most often found to come from interaction between software suppliers and customers. Interaction with users also helped suppliers to develop their internal skills as users participated in joint problem solving and product development. Overall, users had a significant role in networks, which were very important KISA actors in the software sector. In the *leisure industry* innovation revolves around consumers' leisure pursuits and needs to be based on an understanding of consumer lifestyles and everyday practices. In *resource-based industries*, too, the increasingly customer-driven nature of innovation is shifting the strategic focus towards the customer end of the value chain.

Even in resource-based industries, the analysis of consumer behaviour, market segments, evolving demand patterns, logistics, markets and marketing are increasingly important KISA as organisations link their innovation activities more closely to the needs of customers and end users. Close interaction with customers is seen as a strategic asset for securing the competitive position of the organisation. For production-driven firms this means that a wide range of new types of skills needs to be developed with the assistance of internal and external KISA. The Finnish case study of the Forenel forest industry cluster found that as such businesses continue to transition toward offering solutions that contain service content, the interaction of internal and external KISA will play a growing role in building businesses capabilities and in shifting the focus of innovation from technological innovations to non-technological ones.

Related to the importance of users is the importance of marketing services as a driver of innovation in some industries. The *tourism and leisure* report emphasises the importance of marketing services as builders of internal innovation capacity in tourist businesses (Box 0.2). A new set of marketing-related services provided tourism businesses with information about customers' evolving lifestyles that create demand for new types of services. The

tourism case studies highlighted some alignment between innovation policies and service industries.

Box 0.2. External services in tourism and leisure

Tourism and leisure are different sectors, but with a number of similaries that influence their use of KISA. Both have expanded as a consequence of increased affluence, education and leisure time; both are dependent on an intimate understanding of cultural trends and preferences; and both contribute to the emergence of KISA that produce this kind of knowledge. Studies of tourism and leisure show that firms in these sectors have similar reasons for relying on external providers of key services: they not only provide capabilities that may be lacking internally, but also provide a creative, fresh outside view or independent compliance certification.

Whereas tourism has its share of fashions and fads and is affected by technological change, the appeal of many tourist destinations relies on their ability to remain – or appear to remain – unchanged. This is true both of established resorts offering old-fashioned service and a relaxed pace and of newer trends, such as environmental tourism. Many tourism experiences – though by no means all – are first and foremost experiences of rest and relaxation. Often consumers buy packages put together for them by tourist agencies, with minimal effort or input on the consumer's part. In addition, tourism relies heavily on physical and human infrastructure: a destination, transport systems, accommodation, and a supply of trained staff.

The tourism case studies of Australia and Spain highlight the role of intermediaries that circulate between firms, spreading good practice and linking firms with common interests. Service providers play a further role in explaining government programmes, new technology, and economic developments to firms; in turn they collect information that they use to represent the concerns of tourism firms to government, research institutions and suppliers. They help to build networks that are important sources of innovation. While the tourism industry may be less innovative than the leisure industries, external service providers help build innovativeness into the culture.

The manufactured leisure industries depend on novelty almost to the point of gimmickry for their competitive advantage. Many manufactured leisure products are objects that are owned and used by individuals rather than groups (although groups of users do emerge and rely on communications infrastructure). Marketing depends on being ahead of the trend. Many elements of the leisure industries demand a good deal of active input from the consumer, in terms of learning how to do things and also disciplined application. These industries are very sensitive to changes in consumer tastes. The Finnish case study demonstrates that the most important resources for innovation in leisure industries are aesthetic knowledge and alertness, contextual knowledge, and communication with clients.

External service providers are important in the leisure industry, supplying specialized knowledge related to design, advertising and market research. These services are used alongside and integrated into the companies' own product development and market research activities. In leisure industries, innovation is a continuing, reflective process, not a chronological one, and the knowledge and skills of a variety of experts must be integrated during innovation projects. This has to be done from the beginning and throughout the process. As illustrated by the Finnish study, design is not a one-time contribution, but a continuous, consultative process. Suppliers of the knowledge-intensive services and associated activities play the role of cultural intermediaries, explaining customer needs to firms, and new products to customers.

In both tourism and leisure, reliance on external services offers flexibility: services can be used when needed. This motivation is stronger in Spain, where the labour market is more rigid than in Australia, where casual employment is common. Also more important to the Spanish industry is the possibility of selecting from a wide range of providers, including international ones. This may reflects the larger size of Spanish firms and the greater presence of multinational corporations in the industry. In the Australian survey, no firm reported the use of a service from an international provider.

Source: Case studies contained in Chapter 5 of this report.

Box 0.3. Creating demand for KISA: Lessons from health care services

Health care represents a highly important service, and its rising costs are putting existing systems under pressure. The need to contain health care costs, combined with continuous innovation in medical practice, pharmaceuticals and medical devices, drives change in health care services that demands constant upgrading of knowledge, skills and organisational structures. KISA plays an essential role in enabling health care organisations to respond to these pressures. Nevertheless, the role of KISA in innovation in the health care sector is conditioned by the prevailing innovation environment, which itself depends on factors at the national and local levels. Policies regarding the provision and payment of health care operate at the national level and influence the structure of the industry. At the local level, conditions are influenced by individual service providers, who must adjust their operations to meet the various, and sometimes conflicting demands and regulations (as shown in the Finnish and Norwegian studies).

Demand for external KISA in health care varies considerably, depending on a number of specific issues. The Norwegian case study found that even in the introduction and implementation of a purchaser-provider model, external KISA played a small role. Expertise related to development, legal, administrative and management activities, which constituted the heart of the transition, were sourced internally. Internal and external KISA were used in combination for training and information activities. The Japanese study of a company providing health care-related consultation, training, R&D and management services found that the company made use of external KISA from universities, private companies, and individual experts in R&D and management. ICT is one of the types of KISA most often sourced externally, as health care organisations tend to lack the needed expertise in-house. The same applies for education and training services. More difficult categories of KISA relate to strategy formulation and implementation and development of management practices.

Overall, the structure, organisation and relationships among health care providers have a significant effect on the diffusion of innovation. Adoption of innovative practices often means altering the beliefs, norms, and values embedded in traditional organisation of a particular services provision in a particular place under long cultural roots. Staff members have to think differently about their roles, their goals, and their relationships with other departments and disciplines – and more importantly with patients. Barriers are higher when the implemented services require co-ordination and re-organisation across disciplines, departments or organisation s or challenge the automony of actors in an organisation. In Finland, for example, quality management principles are embraced as good practice for continuous improvement, but they are not fully accepted as they improve organisation al capabilities at the cost of limiting the autonomy that experts enjoy in health care. Furthermore, expert organisations, such as those in health care, tend to favour an approach of learning-by-doing rather than adopting existing practices from others.

To date, market conditions have not been sufficient for expert services to be created outside health care organisations. Health care organisations themselves tend to be more capable than outside services. It appears that significant innovation potential within the health care systems could be realised through more effective sharing of knowledge and good practices. One way to address this problem would be for organisations to make their expertise available to the outside, but few incentives exist for doing so. In the public sector reaching agreement can be surprisingly difficult both internally and externally. As a result external KISA providers have to be very close to their customers in order to create the required trust conditions. Network-KISA plays a central role in the diffusion of new medical technologies. After initial introduction the diffusion speed depends on a number of factors all mediated by network-KISA. The use of the new technology creates new information which is communicated in workshops, conferences and publications. This in turn gives inputs to developers to improve the technology and to other users to improve the ways the technology is applied (Spain).

Source: Case studies contained in Chapter 4 of this report.

Emergence of supplies of KISA is contingent on demand

Development of external supplies of KISA depends on the emergence of demand for such services. Most firms provide KISA internally, with decisions to seek external sources of KISA depending on many factors, including the size of the firm, lifecycle of the innovation process, and nature of the particular service. In the case studies, lack of awareness of KISA was seen as an impediment to their development. This was observed most frequently among small firms, many of which viewed KISA as luxuries they cannot afford or tended to see them as secondary to technological innovation. Use of KISA was found to be higher among firms with more resources and better-developed innovation capabilities. In the case of the Norwegian aquaculture industry, for example, the ability of firms to effectively make use of KISA was found to depend on factors such as the size of the business, division of labour within the firm, the existing knowledge base and resources available for knowledge development.

While many of the KISA needed to make firms more innovative exist in the private sector, governments were also found to play an important role, especially where individual firms lack needed skills for innovation and market demand for stimulating their creation is either insufficient or too diffuse. Most firms regard KISA as essential to implementing innovation, highlighting a possible link between innovative capacity and willingness to use KISA. Hence, factors that effect the environment for innovation can have a strong influence on demand for KISA. Such factors include those that operate at the level of individual organisations or that characterise particular industries, as is illustrated by the health care services sector (Box 0.3).

Integrating internal and external capabilities is increasingly important

As KISA becomes more important to the innovation activities of firms and as the number of external suppliers of KISA grows, firms face a growing challenge of integrating internal capabilities with external expertise. As illustrated by the case study of resource-based industries, this can take place in a number of ways, including:

- **Effective management of human resources**, such as employing experts who can build up their knowledge base and absorptive capacity; forming multi-disciplinary research teams that broaden the knowledge base required in selling solutions; and making use of personal connections with industry and other experts.
- **Establishment of appropriate organisational structures**, such as setting up dedicated business units that scan the environment and develop new expertise and business; acquiring firms that can bring in new knowledge and innovative thinking; and establishing joint ventures that typically (*e.g.* with industrial service firms) institutionalise co-operation and integration of KISA with other firms.
- **Forging effective networks and linkages**, such as by participating in networks which offer opportunities for incorporating internal and external knowledge; engaging in close co-operation with suppliers and setting up joint development projects; working closely with customers in new solutions development; and establishing joint projects with research.
- **Employing market-based transactions**, such as buying integrated product-service bundles that bring external KISA within the firm; using outsourcing as a way to integrate former internal KISA with the external expertise; and purchasing services from service providers businesses and working with them.

Firms need to develop competences in each of these areas to make effective use of KISA.

Building the KISA perspective into innovation policy

Continued expansion of the knowledge economy and increased economic globalisation are likely to raise the importance of KISA in contributing to innovation. The evolving division of labour and the volume of knowledge are strong drivers of KISA. The challenge will be for innovation policies to foster the supply, demand and quality of KISA to improve innovation performance. Policies can target KISA actors directly or indirectly through intermediary organisations, or through wider framework conditions including government regulation, education and skills development, and procurement practices. Also, the public sector itself is a significant provider and user of KISA, and hence a target for innovation policies. Table 0.2 presents some key dimensions that need attention when developing balanced innovation policy portfolios around KISA.

Table 0.2. Types of policy that can facilitate KISA-based innovation

Policy-related dimension	Examples of innovation policy measures
Direct policy intervention targeting businesses/organisations	• Securing service development related private and public financing, grants and tax credits for businesses • Transfer of enabling technologies that can support the role of KISA in innovation
Indirect policy intervention targeting non-business actors within the innovation system	• Securing the skills base needed by service innovators • Widening the focus of RTOs towards non-technological innovations
Development of framework conditions facilitating the role of KISA in innovation	• Opening up of new markets for service providers • Cutting down the regulatory burden • Financing for the use of external KISA • Good practice development, standards for service quality • Cultivating services related to innovation culture
Development of existing innovation policies, more service-friendly	• Adopting the broad innovation concept, acknowledging the value of process innovations (technological and organisational), and product innovations (goods and services) • Adapting financing and assistance criteria so that services-related innovation projects get better access to existing policies • Training and skills development in service-related innovation for actors executing the innovation policy
Development of new policy measures targeting issues that are central to the development of KISA and services-related innovation	• Networks and customer interaction as innovation platforms • Developing organisations that are more capable of using internal & external KISA

Research-based knowledge and a highly skilled labour force are basic requirements for many kinds of KISA. KISA plays a crucial role in the generation and diffusion of knowledge as it applies and re-packages research-based knowledge for practical purposes. Governments can play a critical role in this process through support for fundamental, basic research. Much of the basic knowledge derives from education and training systems, which are responsible for developing a skilled labour force. Strong links to public and private sector organisations can help ensure that that education and training institution are sensitive to evolving demands for skilled labour.

At the same time, **innovation policy frameworks need to respond to the non-technological aspects of KISA** and their impact on innovation capability. The KISA study has identified the importance of non-technological contributions to the innovation capability of firms. This suggests that the traditional R&D-based approach to innovation is too narrow and that innovation policies need to recognise the various types of knowledge-intensive services activities that have different roles in the innovation processes. Policy needs to focus more on the interactive people-centred activities, less on the individual firm and more on developing the collective strength of the sector or network. Since typical KISA is mainly based on intangible assets, policies ought to secure sufficient supply of private and public financing for growth oriented KISA. Better understanding of the non-technological elements of innovation and the user contribution to innovation needs to be further developed.

A key challenge is improving access to KISA. This challenge is highlighted by intangibility, complexity and difficulties in assessing the quality and suitability of the services offered prior to engaging with them. Financial assistance is only a partial solution. Awareness of KISA needs to be developed first and knowledge asymmetries between KISA suppliers and users need to be addressed, for instance, by certification of services and through publicly funded demonstration projects.

Overall, policies that stimulate the demand for KISA can also trigger enhanced supply and quality of KISA. Policies should be neutral towards internal and external sources of knowledge-intensive services until there is further research on the wider impacts of outsourcing on innovativeness and skills development. Existing innovation policies should be examined and where necessary developed to ensure that they encourage capacity building and interaction within organisations. Policies that can improve firms' absorptive capacity for knowledge can have a significant impact on the firm's ability to use available KISA. Regulatory issues must also be considered. In the health care sector, innovation and the use of KISA is influenced by health care policies and incentives, as health care services are provided by a mix of public, private and third-party actors in a highly regulated setting. Pressure to contain costs, together with continuous innovation in medical practice, pharmaceuticals and medical devices, are key drivers of change in health care services. Adaptation to these drivers requires constant upgrading of the knowledge and skills within health care systems, often through training, education and various other types of KISA.

Policy must adapt to changing needs for KISA. The need for KISA evolves as industries, organisations and innovations mature. The life cycle of the innovating organisation and of the innovation process itself can be used to determine which type of KISA best facilitates further development. At different stages of the innovation life cycle, the balance between internal and external KISA may also change, implying a need for different types of policy measures.

Of course, policies must aim to facilitate sensitive, trust-based interactive innovation processes without interfering with them. Subtler understanding of the appropriateness of different kinds of policy measures can be achieved through close interaction between policy design and programme delivery and attention to the needs and reactions of the beneficiaries of policy. Demand side policies that stimulate the demand for KISA are equally important as those seeking to stimulate supply and quality of KISA. Policy co-ordination has an essential role here, but further research will be necessary to more fully explore the most effective role of public policy in stimulating supply and demand of KISA.

Box 0.4. KISA in resource-based industries

The resource-based industry case studies illustrate a number of important general themes regarding the use of KISA in innovation. The Australian case study of mining technology service firms and the Finnish case study of firms in forest-related industries, for example, show that awareness of the significance of KISA is an important starting point for business use of knowledge intensive services. Mining technology service firms are service providers themselves, so they have a good understanding of how interaction with the provider of a knowledge intensive service can enhance business operations. Their work force is highly educated, so they understand how to learn and to build on their existing skills and knowledge. The above description fits very well also the forest cluster, which has manufacturing as its core activity, but in which support and development services play a key part in boosting productivity and product quality. Large forestry firms are striving to develop more business around integrated product-service solutions.

These case studies also provide examples of the relationship between manufacturing and services, which further emphasizes the need for KISA. Several firms in the Australian mining technology service sector have developed tools for particular tasks and subsequently commercialised them as stand alone units, or they realised that the way they do something in-house has value that can be packaged and sold to others. Forest cluster firms have realised the value of knowledge development on the business and cluster levels. Businesses are making extensive use of automation and building-up their knowledge bases on complex production processes. Businesses are re-organising their research efforts to form more effective cross-disciplinary research units that seek to combine both technological and non-technologal (*e.g.* organisational) types of innovations. Such changes elevate the importance of close links to customers, as those firms that control the end-user interface, may exercise control over the entire value chain.

Consumer behaviour, market segments, evolving demand patterns, logistics, markets and marketing are increasingly important KISA as organisations move downstream in the value chain closer to customers and end users. There are at least two key drivers that give impetus for innovation activities at the customer end of the value chain. First, interaction with customers, clients and user communities provides organisations with knowledge that is invaluable for R&D processes. In turn, businesses provide customers their specialised knowledge that can solve their problems. Secondly, close interaction with customers is seen as a strategic asset; it can provide a power base that can help to secure the future competitiveness of the organisation. As seen in the Finnish case study, those who control the end user interface can exercise control over the entire value chain.

The Norwegian aquaculture study illustrates how the ability to make use of KISA varies among different types of firms. Key dimensions influencing firms' absorptive capacity include: the size of the business, division of labour within the firm, knowledge base and resources available for knowledge development. Small firms in particular appear not to realise the importance of KISA, and there appears to be a general scepticism of external KISA as a source of innovation. Nevertheless, external providers are being used to a greater degree than before, especially for development activities linked to product and process innovation, ICT projects and banking and financial assistance (often linked to mergers and acquisitions). Such external actors typically come from other parts of the business group, networks of suppliers and competitors and experts in regulatory and tax issues. Only for science-based entrepreneurs in the Norwegian aquaculture industry were publicly funded research and technology organisations a source of specific innovation.

Source: Case studies contained in Chapter 6 of this report.