



# Service Economy Revolution and Digitalisation

## Finland's Growth Potential

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MINISTRY OF EMPLOYMENT AND THE ECONOMY

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<b>Tekijät   Författare   Authors</b>		<b>Julkaisuaika   Publiceringstid   Date</b>	
Enterprise and Innovation department		May 2015	
Etlatieto Ltd		<b>Toimeksiantaja(t)   Uppdragsgivare   Commissioned by</b>	
McKinsey & Company		Työ- ja elinkeinoministeriö	
VTT Technical Research Centre of Finland Ltd		Arbets- och näringsministeriet	
DIGILE Ltd		Ministry of Employment and the Economy	
Tekes – the Finnish Funding Agency for Innovation		<b>Toimielimen asettamispäivä  </b>	
		<b>Organets tillsättningsdatum   Date of appointment</b>	
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<b>Tiivistelmä   Referat   Abstract</b>			
<p>The purpose of this report is to highlight services as one of the key issues in the debate on Finnish well-being, in addition to industry and digitalisation. The effects of digitalisation on the service sector are as strong as those it has on industry; it increases profitability and changes competition conditions e.g. with the adoption of service platforms. As the service sector covers such an extensive share of activities, the need to be prepared for changes is emphasised, as the effects of digitalisation can be significant. For this reason, policy measures that support structural change are essential.</p> <p>This report contains five different expert perspectives on the development of service industries and the effects of digitalisation. Etlatieto assesses the scalability and export potential of services, as well as the impact these have on an increase in number of personnel, value added and profitability. McKinsey &amp; Company notes that Finland's service sector until now has been a source of stable growth and employment and assesses the impacts of digitalisation from this viewpoint. The VTT's perspective establishes a broader image of the global trends for services. According to DIGILE's viewpoint, the platform economy is emerging as a winning profitability solution. A viewpoint related to Tekes' Serve – Pioneers of Service Business programme describes the lessons learnt from the programme as an exercise in renewal of service companies.</p> <p>Based on the views of these experts, the Ministry of Employment and the Economy has outlined its conclusions for the basis of further work. One of the core issues related to the development of productivity in the national economy is whether service enterprises can utilise economy of scale and the potential presented by export. We must increase peoples' understanding of how the fates of industry and services are interlinked, and services must be viewed as business opportunities in all fields. One of the challenges we will face in the future will be to combine products and services in innovative ways and across industry boundaries. Digitalisation is globalising the market for services and facilitating growth of profitability, while at the same time decreasing the need for labour force in many fields. However, digitalisation is also creating new jobs in other, partially completely new fields and creating potential for speeding up Finnish innovations. For this reason, we must identify ways in which Finland's service businesses can benefit from the sector's global growth and apply policy measures that will serve this development.</p> <p>Contact persons at the Ministry of Employment and the Economy: Enterprise and Innovation Department / Pekka Lindroos, tel. +358 (0)29 506 3597, Martti Myllylä, tel. +358 (0)29 504 8034, Eija Laineenoja, tel. +358 (0)29 504 7099</p>			
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# Preface

In 2013, the Ministry of Employment and the Economy published its Industrial Competitiveness Approach in which it analysed the changes in our operating environment and the sources of growth in a changing world. Employment and productivity are at the heart of these changes. The growth of the Finnish national economy is largely dependent on whether we succeed in increasing the amount of work input and the productivity of labour.

We continued by analysing the role of manufacturing industry and published in 2014 the report “Manufacturing as part of a vital enterprise structure”. According to the report, the growth-oriented renewal of Finnish industry is necessary and can be achieved through four necessary and interactive transitions: the manufacturing industry should take advantage of global growth opportunities and turn innovations into a competitive advantage, value networks should be managed more effectively, thereby channelling the value achieved to Finland, and the industrial base should be strengthened and diversified.

The present report completes the analysis by examining the private service sector (i.e. market services), which has also in Finland grown to account for approximately 50 per cent of the national economy. Combined with public services, the share exceeds 70 per cent. Industrial activity and private services are closely interrelated. However, it is also useful to examine the service sector as a separate and significant entity. A more detailed analysis reveals differences between the competitive environments of different service segments.

Our key conclusion is that digitalisation will change the service sector as profoundly as it has changed industry. Because the service sector covers such an extensive share of activities, the need to be prepared for changes is emphasised, as the effects may be rapid and very significant.

At least the following conclusions can be drawn to serve as a basis for further analyses:

- Developing the private service sector should be made a key theme in enterprise and innovation policy. Different services are faced with different challenges, and it is essential that entrepreneurs are active in increasing productivity and the added value of products. The role of the State is to make continuous efforts to improve the framework conditions of service enterprises. Digital service platforms – the platform economy – have a global impact on competitive conditions, and policy measures concerning these structural changes are essential. Digitalisation will enable the service economy to cross borders much more quickly than the globalisation of manufacturing industry. The whole palette of instruments available in industrial policy should be utilised

to support the transition to a digital economy, including the promotion of a pioneering role through public procurement and open-minded experiments. Increasing regulation and clinging to old beliefs would be extremely poor choices in this context.

- Digitalisation links together industry and services, and they should be examined and developed as a whole. Adopting the new service-dominant logic will enable enterprises to create significantly more customer value, and policy measures should also support this development. It is partly also a question of the ability of our industry to renew itself and to meet the increasing global demand for comprehensive solutions.
- Digitalisation increases global competition in value networks. As the operating logic of services is changing, international competition is challenging a growing share of the value added of services also in Finland. As many service enterprises as possible should try to utilise the economies of scale and export potential of their business activities. This is one of the core issues in increasing the productivity of our national economy, and we need to find ways for Finnish service businesses to benefit from the sector's global growth. In these efforts, it is important to pay attention to creating an encouraging environment for businesses and to ensure that sufficient resources are allocated to improving our innovation capacity by investing in education, research and development.

The purpose of this report is to place services on an equal footing with industry and digitalisation in the debate on Finnish well-being. No specific solutions are proposed in this report because finding the right remedies requires constructive dialogue and further analyses. I hope that the views presented here will provide the spark for such efforts!

JAN VAPAAVUORI  
*Minister of Economic Affairs*

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# Introduction

## Private services in a national economy going digital

The purpose of this report is to examine the outlook of service business and, above all, to spark debate about policy measures to increase the growth potential of the market services sector. The report also presents views on managing the inevitable structural change.

As services have grown to account for more than 70 per cent of the Finnish GDP and market services (i.e. private services) alone constitute approximately 50 per cent of the GDP, it is reasonable to take a closer look at the matter.

Digitalisation is still in its early stages. Its effects on the economy have only started to be fully felt over the past twenty years. Despite the short period of time, digitalisation has already caused a major revolution. Due to the generic nature of digitalisation these changes will continue to have an effect on the whole society. Finland has been a forerunner in digitalisation, and we have great potential to continue to succeed.

The aim of the present report is to explore the connections between digitalisation and the service business. We will also touch upon the increasing service intensiveness of industry. The Internet economy is profoundly transforming both industry and the service business, and the new service-dominant logic is gaining ground in industry as well.

In this report, we present the views of five experts: Etlatieto Ltd, McKinsey & Company, VTT Technical Research Centre of Finland Ltd, DIGILE Ltd and the Serve programme of Tekes – the Finnish Funding Agency for Innovation. Each operator has prepared its contribution and recommendations independently. This introduction will provide a short summary of the expert perspectives presented in full later in this report.

Based on the views of the experts, the Ministry of Employment and the Economy has outlined general conclusions on the necessary policy measures. Determining concrete measures falls outside the scope of the present report. That would require extensive debate, and we hope that the views presented here could launch and give structure to such dialogue.

## Etlatieto Ltd: Private services as a source of growth?

According to Etlatieto, there are almost 200,000 businesses operating in the Finnish service sector. This group is by no means homogenous, as major differences exist between the companies. With digitalisation, some of their services have become independent of geographical location, meaning that they can be exported, much like industrial products. Other services continue to be produced and used in the same

place. Significant differences also exist between the scalability of different services, meaning how well the benefits of mass production can be utilised.

Branches in which services can be exported and economies of scale achieved in the future are of particular interest. Since 2007, the number of personnel has increased the most in location-dependent services. However, the real growth of value added and the increase of productivity have been concentrated in services which do not depend on location and in which the economies of scale apply.

If and when our objective is to increase productivity and economic growth, innovation policy should promote the scalability and tradability of services. Well-functioning competition at all levels accelerates renewal. We have only seen the first hint of the digital revolution, but it is often precisely digitalisation that enables services to become scalable and tradable.

Many services, service activities and the ways they are produced will change. Finland should be actively involved in this transformation by renewing itself. For companies, change entails growing competition. Due to digitalisation, many service enterprises will no longer only compete locally but will also face global competition. In the public sector, digitalisation also presents a great opportunity to increase the efficiency of practices, to facilitate the lives of citizens and businesses and to create completely new services either alone or, for instance, by providing open access to digital data.

Innovation policy includes R&D&I support for businesses and other forms of R&D&I funding. These investments are expected to yield a return by resulting in job creation and increased value added. The essential thing is that jobs and value added do not necessarily have to be created in the same enterprises that have received support or funding; for the society, it may be even better if the new information and knowledge acquired in R&D&I activities also spread to other enterprises in the same national economy.



### Measures proposed by Etlatieto

- Services should be examined in terms of their scalability and tradability with a view to strengthen these capacities in all service enterprises.
- *Non-scalable and non-tradable services:* Public R&D&I funding should be targeted at radical and risky projects. If successful, they will either turn non-scalable services into scalable ones or non-tradable services into tradable ones. With time, they will also help the innovations to spread in the society. In addition to R&D&I funding, other support from public sector operators can also be used to promote the internationalisation of non-tradable services. That would involve exporting concepts.
- *Scalable and non-tradable services:* In this group, the most interesting targets for public R&D&I funding include radical R&D&I projects which aim to make non-tradable services tradable. For example in concept development, the funding criteria should take into account the potential benefits for the Finnish national economy.
- *Non-scalable and tradable services:* The most interesting targets for public R&D&I funding include radical R&D&I projects which aim to make a non-scalable service scalable, for example, by developing technology that would enable scalability or by productising a service and developing activities into service packages.
- *Scalable and tradable services:* Innovation policy concerning this service group is similar to the innovation policy measures targeted at industrial companies. These services can be produced domestically and exported for use in other countries, just like industrial goods.

### McKinsey & Company: Finnish service sector growth and the impact of digitalisation

McKinsey & Company groups market services into six segments: (1) IT and information services, (2) business services, (3) finance, insurance and broadcasting, (4) retail and wholesale, (5) local services and (6) infrastructure services. Distinguishing factors include the tradability of services and their level of differentiation.

Until now, services have been a stable source of growth and employment for Finland, but the growth trend may be turning. Digitalisation is rapidly globalising many service markets while also enabling a significant increase in productivity. This will reduce the labour need in many current sectors but will also support growth and create new jobs in other, sometimes entirely novel areas of the economy. Many service markets are changing from local to global. This change will impact service producers' entire value chains and its impact and timing are hard to predict. In Finland, up to 20–30 per cent of current service sectors jobs can be impacted by

digitalisation's productivity improvement in the medium term – while cross-border trade in services creates both threats and opportunities.

According to McKinsey, the digital transition poses four imperatives for Finland: (1) To defend the home market, Finnish companies need to embrace the digital change to ensure their cost competitiveness, and find ways to translate their local knowledge and superior customer intimacy into a competitive advantage in order to maintain their value added. (2) Internationally, Finnish companies should explore markets for highly differentiated services in areas where Finland has an inherent knowledge advantage. (3) The government can support the development by facilitating the labour market transitions of employees and by (4) creating an environment that supports companies' investments in digital infrastructure, tools and skills.

## McKinsey & Company: Conclusions for the public sector

### Supporting employee transition

Digitalisation will force some employees to switch professions and tasks. The public sector must prepare for facilitating these transitions to be able to manage large and unforeseeable changes in manpower needs. According to best practices, transitions should combine four elements: companies, investors and public-sector transition and innovation programmes.

- The main purpose of **transition programmes** is to speed up the implementation of transitions. Transition programmes include education and training programmes and career support for employees as well as activating measures, including counselling. It is important to attract new investments to enable job creation and to proactively create new jobs.
- The purpose of **digitalisation innovation programmes** is to accelerate business creation and to create new jobs. Growth is funded and supported through venture financing as well as seed and early-stage funding.

### Investing in digitalisation

The public sector should act as a role model, ensure communication and dialogue between research institutions and companies, provide effective incentives for the digital transition and create enablers of change, such as appropriate education and training, infrastructure and standards.

- **Role modelling and communication:** The public sector can set objectives for the digitalisation of companies, organise public competitions for digital applications and promote dialogue on digital topics.
- **Incentives and finance:** The public sector can create incentives and offer financing, for example by providing fiscal incentives for digital investment, facilitating access to market-based innovation finance and supporting the development of risk and innovation finance. It can also support investment in and provide funding for selected disruptive technologies and enable new business models and citizen services.
- **Education and resource flexibility:** The key is to ensure education in the development and use of digital tools across sectors, not solely in IT. This includes, for example, teaching coding in schools, allocating funding to digital training or promoting tertiary education in trends common to all industries (e.g. Internet of Things).
- **Regulation, infrastructure and standards:** The objective is to ensure a sufficient IT infrastructure backbone and its use, provide stable and universal online standards and ensure the security of online services. This also includes participating in international collaboration and dialogue to support a universal digital market.

## VTT Technical Research Centre of Finland Ltd: Opportunities and challenges in Finnish service business

VTT's article examines the opportunities and challenges related to service business in Finland. In the analysis, services are divided into consumer services (e.g. retail), services using physical distribution networks (e.g. logistics), services using electronic networks (e.g. ICT and banks), knowledge-intensive business services (KIBS), industrial services and systemic services (e.g. energy supply).

In terms of business models, distinguishing factors include the intensity of customer involvement, keeping the service promise, combining scale efficiency with customer orientation, combining material and immaterial products and managing systemic entities.

The examination of the internationalisation models and processes of different enterprise groups reveals that companies producing knowledge-intensive business services (KIBS) use nearly all forms. The sector also includes a growing number of firms that are "born global". For companies that rely on physical distribution networks, partner networks play a key role. These days, actual service exports mean, in practice, electronic exports. Electronic commerce has enabled service exports to be also expanded to traditional consumer services in which concept exports are another important form of internationalisation. In industrial services, local representation abroad has traditionally played a key role, but the industrial Internet is changing the situation. Systematic service entities have rarely been exported from Finland and have mainly taken the form of export projects.

KIBS firms are important to the creation and spreading of innovations and supporting innovation activities. In service companies that use physical distribution networks, improving competitiveness and using an innovative approach are often manifested in the reanalysis of the company's own value chain and efforts to gain a stronger position. Enterprises that base their innovations on big data analytics are often pioneers in using electronic networks. In consumer services, there is a growing trend towards performing development and innovation activities in collaboration with customers. Companies should utilise the R&D&I skills and knowledge they have acquired in developing material goods to develop their industrial services. Innovation in systemic services is still in its early stages. Development efforts are needed in many areas, including the modelling of services to identify interdependencies between different areas of development and the assessment and verification of the impacts of innovations using various indicators.

In conclusion, VTT proposes several packages of measures to better connect services to the overall development of the Finnish economy and to solve current challenges.

### Measures proposed by VTT

- It is necessary to raise awareness of the interconnection between the fates of industry and services. The development of services is an essential part of digitalisation. In the future, the challenge is not only to improve the internal efficiency of enterprises and activities but also to find innovative ways to combine products and services across industry boundaries.
- The demand for knowledge-intensive business services should be increased through sophisticated procurement services. Professional services are vital for the development of competence in enterprises, but service purchases may remain occasional if procurement services are poorly organised.
- Existing services offerings should be made more systematic by using business models and productisation and by gathering best practices.
- The internationalisation potential of services should be made more credible, for example, by collecting success stories and describing them as systematic processes and models.
- Collaboration between industrial and innovation policies should be closer, particularly with respect to systemic innovations and the model of rapid application.
- The effectiveness of development projects should be improved based on proactive evaluations.
- Efforts should be made to develop meters and indicators (e.g. indicators that measure customer value from various perspectives and the overall economic impact of services).

### DIGILE Ltd: Digital trends and the service economy revolution in the Internet economy

DIGILE considers the present developments to be the greatest transformation since the agricultural or the industrial revolution. As a result, the new/emerging service-dominant logic will subordinate the goods-based economy as its subcontractor. The service economy will first take control over the customer interface, logistics management and the distribution of goods, and will progress deeper into the internal structures of the goods-based economy.

The **platform economy** is emerging as the winning productivity solution of the present decade. With electronic commerce as its driving force, it has already found a functional form and is spreading like wildfire, reshaping the structures of economy. The key idea is that value added and, most importantly, the competence and knowledge accumulated will accrue to the owner of a platform. Platforms compete in global markets, crossing national and other borders. Platforms extend to all parts of society. Examples of fields that rely heavily on platforms include e-democracy,

e-health, e-learning, e-payment, e-transport services, and the industrial Internet. It is actually more difficult to come up with a sector not affected by the development. Work, management and business logic will all change in one way or another.

Finland is starting to lag behind. However, the situation is not hopeless. Even though the United States and China are far ahead of us, we have full potential to rise among the leaders. That progress will require strong focus, national measures, determination and courage. Unless we make a concerted effort, Finland will miss this time window and the opportunity it provides. We will be left at the mercy of foreign platforms, allowing profits and increased expertise to drain abroad.

Forming international connections and offering an overall conducive competitive environment are still key elements that may help Finland attract data centre investments, which are part of the cloud computing infrastructure. Even though data centres as such do not create significant growth or new jobs, they are part of global networks and business from which Finland can also benefit through the data centres built and operated in the country.

Cloud computing and platforms form the level that will determine the winners and losers of the Internet economy at the end of this decade. This sector of business is growing rapidly, and Finland simply cannot afford to be excluded from the growth and become entirely reliant on foreign platforms. If Finland does not have its own platforms functioning with the service-dominant logic, it will be unable to benefit from digital productivity investments: economic value will flow abroad and the development of competence will be slow.

Together with leading European countries, and possibly all of Europe, Finland can be a forerunner in the regulation of users'/citizens' data. Europe has a genuine opportunity to change the rules of business and adopt regulation that will help the European industry to achieve new growth.

### Measures proposed by DIGILE

- Measures should be targeted at areas where they are most effective. Therefore, the focus should be on building service industry competence and growth in Finland.
- The will to set an example and try and faith in such efforts should be encouraged. That will enable us to be more aware of the developments taking place in the field, to make more informed choices about the right partners, technologies and platform building material, and to better understand the logic of the business.
- The key to Finland's success in the mobile phone business was that both the public and private sector were willing to work together and understood that the national interest required collaboration. Instead of competence, our greatest challenge concerns business; in this context, Finland could take the reins through extensive public and private sector collaboration.
- Finland must have the courage to set itself a clear target and to work across industrial boundaries to reach it. The next important digital service industry innovation could be made, for example, in the manufacturing industry.
- In terms of structural elements and measures, DIGILE proposes the following:
  - Infrastructure: Finland's internal infrastructure should be maintained in top shape, international connections should be expanded beyond the immediate need, and the establishment of data centres in Finland should be promoted.
  - Cloud computing and platforms: A new national platform for the Internet economy should be developed, meeting the needs of the public and private sector. Compatibility standards for other platforms used in Finland should be based on the future platform.
  - User interface: Finland should seize the opportunity provided by the My Data initiative and give citizens the right to their personal data. In this, Finland should join forces with the rest of Europe.

### The Tekes Serve programme: Towards pioneering in service business

In 2006-2013, Tekes – the Finnish Funding Agency for Innovation – implemented a programme called “Serve – Pioneers of Service Business”. The programme focused on commerce, knowledge-intensive business services (KIBS) and industrial services. Its aim was to encourage companies to renew their operations through service business and develop innovative and customer-oriented service concepts. The programme raised awareness of service innovations' significance for the national economy and generated new tools and competence that enable operators to recognise the special characteristics of service innovations. These tools help enterprises to systematically develop customer-oriented, scalable services that may enable the company to grow and go global.

In successful service business, the customer's needs are met with comprehensive solutions, regardless of the industry. ICT plays a key role in the solutions offered by enterprises, increasingly combining service elements, physical products, knowledge, skills and technology. Solutions are often produced in networks, and the management of these networks is an essential part of producing service experiences and assuring quality. The value of services, products and comprehensive solutions is created by the benefits of their use. Customers participate in the creation of value through their own actions. Service development is based on a good knowledge and understanding of the customer and end user.

#### Measures proposed based on the Serve programme

- Companies should identify and use the service development opportunities that digitalisation provides. Operators in all fields should boldly invest in these opportunities, focusing on the customer and the needs of end users.
- Digitalisation changes business logic and facilitates market entry for new operators and competitors. Thus, investments in services and digitalisation are needed across industries.
- In addition to a customer-oriented approach, productisation is another key element in the development of services. It involves the definition, systemisation and standardisation of services and improving the quality and productivity of the service. Service development should be supported by offering productised services to new companies and SMEs and improving the visibility and availability of consulting and research expertise. New enterprises should be partnered with leading service business experts.
- The industrial service business requires measures that encourage the development of knowledge-intensive services that create high added value. The opportunities provided by digitalisation should be identified.
- Finland should invest more in the long-term development of professional services to create innovative and internationally competitive concepts and business models for enterprises. Investments are needed particularly in those niche markets in professional services in which we have globally unique expertise.
- The internationalisation of services should be understood to encompass more than just traditional service exports. We should help enterprises find appropriate global networks in which they can grow and go international.
- In addition to developing service exports, it is important to ensure that Finland has high-quality and profitable domestic service business. Enterprises operating in the domestic market should be helped to renew their operations and offer solutions that create more customer value. That will also make Finland a more attractive target for investments.



## Conclusions of the Ministry of Employment and the Economy

### 1. **Services have been a stable source of growth and employment for Finland.**

The growth rate of market services in Finland has been rapid, generating 150,000 new jobs since 2003. Services have also maintained their growth after 2008 and have contributed to offsetting the decline in manufacturing jobs.

There is a close inter-relationship between industry and services: industry is a major producer of services but also a very significant buyer of services. As the digital economy evolves, services' share of consumption will continue to grow. The importance of services is also expected to increase with new developments that are partly connected to the sharing economy. An example of this is the major growth of international accommodation and on-demand transportation services in new market areas. In Finland, for example, the possibilities opened up by intelligent transport are explored in the context of the concept *Mobility as a Service*.

In Finland, the sector-specific structure of services has thus far been very similar to its Western peers, reflecting the traditionally local nature of services.

**Conclusion:** To achieve growth, Finland needs high value-added jobs in industry and services. In the future, policies need to support this objective more clearly, predicting and utilising future developments.

### 2. **Globalisation is transforming the earlier structures of the service economy.**

Even though global competition and digitalisation have transformed many industries, the key Finnish service sectors have thought that the changes do not affect them. The current difficulties in commerce and the media sector show that the drastic structural changes in service sectors also affect Finland. In addition to products, services and business models, the ways of working are also changing. Full-time paid employment will continue to be the dominant form of employment, but self-employment, freelance work and online work are becoming increasingly common<sup>1</sup>. These impacts affect the service sector in particular, opening up new opportunities but also eliminating old forms of work.

**Conclusion:** Enterprises and the whole national economy alike must prepare for the continued transformation caused by globalisation and structural changes.

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<sup>1</sup> The Ministry of Employment and the Economy, Employment and Entrepreneurship Department (2015). Final report of the working group examining and developing change trends in the use of the labour force and in the ways of working. MEE publication 2/2015.

3. **Some Finnish companies produce scalable and tradable services, others do not.** In the analysis conducted by Etlatieto, the development potential of services was examined in terms of how well the activities can be replicated and delivered from the local market to the whole country and/or exported abroad. In certain services, it is possible to achieve economies of scale. That happens when an increase in the production volume improves the input/output ratio or productivity of the activity. Based on the analysis, approximately 64 per cent of the nearly 200,000 Finnish service companies are highly scalable.

Digitalisation and the utilisation of the Internet economy are key factors in increasing the scalability, tradability, value added and productivity of services. Digitalisation is closely connected to the replicability of services. Some digital services are almost infinitely scalable: producing an additional digital copy may not necessarily cost anything, unlike in industry where each additional copy will at least require more raw materials.

The real-time growth of valued added varies significantly between different enterprise categories. Growth has been achieved particularly in services that are scalable and independent of location. Similarly, the development of productivity varies greatly among different groups. Since 2007, productivity has only increased in scalable and tradable services.

**Conclusion:** Productivity and value added should be sought by making services more scalable, differentiated and tradable.

4. **Industry is becoming increasingly service-intensive.** Physical products are often merely a part of a wider customer need. As the MEE's Industrial Competitiveness Approach highlights, companies can find new opportunities for growth, for example, by recognising global customer needs. The better management of value chains often requires companies to produce productised services and/or comprehensive solutions, like many leading industrial companies are already doing.

The new service-dominant logic emphasises the importance of dynamic and intangible resources in business operations, making customer value creation a strategic business priority and enhancing collaboration between the service provider's network and resources in service production.

In its growth manifesto<sup>2</sup> published in the autumn of 2014, the Confederation of Finnish Industries (EK) calculated that industry has indirectly created

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2 Confederation of Finnish Industries (EK) (2014). Teollisuus uudistuu jo, uudistuuko Suomi? Kasvun manifesti yritysten toimintaympäristön uudistamiseksi.

approximately 217,000 jobs in other sectors, mainly in service industries. In total, some 600,000 people are connected to the Finnish manufacturing industry. Many global enterprises, particularly in mechanical engineering, have announced that they seek international growth specifically by developing their service business operations. Some strategies rely on industrial products and some on customer needs without a connection to the company's own products, like remote monitoring and maintenance services for lifts.

The need for labour is decreasing in many existing service industries, but growth and new jobs are created in other, sometimes entirely novel industries. Overall, the employment outlook of market services in Finland depends on how well new opportunities can compensate for the jobs lost due to increased productivity.

**Conclusion:** The extensive utilisation of digitalisation and service concepts that generate new business in traditional industrial companies could enable them to remain competitive also in the future. The new service-dominant logic, aiming at value creation with customers, should be made a focus area in development efforts in industry and the service sector alike.

5. **Digitalisation will also have a strong impact on the future of service business.** Exploiting digitalisation to renew existing products and services will increase the demand of high value added services. The information that can be accumulated and collected through digitalisation (including big data) will enable completely new services and business concepts to be placed on the market. In traditional industry, digitalisation and services are often the only way for the business activities to be profitable as competition reduces the profits of device manufacturing. New digital business models increasingly often lead to the winner taking it all. In such situations, it is important to be prepared for the fact that structural changes in service business may be much more dramatic than those in the manufacturing industry. The fates of individual enterprises may vary greatly within a sector, depending on how well they are able to adapt to the changes ahead.

Digitalisation enables the import of services in which competition has previously been low. This change may endanger up to a third of jobs in certain large service sectors, such as the financial and retail sectors.

**Conclusion:** We should be forerunners in seizing the new opportunities opened up by digitalisation, particularly by conducting bold experiments. Determined efforts are needed to develop platforms that channel value to Finland. MEE

should make digitalisation a cross-cutting spearhead in all strategies and measures aiming at renewing the Finnish economy.

**6. To boost service business, we need a functioning financial market and support for service development and productisation efforts in enterprises.**

One of the special characteristics of service business financing is that in service investments the investment target can rarely be used as collateral for a loan. There is only fragmented information and statistics concerning the conditions and financing of intangible value creation. Yet, intangible investments can be as large as physical investments and key elements of competitiveness.

Tekes, VTT, the technology industry and universities of technology have together created a functional ecosystem for the development of service innovations. The Strategic Centres for Science, Technology and Innovation (SHOKs) are also implementing various service development programmes. As a whole, however, public measures to develop the service business are fragmented and too limited.

Productisation is a key element in the development of services. It involves the definition, systemisation and standardisation of services and improving the quality and productivity of services. Service development should be supported by offering productised services to new companies and SMEs. The visibility and availability of consulting and research expertise should also be improved. New enterprises and startups should be partnered with leading service business experts.

**Conclusion:** Private instruments and the full palette of public instruments must be efficiently used in private service industries. Public instruments must be clarified and modernised to make them more useful and beneficial for the service sector. In the development of finance, leveraging private finance should be a key objective.

**7. The development of services should be monitored and foreseen based on international data.** There is an obvious need to renew our economy and strengthen the knowledge base that supports our decision making. We can succeed in this only if we direct the renewal process based on better understanding and knowledge and quickly seize the opportunities presented by globalisation. It is also important to realise that the “clock speed” of intangible investments is changing: in the global market, establishing a good position and using it to create value requires quick reactions.

**Conclusion:** The tools for monitoring and predicting rapidly transforming services should be developed so that they meet the needs of knowledge-based enterprise and industrial policy. The objective is to create the best possible environment to support enterprises in seizing the opportunities opening up in global markets. The Team Finland network should be included in the monitoring of service development and the necessary networking efforts.

## Private services as a source of growth?

### Abstract<sup>3</sup>

There are almost 200,000 businesses operating in the Finnish service sector. However, not all of the service industries are the same. Some services have become independent of geographical location, meaning that they can be exported, much like physical products. Other services still require being produced and consumed in the same place. Significant differences also exist between the scalability of different services. Since 2007, employment growth has been the fastest in location-dependent services. The real growth of value added and the increase in productivity, however, have concentrated in those service industries which do not depend on location and where the economies of scale apply.

### 1. Introduction

What kinds of service industries have experienced growth in Finland? How have different service industries affected Finland's economic growth in recent years? Which service industries will be most significantly affected by digitalisation and globalisation in the near future? These are some of the questions addressed in this article.

In the 2000s, the importance of service industries has increased in Finland (Honkatukia, Tamminen & Ahokas, 2014). Some of the relative increase in importance can be attributed to the shrinking of the industry sector, but service enterprises have also grown in absolute terms.

Success – or lack of success – in industry and services are not mutually exclusive. Industrial enterprises need services, and the service sector needs industry. It is hard to imagine an industrial enterprise that would not purchase at least some services. The same applies the other way around too, as service enterprises buy at least some industrial products, but the connection is often much closer. Many service enterprises sell goods as merchandise associated with their services, and many industrial enterprises also provide services.

The present analysis focuses on enterprises with services as their main activity<sup>4</sup>. Our aim is to provide a fuller picture of developments in different service industries and the industries' current importance to the national economy. However, we are particularly interested in the future: which service industries have the greatest potential for growth and how will digitalisation and other trends change service industries?

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<sup>3</sup> Keywords: services, growth, policy, tradability, scalability, innovation policy. JEL: L52, L80, L88, O30, F23

<sup>4</sup> Statistics Finland classifies enterprises in different industries based on the activity that generates the majority of an enterprise's or unit's value added.

## 2. Not all services are the same

The growth and growth potential of productivity are an essential part of economic growth. Productivity growth can be achieved, for example, by inventing and introducing new technologies or by introducing better working methods and better organisation of work. Productivity growth can also be achieved through economies of scale, which means that increasing the size of business will lower the production costs of an individual service. In other words, the service is scalable. Enterprises operating a scalable business have an incentive to grow because that will increase their profits.

In addition to productivity, the extent to which a service can be traded across borders is also relevant, particularly in small national economies like Finland. International trade can deliver at least four different kinds of benefits (Pavcnik, 2002; Baldwin & Gu, 2004; DeLocker, 2007; Ejermo & Bergman, 2014; Harris & Li, 2011):

- (1) International trade provides enterprises with opportunities to learn, for example, about the needs, skills and knowledge in the target country.
- (2) International trade enables enterprises to become more specialised, because the demand for specialised services or products is insufficient in small countries.
- (3) International trade exposes enterprises to more intense competition, forcing them to improve their operations, for example, by increasing their innovation investments.
- (4) International trade allows enterprises to expand their market areas beyond their domestic markets. Larger markets enable enterprises to grow.

In this analysis, we divide Finnish service industries into different categories based on two criteria: scalability and tradability. The following will give a short definition of the two concepts.

**Scalability:** Scalable services are services in which economies of scale apply. The unit cost of a service decreases as the production volume increases. Thus, profitability – and potentially productivity – will also increase.

**Tradability:** Tradability refers to whether a service can be produced in a different location than it is consumed. For instance, software can be produced in a completely different place than they are used. These location-independent services can be exported abroad, like all industrial products. Certain services, however, must be produced and consumed in the same place. Such services include cleaning services, restaurants and many health care services. These location-dependent services can mainly be exported in the form of concepts (e.g. Starbucks cafés).

The empirical measuring of these criteria is described in detail in Box 1. After service industries are evaluated in terms of scalability and tradability, they can be placed in the following fourfold table (Figure 2.1).

**Figure 2.1.** Classification of service industries based on scalability and tradability

Scalability	High		
	Low		
		Low	High
		Tradability	

The problem with using a fourfold table is that it imposes a dichotomy. Therefore, we decided to establish an intermediate category for the evaluation of tradability. With the intermediate category, we were able to form a scale of the different values. The bottom and top limits of the scale were determined by combining the service industries included in the intermediate category with industries with *low tradability* and with industries with *high tradability*. The next section includes personnel and other key figures related to the categories. The figures have been calculated as the average values of the bottom and top end of the scale.



### Box 1: Measuring scalability and tradability

The indicators of scalability and tradability were formed in two phases. In the first phase, the indicators were determined on the basis of statistical analyses. In the second phase, expert opinions were considered. Experts expressed their views about the scalability and tradability of each service industry. The results presented in this study were obtained using the expert views.

#### Phase 1: Statistical analysis

The data were retrieved from the enterprise database of Statistics Finland, which includes the financial statements of practically all enterprises operating in Finland. However, the present analysis only focuses on service enterprises. The data include all enterprises that operate in Finland and fall into the categories 451–960 of the industrial classification (the three-digit level of the Standard Industrial Classification TOL 2008). Another requirement for inclusion was that data must be available on the enterprise's value added and number of personnel. With these criteria, the final data concerning, for instance, the year 2012 include 196,562 enterprises.

*Scalability* indicator: The scalability of each industry at the three-digit level of classification was determined in the following way. First, all enterprises in a specific industry were selected from the data received from Statistics Finland. Second, these enterprises were divided into small and large enterprises. Most industries at the three-digit level include no enterprises that would meet the EU criteria for large enterprises (at least 250 employees and annual turnover exceeding EUR 50 million or a balance sheet total of more than EUR 43 million). Therefore, the division into small and large enterprises was done in the following manner: large enterprises in each industry include the top 10 per cent of enterprises with the largest number of employees. Thus, small enterprises include 90 per cent of all enterprises in each industry. After that, the productivity levels (value added per person) of small and large enterprises were compared using a t-test. If large enterprises were more productive than small enterprises (risk of error max. 5 per cent), the industry was considered highly scalable. Otherwise, it was considered to have low scalability. Highly scalable industries also had to include at least one medium-sized enterprise (at least 50 employees).

*Tradability* indicator: The tradability of each industry at the three-digit level of classification was determined in the following way. As an industry-specific indicator, we used previous analyses of the extent to which international trade potentially exists in different industries (Eliasson, Hansson & Lindvert, 2010).

To evaluate that, a Gini index was calculated in the above-mentioned study to assess the geographic concentration of production in each service industry. If the geographic concentration of production is high, the service can be sold to other regions and potentially also to other countries (the same method has also been applied by Jensen & Kletzer, 2005, and Huovari, 2012). The calculation of a Gini index generates continuous numbers ranging between 0 and 1. If the value equals to 0, production is equally divided across different regions. The closer the Gini index value is to 1, the more concentrated is the production. Instead of a continuous variable, we followed the method used in the benchmark study by Eliasson et al. (2010) and divided the industries in three categories. These categories are 1 = low tradability (Gini index < 0.2), 2 = medium tradability (Gini index  $\geq$  0.2 and < 0.3), and 3 = high tradability (Gini index  $\geq$  0.3).

Phase 2: Expert opinions

In the second phase, different experts were asked to express their views about the scalability and tradability of different service industries. They were provided with the results of the statistical classification (phase 1). Regarding each service industry, the experts were asked to classify the industry in terms of scalability and tradability. The request was sent to approximately 20 organisations (e.g. MEE, VTT, Service Sector Employers PALTA, the Federation of Finnish Technology Industries, and Statistics Finland). Answers were received from 12 experts. We then calculated the mode of these answers and used the value in the analyses.

Views on scalability were asked with the following question: Does the unit cost of the service in question decrease if the enterprise grows and produces more of the services? The possible answers were 1 (no or not much) and 2 (very much). Views on tradability were asked with the following question: Can the service in question be produced in a different location than where it is consumed? The possible answers were 1 (no or not well), 2 (to some extent) and 3 (very well).

Table 2.1 includes industries with the largest value added<sup>5</sup>.

5 A complete list of the industries classified into different categories is available on the ETLA's and the report's web page:  
Private services as a source of growth? ETLA Raportit – Reports 36/2014, <https://www.etla.fi/julkaisut/yksityiset-palvelut-kasvunlahteen/>.  
The page also includes the following annexed tables (in Finnish): A.1. Number of enterprises by size group in 2007, A.2. Number of service enterprises by industry and size group in 2012, and A.3. Industries by category.

**Table 2.1. Ten industries with the largest value added in each category**

Scalability	High	<ul style="list-style-type: none"> <li>Retail sale in non-specialised stores</li> <li>Retail sale of other goods in specialised stores</li> <li>Other passenger land transport</li> <li>Restaurants and mobile food service activities</li> <li>Retail sale of other household equipment in specialised stores</li> <li>Maintenance and repair of motor vehicles</li> <li>Other personal service activities</li> <li>Real estate activities on a fee or contract basis</li> <li>Combined facilities support activities</li> <li>Event catering and other food service activities</li> </ul>	<ul style="list-style-type: none"> <li>Architectural and engineering activities and related technical consultancy</li> <li>Wholesale of other machinery, equipment and supplies</li> <li>Wholesale of household goods</li> <li>Management consultancy activities</li> <li>Accounting, bookkeeping and auditing activities; tax consultancy</li> <li>Wholesale of food, beverages and tobacco</li> <li>Sale of motor vehicle parts and accessories</li> <li>Legal activities</li> <li>Private security activities</li> <li>Organisation of conventions and trade shows</li> </ul>	<ul style="list-style-type: none"> <li>Computer programming, consultancy and related activities</li> <li>Wireless telecommunications activities</li> <li>Publishing activities</li> <li>Wired telecommunications activities</li> <li>Other financial service activities, except insurance and pension funding</li> <li>Wholesale of information and communication equipment</li> <li>Advertising</li> <li>Wholesale on a fee or contract basis</li> <li>Data processing, hosting and related activities; web portals</li> <li>Other education</li> </ul>
	Low	<ul style="list-style-type: none"> <li>Renting and operating of own or leased real estate</li> <li>Freight transport by road and removal services</li> <li>Cleaning activities</li> <li>Temporary employment agency activities</li> <li>Medical and dental practice activities</li> <li>Support activities for transportation</li> <li>Sale of motor vehicles</li> <li>Postal activities under universal service obligation</li> <li>Other human health activities</li> <li>Passenger rail transport, interurban</li> </ul>	<ul style="list-style-type: none"> <li>Other specialised wholesale</li> <li>Passenger air transport</li> <li>Monetary intermediation</li> <li>Technical testing and analysis</li> <li>Business support service activities n.e.c.</li> <li>Sea and coastal passenger water transport</li> <li>Other professional, scientific and technical activities n.e.c.</li> <li>Veterinary activities</li> <li>Employment agencies</li> <li>Renting and leasing of personal and household goods</li> </ul>	<ul style="list-style-type: none"> <li>Gambling and betting activities</li> <li>Research and experimental development on natural sciences and engineering</li> <li>Renting and leasing of motor vehicles</li> <li>Motion picture, video and television programme activities</li> <li>Fund management activities</li> <li>Wholesale of agricultural raw materials and live animals</li> <li>Activities auxiliary to insurance and pension funding</li> <li>Translation and interpretation activities</li> <li>Specialised design activities</li> <li>Other reservation service and related activities</li> </ul>
		Low	Medium	High
		Tradability		

### 3. What is the Finnish service sector like and how has it developed?

This section analyses Finnish service industries, their current importance and development. The service industries have been divided into four segments in accordance with the fourfold table presented above.

#### Service sector includes numerous enterprises

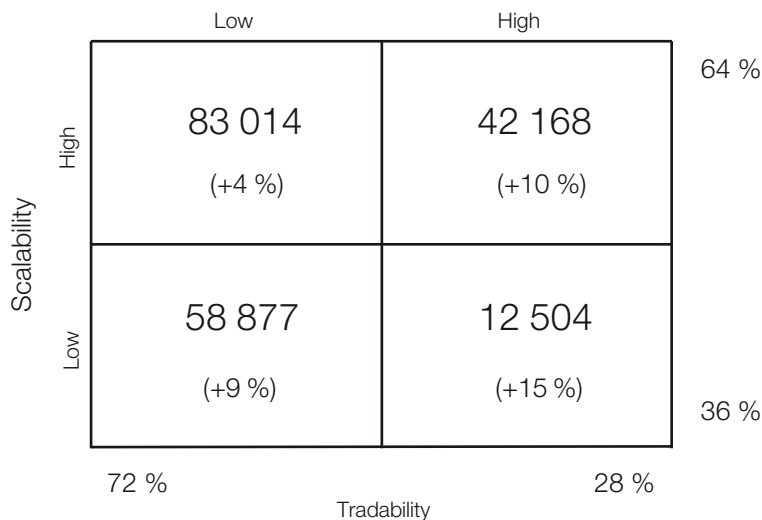
There are approximately 196,500 service enterprises operating in Finland (in 2012)<sup>6</sup> However, companies are born and companies die all the time. Since 2007, the number of service enterprises has increased by 14,000, which means that more companies have been established than closed down.

The majority (64 per cent) of Finnish service enterprises produce services that are highly scalable. Thus, they can achieve at least some economies of scale (Figure 3.1).

On the other hand, only a minority of enterprises (28 per cent) provide services that can be produced and consumed in different locations.

<sup>6</sup> The figure includes enterprises that create value added and whose personnel figures are included in the data of Statistics Finland.

**Figure 3.1.** The number of enterprises in different categories and the change compared to 2007



Source of data: Statistics Finland, calculations by the authors.

The number of enterprises has increased in all categories. In percentage terms, services with low scalability and high tradability have increased the most (15 per cent, bottom right corner of the figure). Absolute growth has been fastest in services with low scalability and low tradability (bottom left corner).

In addition to the number of enterprises, it is interesting to examine the sizes of enterprises in each of the four categories (Table 3.1).

**Table 3.1.** Number of different-sized enterprises in the four categories (in 2012)

	Less than 2 emp.	2-9 emp.	10-49 emp.	50-249 emp.	250- emp.	Total
Non-scalable and non-tradable	44948 (76 %)	10525 (18 %)	2777 (5 %)	503 (1 %)	125 (0.2 %)	58877
Non-scalable and tradable	9869 (79 %)	1941 (16 %)	560 (4 %)	105 (1 %)	30 (0.2 %)	12504
Scalable and non-tradable	60246 (73 %)	18764 (23 %)	3453 (4 %)	426 (1 %)	126 (0.2 %)	83014
Scalable and tradable	31902 (76 %)	7777 (18 %)	2004 (5 %)	398 (1 %)	88 (0.2 %)	42168
<b>Total</b>	<b>146963 (75 %)</b>	<b>39006 (20 %)</b>	<b>8793 (4 %)</b>	<b>1432 (1 %)</b>	<b>368 (0.2 %)</b>	<b>196562</b>

NB: The size groups are based on the number of personnel. Each size group's share of all enterprises in its category is given in parentheses.

Since 2007, there has been a slight relative increase in the share of small enterprises with fewer than two employees (see Table A.1 on ETLA's and the report's web page). The absolute number of enterprises, however, has increased in all size groups. For example, in 2007 there were a total of 1,215 enterprises with 50–249 employees, whereas in 2012 the number had increased to 1,432. The number of enterprises with at least 250 employees has also slightly increased. In 2007, there were 334 service enterprises with at least 250 employees operating in Finland. In 2012, their number had increased to 368.

The majority (73–79 per cent) of the enterprises in all four categories are small enterprises with fewer than two employees. The shares of different size groups are very similar in all four categories. The only major difference concerns the share of enterprises with 2–9 employees. In scalable and non-tradable services, the group constitutes 23 per cent. In the other three categories, the share of these companies is only 16–18 per cent.

#### Value added reflects significance for GDP

The value added generated by enterprises is directly reflected in the gross domestic product. At the level of individual enterprises, the value added created by an enterprise describes the enterprise in a similar way as the GDP describes a national economy. Therefore, an enterprise's value added and its development are more relevant to the national economy than turnover and its growth. Table 3.2 presents the total value added and number of personnel of the enterprises included in each of our four categories and the development of the figures compared to 2007.

**Table 3.2.** Value added (in current prices) and number of personnel in 2012 and their development since 2007

	Value added, EUR billion	Real growth since 2007, %	Personnel, 1000 employees	Growth since 2007, %
Non-scalable and non-tradable	17.9	3%	304.3	10%
Non-scalable and tradable	3.9	-3%	61.9	0%
Scalable and non-tradable	15.6	-2%	333.6	7%
Scalable and tradable	14.0	17%	194.5	7%
Total	51.3	6%	894.3	8%

NB: The figures for value added have been deflated with the 2000 price index. The growth percentages describe the total change (not annual change) between 2007 and 2012.

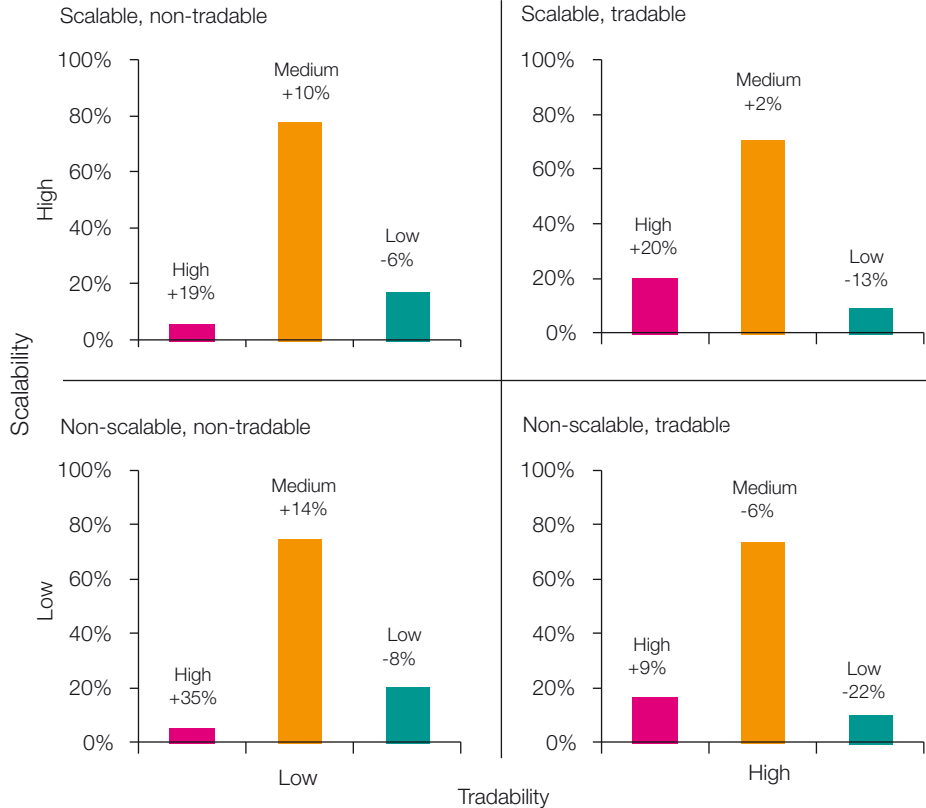
The euro-denominated value added is greatest in service enterprises that are non-scalable and non-tradable. According to latest figures, they generate value added worth nearly EUR 18 billion. The second largest amount of value added (EUR 15.6 billion) is generated in scalable and non-tradable services. These two categories are also the largest employers. Both enterprise categories employ more than 300,000 people.

The real growth rate of value added varies significantly between the four enterprise categories. Growth has been achieved particularly in enterprises whose services are scalable and tradable.

In total, their value added has increased in real terms by 17 per cent since 2007. Non-scalable and non-tradable services have also shown some growth, but their combined growth has been rather modest (3 per cent).

Figure 3.2 describes the personnel's level of education in the four enterprise categories.

**Figure 3.2. Personnel's level of education in the four enterprise categories and its development since 2007 (1,000 employees)**



NB: Statistics Finland's data only include information on education levels in enterprises with at least 10 employees. The figure is based on these data. The level of education is described with three categories: High = higher education degree, Medium = post-secondary non-tertiary education and Low = lower than post-secondary non-tertiary education

In all four categories, the largest personnel group (71-78 per cent) comprises employees with medium-level education. The share of employees with a higher education degree varies from 5 to 20 per cent. The share is larger in tradable industries (categories on the right side of the figure).

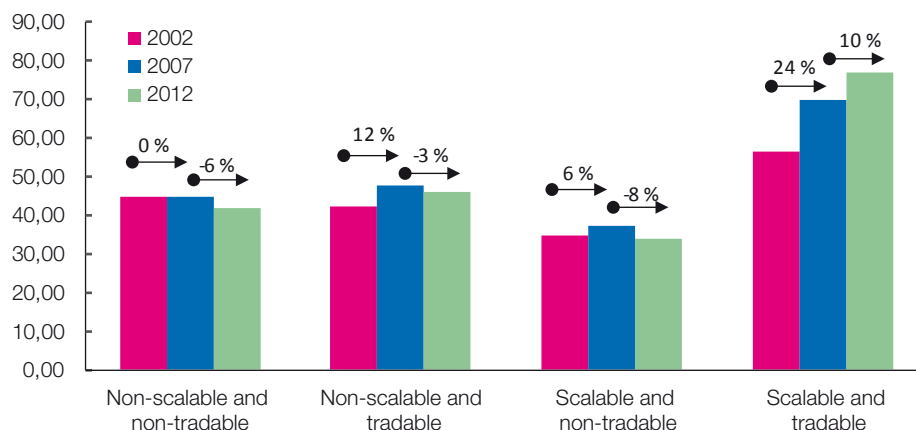
In Figure 3.2, the percentages above the columns describe the change in the number of employees at each level of education compared to 2007.

The number of employees with a higher education degree has increased in all four enterprise categories. A decrease in the share of employees with low-level qualifications is also common to all four categories.

### Productivity enables higher wages

The growth of productivity allows for a higher standard of living. Productivity growth also enables profitability and wages to increase simultaneously. Thus, increased productivity may benefit both the owners and employees of enterprises.

**Figure 3.3.** Productivity and its change, value added / person, EUR 1,000



NB: Deflated with an industry-specific gross value added price index calculated from the National Accounts, 2000=100.

Both the level and growth of productivity vary significantly between the four enterprise categories (Figure 3.3). Productivity growth has clearly been highest in services that are scalable and tradable.

There is also great variation in how productivity has developed in the different categories. Since 2007, productivity has only increased in scalable and tradable services. In the category, productivity has increased by 10 per cent since 2007. In all other categories, productivity has decreased.

## From Finland to abroad and from abroad to Finland

### *Foreign affiliates of services enterprises*

Nearly 400 service enterprises operating in Finland have foreign affiliates<sup>7</sup>. In total, they employ 132,000 people and generate a turnover of almost EUR 32 billion.

The scope of international activities varies rather significantly between the four categories (Table 3.3).

**Table 3.3.** The scope of Finnish service enterprises' activities abroad

	(a) Enterprises (382 enterprises)	(b) Personnel (132,445 employees)	(c) Turnover (EUR 31.83 billion)
Non-scalable and non-tradable	19 %	17 %	13 %
Non-scalable and tradable	12 %	13 %	12 %
Scalable and non-tradable	22 %	22 %	20 %
Scalable and tradable	46 %	49 %	56 %
	100 %	100 %	100 %

NB: Source of data: Finnish affiliates abroad (2012), Statistics Finland.

Enterprises with scalable and tradable services have been the most active in expanding to the international market. They employ almost a half (49 per cent) of all service enterprise employees working abroad. In terms of turnover, the group is even more significant (56 per cent).

The level of internationalisation has changed considerably since 2007. The number of enterprises with foreign affiliates has increased in all four categories. However, the turnover of foreign affiliates has decreased in all categories except for scalable and non-tradable services. These changes are so significant that the decrease in turnover is likely a result of corporate acquisitions or parts of enterprises being sold.

Which companies could be considered examples of highly international service enterprises? Table 3.4 includes a list of services enterprises that have a considerable number of employees outside Finland.

<sup>7</sup> Figure from 2012. The data on foreign affiliates are based on data that Statistics Finland has collected for its "Finnish affiliates abroad" statistics.



**Table 3.4. Largest international service enterprises (2013). Source: Talouselämä magazine**

Enterprise	Industry	Employees abroad	Employees in Finland	Total turnover, EUR million
Caverion Corporation	Technical services for buildings and industries	13,187	4,913	2,544
Tieto Corporation	IT services	10,492	5,108	1,671
Kesko Corporation	Wholesale of groceries	9,683	9,817	9,315
Stockmann plc	Retail trade	6,461	4,939	2,037
Itella Corporation	Transport and forwarding	5,649	18,051	1,977
Sampo plc	Finance and investment	4,556	2,274	6,738
SOK Corporation	Wholesale trade	4,043	4,857	8,539
Pöyry PLC	Consultancy	3,973	1,917	651
Solemo Oy	Cleaning services	1,875	5,545	262
Onvest Oy	Wholesale trade and contracting	1,874	2,346	1,717
Lassila & Tikanoja plc	Waste management and other services	1,759	6,511	668
Nordea Bank Finland Plc	Finance and investment	1,717	7,223	3,762
Lindström Oy	Workwear and other textile services	1,310	1,230	303
Empower Group Oy	Network installation and maintenance	1,293	1,497	326
ManpowerGroup Oy	Temporary employment agency activities	1,020	1,840	88
Oy Schenker East Ab	Transport and forwarding	876	1,694	623
A-Katsastus Holding Oy	Vehicle inspection	780	1,160	167
Finnair Plc	Air transport	710	5,150	2,400
Maintpartner Group Oy	Industrial maintenance	688	1,072	157
Viking Line Oyj	Maritime transport	644	2,456	549

Source: Top 500 data from Talouselämä magazine

NB: Size has been measured in the number of foreign employees.

The service enterprises included in the list operate in various industries, such as industrial maintenance (Caverion Corporation and Maintpartner Group Oy), transportation (Itella, Oy Schenker East Ab, Finnair and Viking Line) and trade (Kesko, SOK and Onvest).

The list also includes a few enterprises under foreign ownership (Nordea, Manpower and Oy Schenker East Ab). Their companies in Finland also have foreign affiliates.

The list of enterprises in Table 3.6 includes examples of international companies producing both non-tradable and tradable services. Cleaning and waste management (Solemo Oy and Lassila & Tikanoja plc), industrial and network maintenance (Maintpartner Group Oy and Empower Group Oy) and vehicle inspection services

(A-Katsastus Holding Oy) are all services that require strong local presence. Most IT services, on the other hand, are independent of location (Tieto Corporation).

#### *Foreign service enterprises in Finland*

There are more than 2,400 foreign-owned service enterprises operating in Finland<sup>8</sup>. Since 2007, the number has increased by more than 400.

Enterprises under foreign ownership operate in scalable as well as non-scalable industries (Table 3.5).

**Table 3.5.** Foreign-owned service enterprises in Finland

	(a) Enterprises (2408 enterprises)	(b) Personnel (150,389 employees)	(c) Turnover (EUR 46.07 billion)
Non-scalable and non-tradable	28 %	32 %	29 %
Non-scalable and tradable	12 %	12 %	12 %
Scalable and non-tradable	21 %	24 %	25 %
Scalable and tradable	39 %	32 %	34 %
	100 %	100 %	100 %

NB: Source of data: Foreign affiliates in Finland (2012), Statistics Finland.

All in all, foreign-owned service enterprises employ slightly over 150,000 people in Finland. The number is roughly equivalent to the number of employees in Finnish companies abroad (132,000 employees). In terms of turnover, the difference is more notable. In 2012, foreign enterprises operating in Finland generated a turnover of EUR 46 billion while the combined turnover of Finnish affiliates operating abroad was approximately EUR 32 billion.

Slightly more than a half (56 per cent) of the employees in foreign companies operating in Finland works in industries in which services have to be produced where they are consumed. It is interesting to compare this share to the activities of Finnish enterprises operating abroad. As Table 3.3 shows, 39 per cent of employees in Finnish service enterprises work in non-tradable services (see column b in Table 3.3).

Many foreign-owned enterprises operating in Finland are relatively large on the Finnish scale (Table 3.6). They employ thousands of people and have turnovers of several hundred million euros.

<sup>8</sup> Based on Statistics Finland's data from 2012

**Table 3.6. Largest foreign-owned service enterprises operating in Finland (2013). Source: Talouselämä magazine.**

Enterprise	Industry	Employees in Finland	Turnover EUR million	Owner
ISS Palvelut Oy	Cleaning and other services	11,400	528	ISS Global A/S, Denmark
Nordea Bank Finland Plc	Finance and investment	7,223	3,762	Nordea Bank AB, Sweden
Attendo Finland Oy	Health and care services	5,940	387	Attendo AB, Sweden
Lidl Suomi	Retail trade	3,550	960	Lidl, Germany
Telia-Sonera Finland Oy	Telecommunications	3,460	1,460	Telia-Sonera AB, Sweden
Suomen Lähikauppa Oy	Retail trade	3,420	1,011	Triton Fund III, United Kingdom 100%
CGI Suomi Ltd	Information technology	3,200	411	CGI, Canada
Tokmanni Oy	Retail trade	2,960	711	Nordic Capital Fund VII, Jersey
Mehiläinen Oy	Health and care services	2,540	269	Ambea AB, Sweden (Triton)
Terveystalo Oy	Health and care services	2,490	312	Private equity firm EQT VI, United Kingdom
Fujitsu Finland Oy	Information technology / IT equipment and services	2,467	446	Fujitsu, Japan
Securitas Oy	Security services and guarding	2,380	136	Securitas, Sweden
Sodexho Oy	Catering and other services	2,350	139	Sodexho Alliance, 99.5%, France
Danske Bank Plc	Finance and investment	2,290	887	Danske Bank A/S, Denmark
ManpowerGroup Oy	Temporary employment agency activities	1,840	88	ManpowerGroup Inc., USA
Oy Schenker East Ab	Transport and forwarding	1,694	623	Deutsche Bahn AG, Germany 100%
G4S Security Services Oy	Security services and guarding	1,650	94	G4S International Holding, United Kingdom
Tallink Silja Oy	Maritime transport	1,500	357	AS Tallink Grupp, Estonia
R-kioski Ltd.	Retail trade	1,500	317	Reitan Servicehandel AS, Norway
Empower Group Oy	Network installation and maintenance	1,497	326	AAC Capital Partners (ex-ABN AMRO) 75%

NB: Source: Top 500 data from Talouselämä magazine. Ownership information is also based on the information given to Talouselämä. The size order is based on the number of personnel in Finland.

Nearly all enterprises included in Table 3.6 have been involved in one or more corporate acquisitions. In these cases, a foreign-owned company has acquired a sizeable enterprise under Finnish ownership. The most notable exception is the retail enterprise Lidl.

The largest foreign-owned enterprises produce various services, including most health and care services (Attendo, Mehiläinen and Terveystalo), financial services (Nordea and Danske Bank) and security services (Securitas and G4S). The retail sector also includes several large enterprises under foreign ownership (Lidl, Suomen Lähikauppa, Tokmanni and R-kioski).

The list of the largest foreign-owned enterprises includes good examples of non-tradable and tradable services. In most health and care services as well as food retailing, the services are produced and consumed in the same area. If an enterprise wants to produce these services, it has to operate locally. On the other hand, some of the largest foreign-owned enterprises produce services that are largely tradable. These companies include, for example, the IT service enterprises CGI Suomi Ltd and Fujitsu Finland Oy.

#### 4. Summary and conclusions

Services have become increasingly important for the Finnish economy. The number of service sector enterprises, their value added and the number of their personnel have all increased. This article has provided an in-depth analysis of the types of service enterprises behind these changes.

The present article has examined Finnish service enterprises from a new perspective. The new approach is based on the idea that different service industries play different roles in the national economy. They differ firstly in terms of whether their services can be exported abroad like industrial products, meaning whether their place of production depends on where the service is consumed. The other difference concerns the scalability of services. In certain services, it is possible to achieve economies of scale. That happens when an increase in the production volume improves the input/output ratio or productivity of the activity.

#### Main findings

##### Considerable part of services still location-dependent

Three quarters of the nearly 200,000 service enterprises operating in Finland provide services that must be produced in the same geographical area where they are consumed. In other words, they cannot be exported like physical products. In the future, however, technological developments, in particular, could change these services so that they no longer have to be produced locally.

Tradability, being independent of location, enables two-way internationalisation. On one hand, it enables traditional exports: the service is produced in Finland and exported for consumption abroad. On the other hand, it also enables imports, allowing services to be produced elsewhere and imported for consumption in Finland.

### Digitalisation is changing the sector

At present, for example the retail sale of home electronics, clothes and other consumer durables is undergoing major changes. Digitalisation has enabled the global retailing of these products, making the industries face global competition for the first time. Before, people have bought these products locally. Electronic commerce has led to the birth of global retail companies.

It is evident that in the future digitalisation will revolutionise operating models in many other industries as well. Certain services will become tradable. For instance, changes are already taking place in the industrial maintenance and security service industries: remote maintenance will be possible for certain equipment, and surveillance duties can be partly performed through remote connections. In both cases, some duties can be carried out from another location but others will still require local presence.

### Concept exports create jobs elsewhere but may bring Finland other benefits

Even though catering services and replacing parts of an industrial robot require local presence, even these services can be exported to other countries as service concepts. However, service exports that are purely based on a concept or a brand differ from the export of physical goods which can be produced in Finland and transported abroad for consumption.

When exporting service concepts, the services are produced locally; thus, the jobs directly connected with the production are created in countries other than Finland. Business premise and other investments needed for the services are also made in the target country.

Nonetheless, Finland may still benefit from these exports if headquarter activities are located in and foreign profits repatriated to Finland.

### Number of enterprises and personnel has increased

During the past five years, the number of enterprises and personnel has increased across the sector. Growth in the number of enterprises has been the most rapid (11 per cent) in tradable industries. In contrast, the number of employees has grown more rapidly in non-tradable (9 per cent) than in tradable (5 per cent) services.

In relative terms, the number of employees with a higher education degree has increased the most, while the number of low-qualified personnel has decreased.

### Value added

In 2012, value added was highest in non-scalable and non-tradable services (EUR 18 billion). Compared to the other two groups, the difference is still rather small. The value added generated in scalable and non-tradable services was almost EUR 16 billion and in scalable and tradable services approximately EUR 14 billion.

The growth of valued added has been extremely rapid in scalable and tradable industries. In five years, its real growth has exceeded 17 per cent.

### Productivity increased only in scalable and tradable services

Productivity growth enables a company's profits and employees' wages to increase simultaneously. During the past five years, productivity growth has concentrated in services that are both scalable and tradable. In these services, productivity has increased 10 per cent in five years. All other groups have had negative productivity growth.

Like productivity growth, productivity (value added per person) also varies greatly among the categories. In scalable and tradable services, the level of productivity is twice as high as in other categories.

Thus, productivity has increased in industries with high value added per person. High value added simultaneously enables both a high wage level and good profitability.

### Policy conclusions

Dividing service industries based on their tradability and scalability implies different conclusions for different policy areas.

### Innovation policy

The goal of innovation policy is to ensure innovation in the country and to promote the broad dissemination of innovations in the society. Without policy that supports innovation, private-sector investments in innovation activities would be insufficient. Reasons causing under-investment include the imperfections of the financial market and the spreading of information and knowledge to other enterprises (see e.g. Griliches, 1991, and Arrow, 1962).

Innovation policy includes R&D&I support for businesses and other forms of R&D&I funding. These investments are expected to yield a return by resulting in job creation or increased value added. The essential thing is that jobs and value added do not necessarily have to be created in the same enterprises that have received support or funding. For the society, it is even better if the new information and knowledge acquired in R&D&I activities also spread to other enterprises in the same national economy and benefit them.

As stated above, non-tradable services can only be exported as service concepts. The actual services are produced in the target location. If Tekes or other public-sector operators fund concept development activities, it is important to consider how these concept exports will benefit the Finnish national economy. Public funding for companies is based on the premise that it will benefit the domestic society. For public funding for concept exports to be worthwhile, the exports should also generate income flows to Finland and/or create jobs in the country.

Concept exports can benefit the domestic economy at least in two ways. Firstly, income from royalty and franchising fees can be directed back to the exporting country. In these cases, the domestic unit owns the concept and other units abroad pay the owner for the permission to use the concept developed elsewhere. This requires that Finnish units own the concept and charge foreign units for using it. Secondly, the company headquarters or other operations that benefit from the foreign units' activities can be located in the exporting country. For example, units responsible for global sales management or business development activities could be located in Finland.

The division of services by tradability and scalability results in a fourfold table. The table can also be used to propose guidelines for innovation policy:

**Figure 4.1. Innovation policy and different service industries**

Scalability	High	<ul style="list-style-type: none"> <li>- If funding is provided to concept development activities, company headquarters and concept ownership should be located in Finland.</li> <li>- Public innovation funding should be targeted at disruptive innovations that can make these services tradable.</li> </ul>	<ul style="list-style-type: none"> <li>- R&amp;D should be promoted like in manufacturing.</li> <li>- Internationalisation should be promoted like in manufacturing.</li> </ul>
	Low	<ul style="list-style-type: none"> <li>- Public innovation funding should be targeted at disruptive innovations: <ul style="list-style-type: none"> <li>• turning non-tradables into tradables</li> <li>• turning non-scalables into scalables</li> </ul> </li> <li>- If funding is provided to concept development activities, company headquarters and concept ownership should be located in Finland.</li> </ul>	<ul style="list-style-type: none"> <li>- Innovation funding should be provided to projects that aim to turn these services into products.</li> <li>- Internationalisation should be promoted like in manufacturing.</li> </ul>
		Low	High
		Tradability	

#### Non-scalable and non-tradable services:

Public R&D funding should be targeted at radical and risky projects. If successful, they will either turn non-scalable services into scalables or non-tradable services into tradables. These innovations will eventually spread in the society. The diffusion of innovations is precisely the kind of spillover sought with public R&D funding.

In addition to R&D funding, other support from public operators – such as the state financing company Finnvera – can also be used to promote, for example, the internationalisation of non-tradable services. That would involve exporting concepts, meaning that new jobs would mostly be created outside of Finland. In these funding decisions, the potential benefits for the Finnish national economy should be considered.

#### Scalable and non-tradable services:

In this group, the most interesting targets for public R&D funding include radical R&D projects that aim to make non-tradable services tradable.

If public funding is granted to concept development, the potential benefits for the Finnish national economy should be considered in the funding decisions and criteria.

#### Non-scalable and tradable services:

In this group, the most interesting targets for public R&D funding include radical R&D projects that aim to make non-scalable services scalable. They can involve, for example, developing technology that enables scalability. Another alternative is productisation. It means, for example, that services that have previously been provided based on an hourly rate are developed into service packages. In other words, hourly billing is replaced with service-based charges.

#### Scalable and tradable services:

Innovation policy concerning this service group is similar to the innovation policy measures targeted at industrial companies. These services can be produced domestically and exported for use in other countries, just like industrial goods.

High level of scalability enables productivity growth and thereby also a higher standard of living for those working in the industry in question. Scalability is particularly relevant in digital services. Certain digital services are almost infinitely scalable, because the production of an additional digital copy may not necessarily cost anything. Similar scalability cannot be achieved in the production of any industrial products, because each additional copy will require at the very least more raw materials.

In terms of innovation policy, it is also important to remember that service innovation activities may not necessarily be similar to the technological development activities taking place in manufacturing (see e.g. Pavitt, 1984; Corrocher, Cusmano & Morrison, 2009). Service innovations often concern improving operating methods and the organisation of work (Tether, 2005; see also Larsen, 2001).

This raises the question to what extent it is reasonable for the public sector to fund companies' non-technological innovations. The answer to this general question depends on the answers to the following two sub-questions:

- (i) Will non-technological innovations spread in the society, making the benefits gained by the society greater than those gained by the individual beneficiary?
- (ii) Are non-technological innovation activities hampered by the imperfections of the financial market?



The answer to the first question is yes. Many non-technological innovations cannot be protected, at least not in Europe. For example, other enterprises are free to copy new organisational structures, distribution channels or strategies, since these innovations do not enjoy legal protection like those protected by patents, protection of designs or copyright. These industrial property rights do not limit the dissemination of information and knowledge. It is also reasonable to assume that new non-technological innovations will also spread when people change jobs.

It is also justified to answer the second question in the affirmative. There is no reason to assume that external funding for non-technological innovations would be more easily accessible than funding for technological innovations. If anything, access to external financing may be even more difficult for non-technological innovations.

### Competition policy

A significant share of private services still has to be produced where they are consumed – locally. These services are important to people and the functioning of the society. They include health care services, residential care and housing services for the elderly, public transportation, taxi services, hotels and food retailing.

Domestic competition is particularly important in non-tradable services. For the national economy, it is important that these services also have healthy competition. Competition forces enterprises to develop and improve their operations, making services better or more affordable. As a result, consumer surplus increases<sup>9</sup>.

What concrete measures could be taken to increase competition? Many non-tradable services are dependent on a specific region. Thus, competition should also be effective at the municipal and city level, not just at the national level. In practice, municipalities hold monopoly rights in land use planning and other fields that enable them to either promote or hamper competition in different sectors. Public sector purchases also affect competition. It is particularly counterproductive if the public sector ends up in or creates a situation with only one potential provider for a specific service.

### Conclusions

Digitalisation allows many services to become more scalable and tradable. At the same time, it also enables new services to be developed for industrial products.

Thus, many services, service activities and the ways they are produced will change. Finland should be actively involved in this revolution by renewing itself. For businesses, the changes entail increasing competition. Due to digitalisation, many service enterprises will no longer only compete locally but will also face global competition. In the public sector, digitalisation also presents a great opportunity to increase the efficiency of practices, to facilitate the lives of citizens and businesses

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9 Consumer surplus means that consumers are able to purchase services or products for a price that is lower than the maximum price they are willing to pay.

(e.g. pre-completed tax return) and to create completely new services either alone or, for instance, by providing open access to digital data.

So far, we have only caught a glimpse of the ways in which digitalisation will change the world. The changes will be revolutionary, and the revolution will be led by countries that are able to renew themselves by making the best possible use of the opportunities presented by digitalisation.

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## Finnish service sector growth and the impact of digitalisation

### ABSTRACT

#### **Services have been a stable source of growth and employment in Finland.**

In Finland, the growth of market services (services excluding the public sector, education, health care and social services) has surpassed growth in most other sectors, generating 150,000 new jobs since 2003. Services have also maintained their growth after 2008 and have further contributed to offsetting the decline in manufacturing jobs. In Finland, service segmentation has been similar to comparable Western countries, reflecting the traditionally local nature of services.

**The growth trend in services may be turning.** In 2013, service employment started to decline across industries, but most notably in retail. Industry still purchases a significant share of market services, and the declining industrial demand also impacts the previously strong business service segment, which also declined in 2012–2013. Finnish service exports, previously heavily dependent on IT and other knowledge intensive services, have stagnated since 2008. Finland risks becoming a net importer as imports have kept pace better than exports – especially in business services.

**Digitalisation is rapidly globalising many service markets** while also enabling a significant increase in productivity. It will reduce the labour need in many current sectors and will support growth and create new jobs in other, sometimes entirely novel areas of the economy. Many service markets are changing from local to global. This is the case, for example, in business services, media services and parts of specialty retail. This change will affect service producers' value chains, and its impact and timing are hard to predict. Multichannel customer experience and digital product development are opening new pockets of demand. Big data enables smarter business decisions and can thereby significantly boost margins in certain industries. Financial services are a good example: in the industry, big data will enable new risk assessment methods and better optimisation of marketing. In addition, end-to-end process digitisation will reduce labour needs.

**In Finland, up to 20–30 per cent of current service sector jobs can be impacted by digitalisation's productivity improvement** in the medium term – whereas cross-border trade in services creates both threats and opportunities. Digitalisation is driving labour productivity especially in financial services, enabling productivity increases of up to 20–40 per cent. At the same time, cross-border trade is increasing in all service industries. Retail is on the verge of major changes, and business services and IT are already highly traded across borders. This means that many local companies will face low-cost competition from large global operators. Increased tradability is also opening up opportunities to leverage Finnish

innovations, especially in IT, high-value business services and business models that rely on managing global value chains.

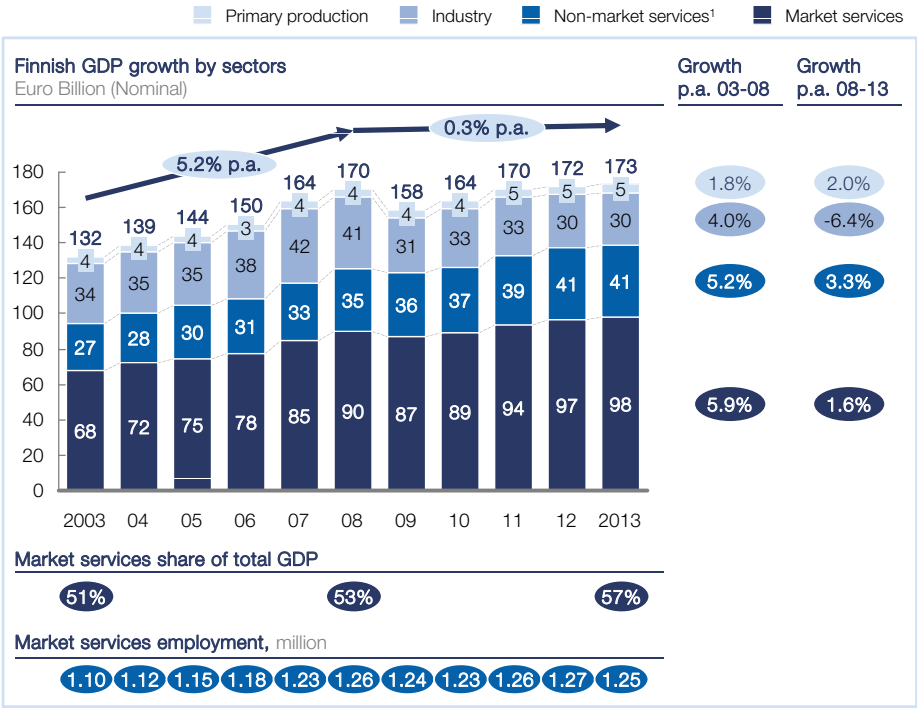
The digital transition poses four imperatives for Finland: (I) To defend the home market, Finnish companies need to embrace the digital change to lower their costs. They must also find ways to translate their understanding of local customers into a competitive advantage that international operators will fail to meet. (II) Internationally, Finnish companies should continue to explore markets for highly differentiated services in areas where Finland has an inherent knowledge advantage. (III) The public sector can support the development by facilitating the transitions of employees impacted by the changes. (IV) The public sector also plays a key role in facilitating investments in digital infrastructure, tools and skills.

### **SERVICES HAVE TRADITIONALLY BEEN A STABLE SOURCE OF GROWTH AND EMPLOYMENT IN FINLAND**

Of all sectors of the economy, market services have demonstrated the strongest growth in Finland, both in absolute and relative terms.

In the present article, market services refer to services excluding public services, education, health care and social services, regardless of how they are funded and produced. From 2003 to 2008, market services grew, on average, 5.9 per cent a year. Since 2008, their annual growth rate has been approximately 1.6 per cent. Market services have also created some 150,000 new jobs since 2003. The sector's importance for the national economy has continued to increase: in 2003, its share of the GDP was 51 per cent and in 2013 no less than 57 per cent.

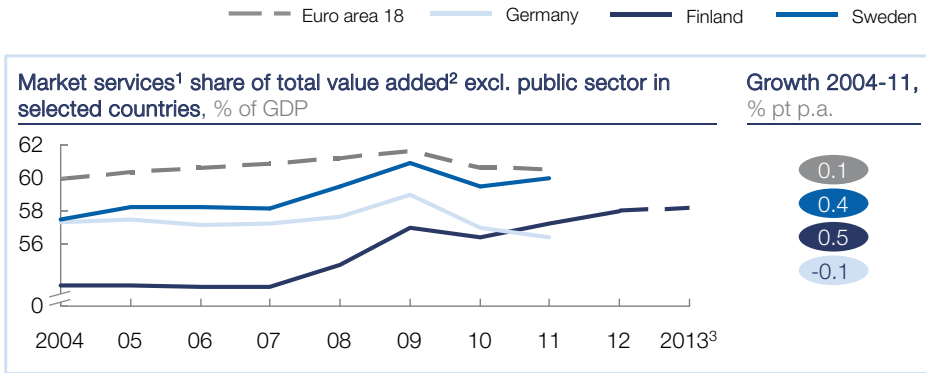
Figure 1. Market services have been a source of growth



<sup>1</sup> Education, health, and other mainly public services

SOURCE: Statistics Finland

Figure 2. Market services' share of value added



<sup>1</sup> Incl. IT and other information services; Professional, scientific and technical activities; Administrative and support service activities; Accommodation and food services; Finance and insurance; Publishing and broadcasting; Real estate activities; Wholesale and retail trade; Other services; Construction; Telecommunications; Transportation and storage; and Utilities

<sup>2</sup> Eurostat figures used to maintain consistency in international comparison

<sup>3</sup> 2012-13 trend applied from Statistics Finland

SOURCE: Eurostat; Statistics Finland

In terms of its share of GDP, Finland's market service sector has historically been below the EU average. This is largely explained by the fact that the relative share of the value added of Finnish industrial production has been relatively higher. In the past decade, however, the share of Finnish market services has on average grown faster than in Finland's EU peers, catching up with their shares. In Finland, market services' share of total value added increased by an average annual rate of 0.5 per cent from 2004 to 2011. During the same time in Germany, the sector decreased by approximately 0.1 percent per year.<sup>10</sup>

The growth of market services has also continued after the financial crisis in 2008, although the rate has slightly slowed down. By contrast, industrial production increased by approximately 4 per cent per year until the 2003 financial crisis; after that, production in the sector has decreased by an average rate of 6.4 per cent a year. The growth in market services has contributed to offsetting the jobs lost in manufacturing. Therefore, the sector as a whole is important to Finland, in particular due to the changes taking place in traditional industry.

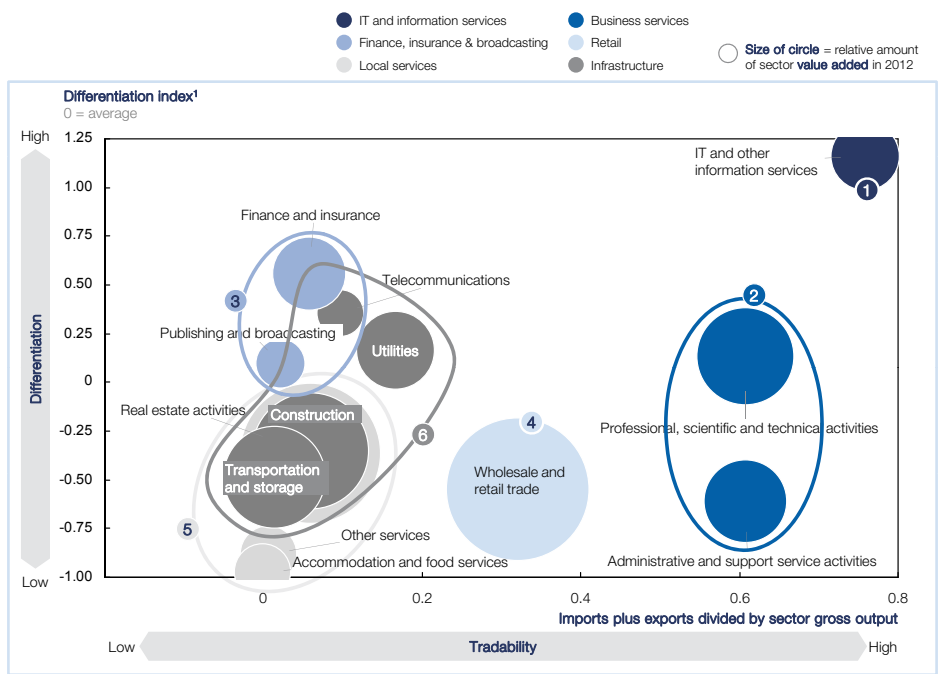
### **Market services can be grouped into six segments**

Market services naturally have different characteristics. They can be divided into six segments based on their level of tradability and differentiation. Tradability refers to the share of international service trade of the total production in the segment. High tradability means that Finnish service enterprises in the segment are part of open international competition. That entails both risks in the home market and new opportunities abroad. A high level of differentiation, on the other hand, describes services that are highly specialized for example, in terms of quality and design. In these services, non-cost factors, such as expertise, innovation and brands, are also key elements of competitiveness.

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<sup>10</sup> Eurostat, Statistics Finland.

Figure 3. The six segments of market services



<sup>1</sup> Differentiation index: composed of two measures. (1) R&D / Gross Output Compensation of employees / number of employees, and (2) Compensation of employees / number of employees. For each sector, the variance from the average from all sectors combined is used as the measure.

SOURCE: Eurostat; OECD; Statistics Finland

### The six segments of market services

**IT and information services:** Software and other products, programming and IT maintenance are by nature highly intangible and global services. They are easy to buy and sell across borders and, thus, easily tradable. Because the products require limited physical presence and can usually be replicated, production volumes are relatively easy to increase.

**Business services:** Business services mean medium- or high-skill services provided for companies' core and support operations. They include professional and technical services (e.g. advertising and technical consultation) and administrative and support services (e.g. accounting and HR). The services vary within the segment: high-skill jobs usually require complex interactions, meaning that their production volumes are often difficult to increase (low scalability). Jobs requiring medium-level skills, on the other hand, are more tradable and less differentiated. Thus, they are also easier to scale up through automation.

**Finance, insurance, publishing and broadcasting:** In this segment, services are local or regional but seldom require a physical interface. The services are highly standardised and conceptualised and require some localisation (e.g. due to regulation, culture or taste differences). However, some of the services are also relatively tradable and benefit from significant economies of scale.

**Wholesale and retail trade:** The segment involves sales targeted at consumers and intermediary traders, usually involving the delivery of physical products. The services are typically labour intensive, and their production involves a great deal of routine activities.

**Local services:** Services like accommodation, food and real estate services are mainly directed at consumers and are delivered and consumed at the site of production. Many parts of the value chain involve physical labour, and the production volume per employee is difficult to increase, even though certain parts of the value chain may be digitised.

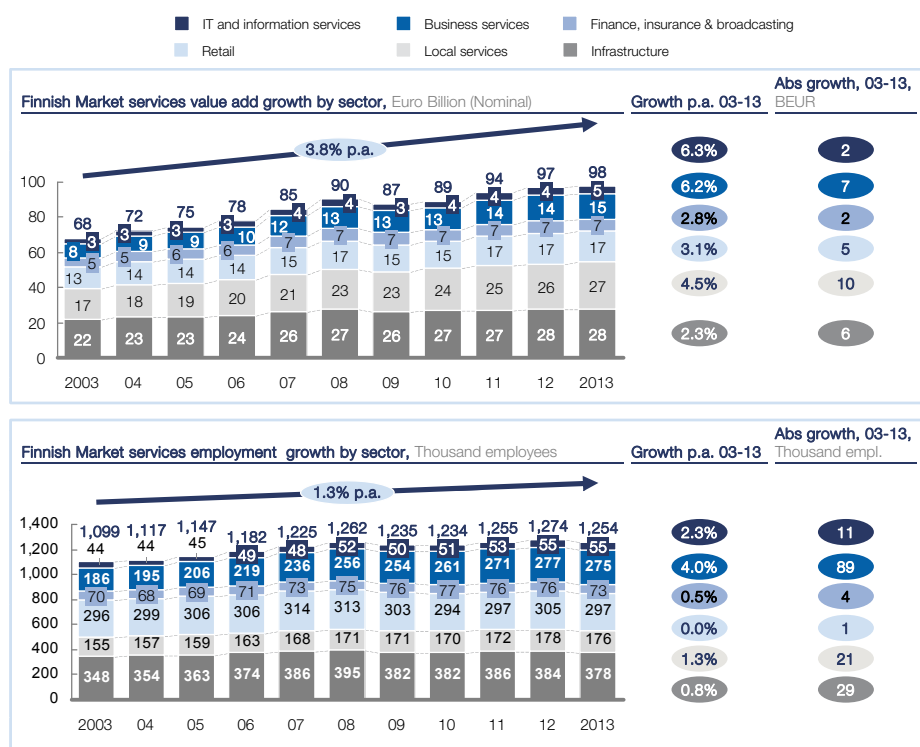
**Infrastructure services:** For example, construction, transportation and storage services require physical presence between production and consumption. These services are usually capital intensive and require scale, but typically have limited tradability beyond neighbouring areas.

### Growth varies among market service segments – so far particularly IT, business and local services have experienced growth

There is significant variation in the development of different segments. All segments have experienced some annual growth – some faster than others. However, the employment impacts of different segments vary significantly.



Figure 4. Growth in market service segments



SOURCE: Statistics Finland

In Finland, value added and employment have increased rapidly particularly in IT and business services: from 2003 to 2013, the average annual growth rate of value added was 6.3 per cent in IT services and 6.2 per cent in business services. The importance of the industry has significantly increased over the past ten years: in 2003, the segments' combined share of the total value added of market services was 16 per cent, but by 2013 it had increased to 20 per cent. Similarly, the segments' share of the total employment in market services has increased from 21 per cent in 2003 to 26 per cent in 2013.

During the same period, local services increased by approximately 4.5 per cent a year. In 2013, the segment's share of the value added of market services was 27 per cent and its share of the total employment approximately 14 per cent. In 2003, the corresponding share of the total value added was 25 per cent, while the employment share remained at 14 per cent. Local services are a highly labour-intensive segment, and the growth in value added is mainly a result of increased productivity.

The value added of finance, insurance, publishing and broadcasting services has, in practice, remained the same, as has their share of employment. In 2013, their share of value added in market services was approximately 7 per cent and employment share approximately 6 per cent. In retail services, value added increased on average by 3.1 per cent from 2003 to 2013, but the employment level has remained practically

unchanged. In the infrastructure segment, the annual growth rate of value added over the same period was approximately 2.3 per cent. Employment in the segment also showed some growth, unlike in retail.

**Finnish market services have been relatively insulated from competition**

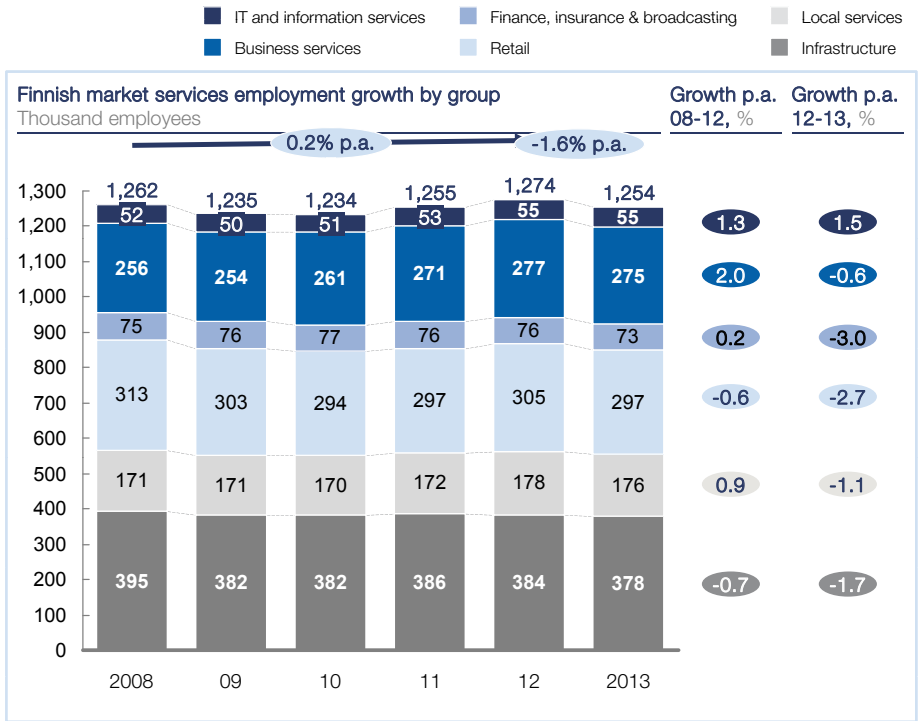
In Finland, the segmentation of services has been similar to its Western peers, such as Germany and Sweden. It reflects the traditional local nature of services, which has kept the sector somewhat insulated from international competition. Thus, most Western industrialised countries have had fairly similar market service sectors. So far, there has been no significant differentiation between the countries.

**THE TREND IS RAPIDLY CHANGING IN MARKET SERVICES – BOTH EMPLOYMENT AND TRADE BALANCE ARE AT A CROSSROADS**

**Employment and productivity declining in the sector**

Even though the importance of the market service sector has strongly increased, the number of jobs began declining in 2013 across service industries. Despite steady employment growth from 2008 to 2012, the rapid decline in recent years has caused the overall employment in market services to decrease below the 2008 level.

Figure 5. Employment in the Finnish service sector may be beginning to decline



SOURCE: Statistics Finland

There are differences between the segments. The downward trend has been the strongest in the retail sector, in which employment decreased on average by 0.6 per cent between 2008 and 2012 and up to 2.7 per cent from 2012 to 2013. During the six years, the sector lost approximately 16,000 jobs. These developments are a sign of drastic changes in the sector. The trend has been similar in infrastructure services: until 2012 employment in the sector decreased by an average 0.7 per cent a year, but between 2012 and 2013 by as much as 1.7 per cent. Some 17,000 jobs were lost. During the same period, growth also slowed down in finance, insurance, publishing and broadcasting services, with the segment losing a total of approximately 2,000 jobs.

In absolute terms, a significant number of jobs have been created in business and local services since 2008. Between 2008 and 2013, the number of jobs increased by 20,000 in business services and by approximately 5,000 in local services. Employment growth was significant until 2012, but since then the level has declined in both segments – although less than in many other market service segments.

By contrast, in IT and information services employment increased with a steady annual rate of 1.3 per cent until 2012, and growth also continued between 2012 and 2013. However, the segment's employment impact is considerably smaller than in many other market service segments.

Productivity growth has stagnated since 2008. IT services and local services are an exception to the trend: in these segments, annual productivity growth was on average 2.8 and 3.0 per cent until 2013. During the same period, the productivity of business services only increased by an average 1 per cent per year. In finance, publishing and broadcasting services, productivity even decreased by an average 0.4 per cent per year.

On average, however, Finnish growth has not been much below the level in other EU countries, Germany or Sweden. Productivity growth has been slow in these peer countries as well. For example, in Sweden productivity growth in business services has been faster (annual rate approximately 1.7 per cent), but in EU-17 productivity has decreased annually by an average of 0.6 per cent and in Germany by as much as 3.2 per cent<sup>11</sup>. In local services, the average productivity growth in EU-17 was only 1 per cent. In that respect, Finland has been ahead of its peers. The productivity growth of finance, publishing and broadcasting services, however, has been strong in Sweden and EU-17 – for instance, as high as 5.9 per cent a year in Germany – while in Finland the productivity of the segment has decreased.

**The main buyers of market services are other market service enterprises – industrial consumption is also significant and has some impact on development in the sector**

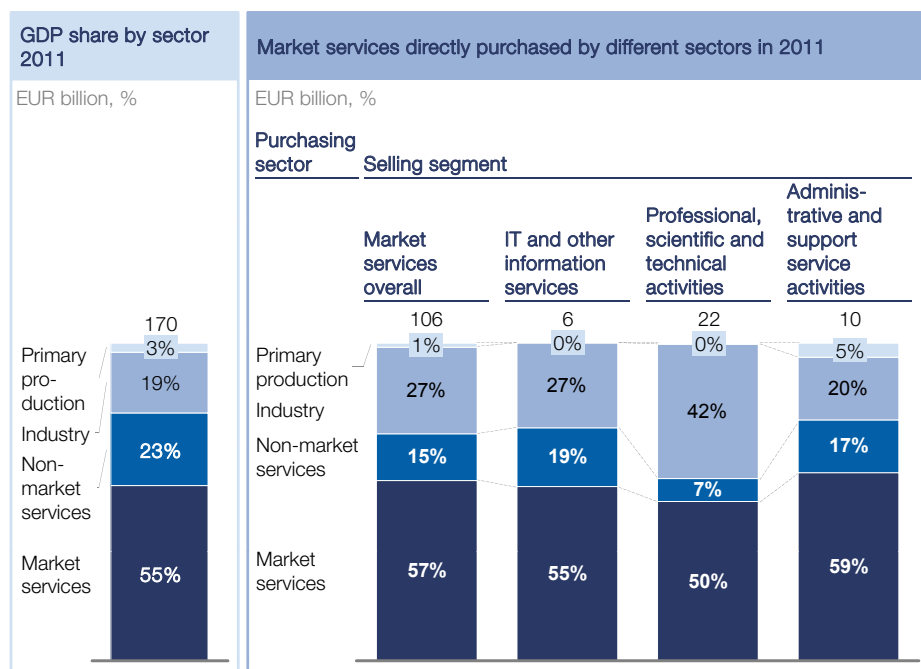
To understand the growth of services, it is also important to examine how the demand for services is formed. The majority of market services are consumed as intermediate

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11 Eurostat, Statistics Finland.

products in the production of other services. Market services are mainly purchased by other market service segments, which constituted 57 per cent of the intermediate usage of Finnish market services in 2011. Yet, industry also consumes a significant share of the services. In 2011, industry purchases constituted 27 per cent of the intermediate usage of market services. Industry consumes a particularly significant share of professional, technical and scientific services (42 per cent in 2011).

Figure 6. Market services purchased by different sectors



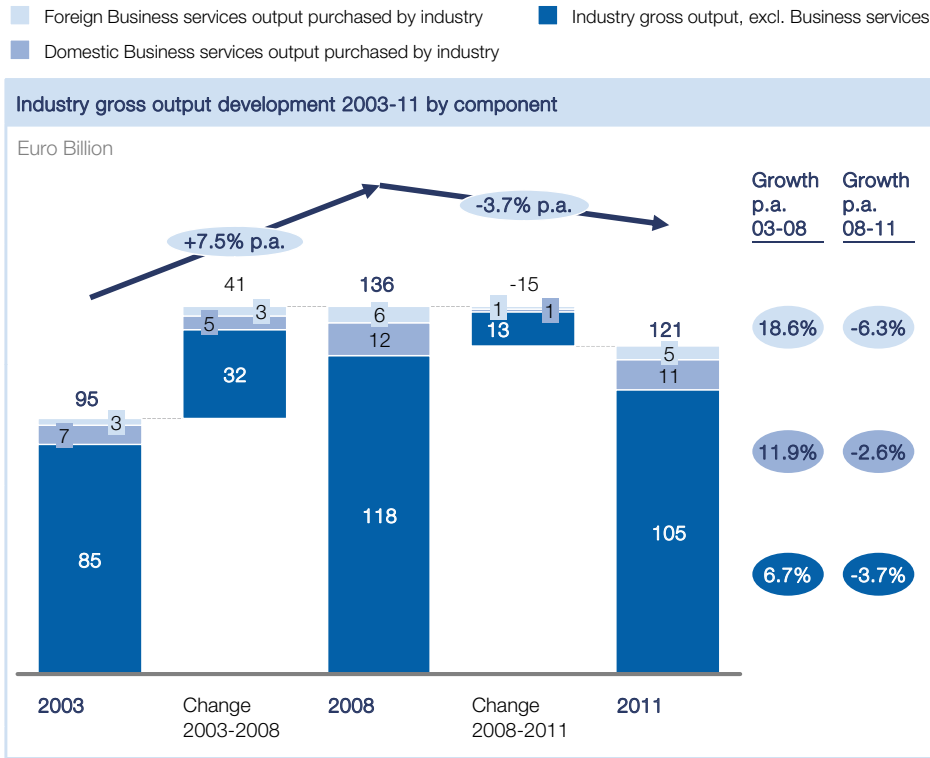
1 Education, health, and other mainly public services

SOURCE: Statistics Finland

In 2003–2008, gross output and market service purchases strongly increased in the industry sector. The growth in market services purchased by industry was faster than the growth of the sector itself. Since 2008, industrial production has declined sharply. The drop in the industry gross output has naturally also affected the demand for market services in the sector. From 2008 to 2011, the value of the domestic and foreign business services purchased by industry decreased by approximately EUR 2 billion.

However, the overall purchases of business services increased by approximately 2 per cent a year in 2008–2012; thus, the growing demand for services cannot be explained, for example, by industry outsourcing. Nonetheless, new jobs created in the service sector are insufficient to offset the job losses in industry.

**Figure 7. Development of industry gross output including market business services**



SOURCE: Statistics Finland; McKinsey

Foreign market services purchased by industry have increased and decreased more rapidly than domestic services. Market service imports by industry grew strongly in 2003–2008 (18.6 per cent a year) but also decreased more rapidly than domestic services after 2008 (–6.3 per cent a year until 2011). In 2011, imports constituted approximately 30 per cent of all market services purchased by industry.

In 2003–2008, industry employment remained flat but employment in business services serving the industry grew 10.7 per cent a year over the same period<sup>12</sup>. After the peak in 2008, both industry employment and the number of market service employees serving the industry started to drop. Employment has declined over 4 per cent a year in both industry and the related market services.

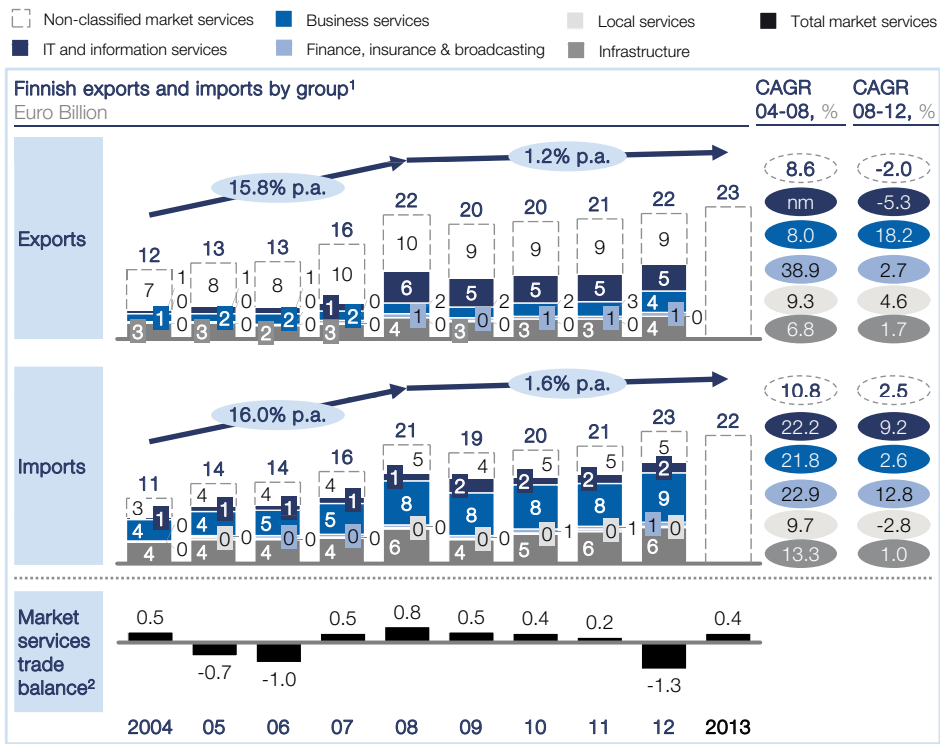
### Finland at risk of becoming a net importer of services

In Finland, there has been a great deal of public debate about the export potential services. In the light of current figures, the trade balance of services does not look promising. The market service trade balance has remained slightly positive since

<sup>12</sup> Statistics Finland

2007, except for 2012. On average, however, service imports have increased faster than exports.

Figure 8. Service imports have outgrown exports



Overall, the developments seem to suggest that Finland is slowly becoming a net importer of services. Imports have kept pace better than exports – especially in business services.

### **DIGITALISATION IS RAPIDLY INCREASING PRODUCTIVITY AND GLOBALISING SERVICE MARKETS – FINLAND IS NO EXCEPTION**

The service sector is already undergoing profound changes. Employment has started to decline, and economic value added is growing only in a few segments while most others are stagnating. Productivity is on the decline, and Finland risks becoming a net importer of services. Digitalisation will change the service sector – and the transformation will be more profound and rapid than the one witnessed in manufacturing.

In industry, the most significant change has so far been the relocation of production to the developing markets. In practice, the shift has been a productivity game, aiming at lower costs and better access to new markets. In services, however, digitalisation changes the nature of the actual service products. The pace of change is largely dictated by how fast consumers want to move online. End users accelerate the changes in the service sector, capturing an increasing share of the value.

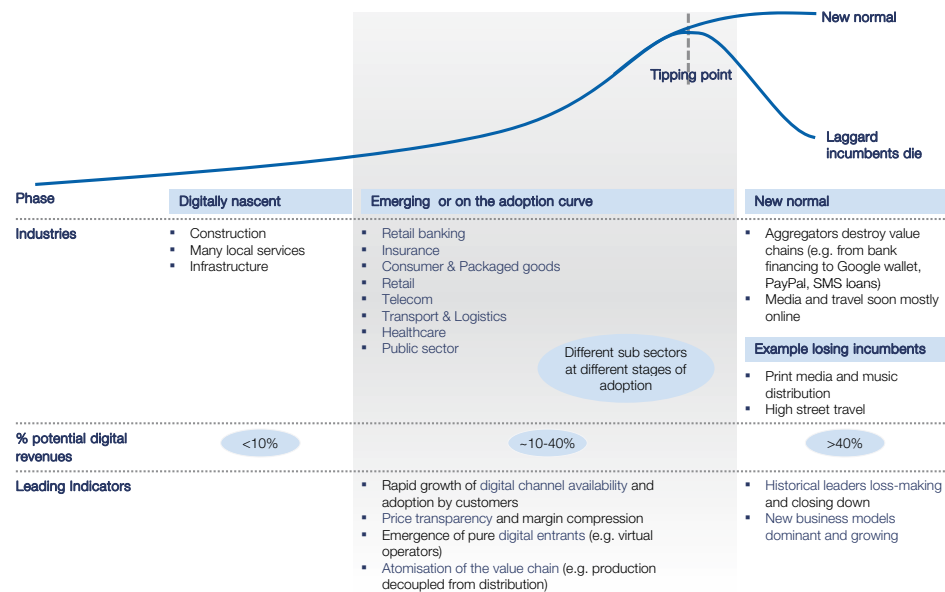
In manufacturing, automation has increased productivity by eliminating the need for human labour in many parts of processes. Services can go a step further, as automation has the potential to entirely eliminate the need for human labour in many processes, such as simple consumer lending in retail banking. The changes are also likely to impact certain service-type jobs within industrial sectors, such as support and customer services. In certain sectors, employment will be hit hard, and there is no avoiding it.

The fate of individual companies may vary greatly within a sector, depending on how well companies are able to adapt to the changes ahead. As in manufacturing, digitalisation presents both opportunities and risks for every service enterprise. However, the scalability of digital services means that situations where “the winner takes it all” are much more likely and sudden than in manufacturing.

### **Many service segments are already far on the digital adoption curve**

The pace of digitalisation has varied from one service segment to another. However, digitalisation appears to be changing most industries in a rather consistent way. This change can be illustrated with the following adoption curve:

Figure 9. The adoption curve of going digital



SOURCE: Expert interviews; McKinsey analysis

In the early stages of digitalisation, new trends emerge within a segment. Innovative startups embrace the innovations and create new business models, disrupting the traditional balance. The adoption curve begins when early adopters start using digital service models in their business on a wider scale. The development will further accelerate when incumbents also start adopting the digital models. Finally, mainstream consumers adopt the new trend. This has already happened, for example, in the e-commerce of clothes, books and electronics. The development leads to increasingly transparent pricing and smaller margins, as a larger share of the value created is captured by consumers. The value chain is also constantly becoming more atomised – for instance, production is increasingly often decoupled from distribution.

The segment reaches a tipping point at the top of the curve when the adopters and established startups constitute the “new normal”. These days, Spotify and other music services are the mainstream way of listening to music. Laggard incumbents die because they have been unable to adapt to the change. Print media and music distribution as well as travel agencies are examples of services that have already undergone the digital transformation. Media and travel services will soon mostly be online. The losers in this battle include traditional travel agencies, print media and traditional video rental shops.



Finnish market services are also going digital, even though, for example, construction and many local services are still at the early stages of development. Retail banking and insurance services, retail trade and consumer goods, telecommunications, and transport and logistics are already undergoing changes at different points of the adoption curve. In these industries, the availability of digital channels is increasing and consumers are adopting them rapidly. The industries also include several purely digital entrants, such as international online communication applications like Skype and Viber in the telecommunications industry. Bank financing and retail banking are also facing competition from new services, such as Google Wallet, PayPal and SMS loans. When the new normal has been established in these industries, aggregators of different activities will destroy traditional value chains.

### **The five levers of digitalisation have a direct impact on labour needs and competition**

Digitalisation is achieved through five levers, which will together increase productivity and open up new markets. Increased productivity will reduce labour needs, but new markets may open up new employment opportunities. Overall, the employment outlook of market services in Finland depends on how well new opportunities can compensate for the jobs lost due to increased productivity.

#### Five levers of digitalisation

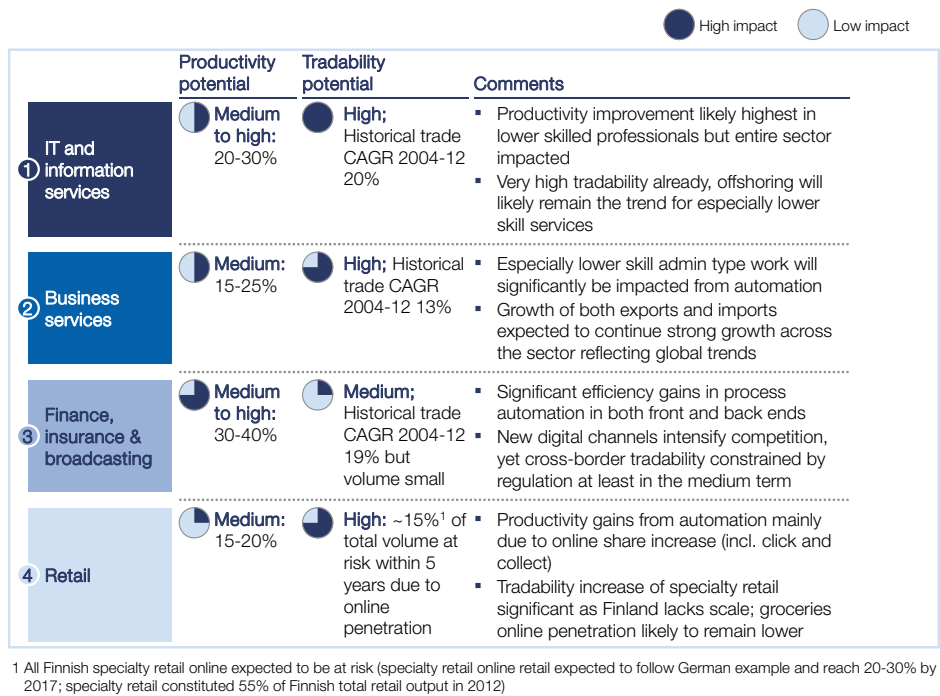
1. **End-to-end process digitisation:** Processes are becoming increasingly automated. For the present, the changes affect relatively simple and rule-based processes, but will soon also impact higher-skill work.
2. **Multichannel and digital consumer experience:** In future, consumers will be partially or completely reached through digital channels, while the need for physical infrastructure will reduce. For example, online sales reduce the need for physical buildings and sales outlets.
3. **Digital product development:** Remote services (e.g. regular automatic deliveries and the remote control of fire safety systems) will increase efficiency. The personalisation of services and products and consumer participation in processes will increase.
4. **Business decisions based on big data:** Better informed business decisions (e.g. risk and fraud profiling) will guide decision-making in companies and make the process more efficient. Companies will also gain a better understanding of their customers and customer needs (e.g. profiled up-selling of services and cross-selling of products).
5. **Growing competitive intensity:** New entrants constantly emerge in the industries. They may include, for example, operators only providing online services. Increased cross-border tradability highlights scale advantages, and the transparency of consumer prices and features increases, further intensifying competition.

These five levers have a twofold impact. On one hand, increased productivity achieved by going digital will inevitably result in job losses in market services, as fewer employees are needed to perform the work. The resulting competitiveness may also cause rapid changes in market shares and even create entirely new markets. Tradability plays a key role: if a certain industry is highly tradable and the competitiveness of domestic companies low, shares of the home market will be lost to competition. However, tradability may also have a positive impact on employment: new markets and market shares may be found abroad, and domestic demand may also increase as a result of improved productivity.

### Digitalisation will impact all industries – differences between segments

Due to digitalisation, up to 20-30 per cent of service sector jobs are exposed to a major productivity shift. The tradability of market services will impact even more segments.

Figure 10. The segment-specific impacts of digitalisation vary



SOURCE: McKinsey Global Institute; McKinsey analysis

The impacts will be the greatest in IT and information services, which have considerable productivity and tradability potential. Tradability in the segment is already very high; for example, the historical annual growth of service trade was approximately 20 per cent between 2004 and 2012. The services provided in the

segment do not require a great deal of localisation. Differentiation is critical for the industry to be able to compete in costs and skills with, for example, India. Productivity growth is likely to be highest among lower-skilled professionals, but some impacts will be seen across the segment.

In business services, the level of automation will continue to be highest in lower-skill administrative work, such as certain customer and support services. At the same time, productivity differences will also increase in high-skill services, with digitalisation enabling more efficient time use for individual experts. The services are already highly tradable, and the historical annual growth rate of trade in the segment has been approximately 13 per cent in 2004–2012. The growth of both exports and imports are expected to continue.

Finance, insurance, publishing and broadcasting activities have very high productivity potential – significant efficiency gains are expected from automation, like in the context of loan decisions, as mentioned above. In theory, the nature of the products allows tradability. But even though new digital channels intensify competition, cross-border tradability will be constrained by regulation and localisation needs, at least in the medium term.

In retail, productivity growth will be gained mainly due to the increasing share of online trade. Tradability will increase significantly, for example, in specialty retail.

In local services, tradability is expected to remain low due to the physical nature of the work (e.g. real estate services). Infrastructure services are also less traded due to their local labour and capital needs. However, some growth in service trade is expected also in these industries due to the involvement of international operators. Of course, both segments may also benefit from the productivity growth gained through digitalisation, even though the process is still in its early stages.

## **FINLAND MUST TACKLE FOUR CHALLENGES IN THE DIGITAL TRANSITION OF ITS SERVICE SECTOR**

It is evident that digitalisation will dramatically increase the productivity of services and thereby reduce the need for labour. In addition, it will expose home markets to competition but will also enable access to global markets. Finnish companies and the public sector must respond to these changes as soon as possible. The transformation may be extremely rapid, and international competition should not be underestimated.

### **Implications for Finnish companies**

#### **1. Defend the home market by embracing digitalisation**

When markets are opened to competition, Finnish service enterprises often find themselves in a relatively weak position. International enterprises have highly developed operating models and are more cost-competitive due to economies of scale. It is crucial for Finnish companies to embrace the benefits of digitalisation to







narrow the cost gap in relation to international competitors. At the same time, they need to turn the digital-enabled local customer insight into a competitive advantage.

**Cost competitiveness** should be improved through end-to-end process digitalisation. At present, cost competition from large regional and global players poses a real threat to Finnish service providers, for example, in specialty trade and IT services. Embracing the productivity improvement enabled by digitalisation helps to narrow the cost gap. End-to-end digitally connected value chains help the management to be better informed and enable increasingly proactive management and control (e.g. big data may give more insight into the functionality of processes). In addition, many processes can already be fully automated – Finnish companies should not hesitate to start the automation process where possible. On the other hand, workforce should be allocated to tasks that generate the highest value added to the company and are difficult to replace with digital processes.

**Local customer insight** should be turned into a competitive advantage. Against global entrants, it is usually impossible to compete with cost or the breadth of offering. However, digitalisation enables even small domestic players to respond to the challenge by developing highly targeted and differentiated services. In practice, that involves applying customer insight analytics to maximise the understanding of local customers, for example, in banking and retail. That way, companies will be able to target their marketing and sales activities better than before. New services can also be co-created in closer collaboration with customers.

Throughout the world, there are many examples of successful enterprises from which Finnish companies can learn a lot. These leading companies provide clear signposts to success in company-level digitalisation:

Figure 11. Examples of digital success

Examples <sup>1</sup>	
1 Set digital targets	<ul style="list-style-type: none"> <li>Size and prioritise full set of digital opportunities</li> <li>Set specific targets by product and function, aligned to a long term aspiration and roadmap</li> </ul> 
2 Reshape the business portfolio	<ul style="list-style-type: none"> <li>Re-evaluate businesses and assets in digital context</li> <li>Proactively acquire to address gaps</li> <li>Divest low potential assets (ahead of others)</li> <li>Pursue collaboration with new partners</li> </ul> 
3 Invest at scale	<ul style="list-style-type: none"> <li>Align investment quantum and focus to value</li> <li>Experiment widely and double down selectively</li> <li>Build platforms, not point solutions</li> </ul> 
4 Upgrade the extended value chain	<ul style="list-style-type: none"> <li>Upgrade digital capabilities across the entire value chain to deliver seamless experience that customers now expect</li> <li>Transform processes end-to-end, remove handoffs</li> <li>Include customers, suppliers and partners in transformations</li> </ul> 
5 Nurture digital talent	<ul style="list-style-type: none"> <li>Establish dedicated digital leader</li> <li>Infuse fresh talent and mindsets into the business</li> <li>Protect scarce skills-sets (e.g. IT architects)</li> <li>Segregate technology platforms and associated talent</li> </ul> 
6 Increase clock speed	<ul style="list-style-type: none"> <li>Enhance external orientation (e.g., NPS in scorecards)</li> <li>Increase frequency of key decisions (e.g., monthly budgeting)</li> <li>Use agile methodologies and metrics (e.g., time to value)</li> <li>Establish a single source of truth (e.g., real time MIS)</li> </ul> 

1 Based on input from sector experts

SOURCE: Expert interviews; McKinsey analysis

## 2. Finnish companies should boldly attack selected areas of strength globally

The tradability of products is also a great opportunity for the market service sector. Internationally, Finnish companies need to identify additional areas of highly differentiated, highly tradable services where they can build on existing advantages:

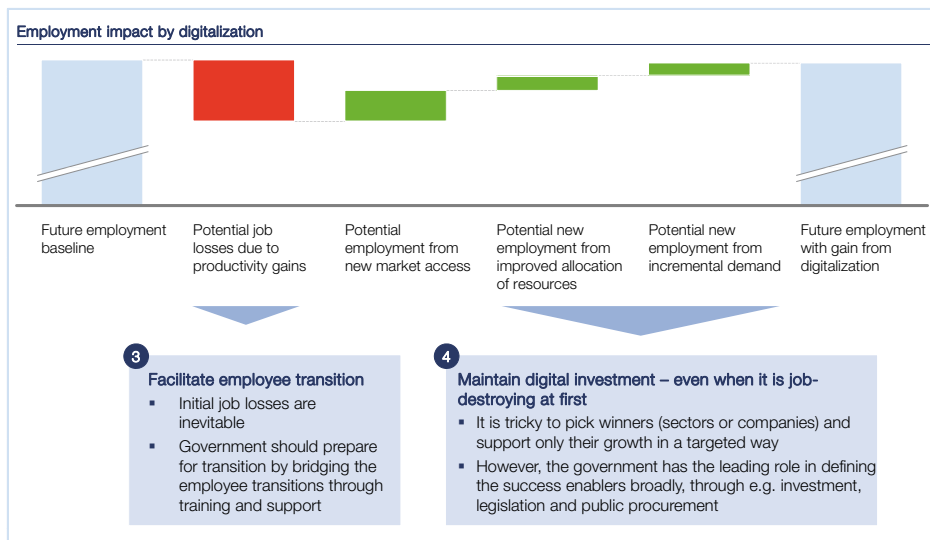
- I ***Building on existing strengths through digitalisation.*** Many Finnish companies have strong expertise in highly differentiated segments. Thus, companies should consider how they could use digitalisation to further enhance their strengths.
- II ***Companies should expand to new markets opened up by digitalisation,*** by targeting new regions and countries and by offering new services. Companies should identify the needs of their expanded customer bases and target those with new offerings, broadening the company's capability base.
- III ***Companies should identify high value added steps in value chains.*** Service enterprises should identify those steps in value chains that generate high value added. In many industries, an individual part of the value chain – such as brand management – creates most of the value added. Companies that are able to place themselves in these parts of the value chain have an advantage over their competitors.

**IV Companies should seize the value chain management opportunities enabled by digitalisation.** In recent years, many of the most successful service concepts have been based on the management of value chains and networks. Such success often requires building and managing a broad supplier network – and above all the ability to design and manage a well-functioning service concept.

### Implications for the public sector

Digitalisation can be a challenging phenomenon for society, but the government has many tools to facilitate the change.

**Figure 12.** Digitalisation is problematic for the society



SOURCE: McKinsey Global Institute; team analysis

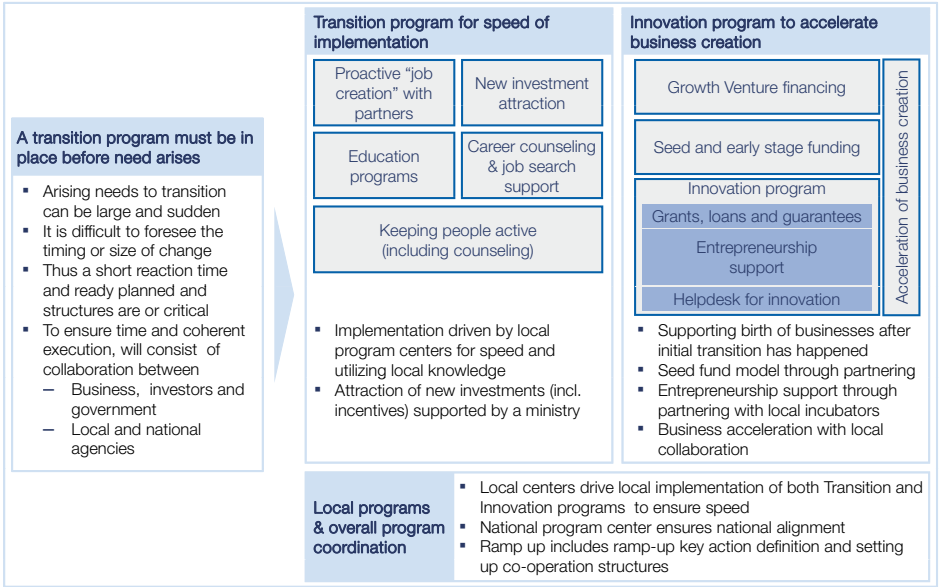
The public sector can facilitate the change in two ways. Because some job losses are inevitable, the public sector can facilitate employee transitions, for example, by fostering skills development. The public sector can also promote digitalisation through investments, legislation and public procurement. That is the only way to help ensure that the inevitable job losses can be offset by creating new jobs.

### 3. Supporting employee transitions

Due to digitalisation, employees in many fields are inevitably faced with great changes. The public sector must prepare for facilitating their transitions to new jobs to be able to manage large and unforeseeable changes in manpower needs. The transitions caused by digitalisation are more difficult to identify and support than those witnessed in industry because they involve wider geographical areas

and a larger number of enterprises. According to best practices, transitions should combine four elements: companies, investors and public-sector transition and innovation programmes.

**Figure 13.** Best practice transitions combine public transition and innovation programmes, companies and investors



SOURCE: McKinsey Global Institute; team analysis

The main purpose of **transition programmes** is to speed up the implementation of transitions. The programmes must be in place before need arises – transitions may be sudden, and their scale and timing may be difficult to predict. Thus, the public sector must be able to respond to the changes in a short period of time and to act in accordance with the structures designed in advance. To ensure the coherent and timely execution of measures, collaboration is needed between businesses, investors and the government. The practical implementation should also involve the local level to ensure that programmes can be implemented as quickly as possible.

Transition programmes include practical measures, education and career support for employees and activating measures, including counselling. In practice, these measures are implemented by local programme centres because they can act quickly and have local knowledge. It is also important that transition programmes actively attract new investments to enable job creation and proactively create new jobs.

**Innovation programmes for digitalisation** are designed to accelerate business creation and to create new jobs. Growth is funded and supported through venture financing as well as seed and early-stage funding. The creation of businesses is supported after the initial transition has taken place. At the local level, support

is provided through incubators and by accelerating business through local collaboration. Finland already has a significant amount of expertise and many good practices – the challenge is to tailor the programmes to respond to the impacts of digitalisation.

Carefully planned programmes that can be implemented at short notice will help to make the transition ahead as painless as possible.

#### **4. Six cornerstones of digital investment**

The digital revolution is inevitable. Therefore, the public sector should continue investing in digitalisation and driving the transition forward as efficiently as possible. The public sector could act as a role model for companies and ensure digitalisation-related communication and dialogue between research institutions and companies, provide effective incentives for the digital transition and create enablers of change, such as appropriate education and training, infrastructure and standards.

*Role modelling and communication:*

- I *Setting objectives and acting as a role model:*** Governments can set objectives for companies' digitalisation. In practice, this could involve, for example, creating "national challenges" to stimulate innovation and organising public competitions for digital applications. One example of such measures is the challenge.gov website in the United States: the website lists national contests and prizes concerning digitalisation. The public sector can also use government digitalisation as an example of a good practice.
- II *Formal role as connector:*** The government can also promote dialogue between research institutions and companies on digital topics. For example, Germany updates its digital strategy annually in dialogue with the relevant industries and research institutes that focus on digitalisation.

*Incentives:*

- III *Incentives and finance:*** The public sector can create incentives and provide funding for digital investments. In practice, this can involve creating fiscal incentives for digital investment, facilitating access to market-based innovation financing, and supporting the development of risk and innovation financing. For example, in Canada companies are encouraged to invest in digital ventures and recruitment by using targeted funds and granting digital investments a more favourable tax treatment.
- IV *Targeted support for business innovation:*** The public sector can also support investment in and provide funding for selected disruptive technologies that act as a catalyst for capacity building. In the United States, big data and cloud computing are major targets of public investments. It is also important to use existing government resources to enable new business models and citizen services.



Enablers:

- V Education and resource flexibility:** The public sector can promote digital skills and competence. The key is to ensure education in the development and use of digital tools across sectors, not solely in IT. In practice, this could involve teaching programming at schools, reallocating financing to digital training, or promoting tertiary education in trends common to all industries (e.g. big data analytics, cloud computing, mobile internet, Internet of Things and advanced robotics). Such measures will ensure investment and capabilities in megatrends across sectors.
- VI Regulation, infrastructure and standards:** It is natural for the public sector to ensure a sufficient IT infrastructure backbone and its use, to provide stable and universal online standards and to ensure the security of online services. For example, Estonia is creating such an environment by introducing a digital identity, or “e-residency”, for individuals. In open economies, it is also natural for the government to participate in international collaboration and dialogue to support a global digital market.

Figure 14. Six cornerstones and international examples

		Description	Example action (country where observed)
Role modelling and communication	<b>I</b> Top-down aspirations and role modelling	<ul style="list-style-type: none"> <li>Set clear goals for Finnish companies digitization targets together with e.g. trade bodies</li> <li>Create “national challenges” to stimulate innovation and set public competitions for digital applications</li> <li>Use government digitalization as good example</li> </ul>	<ul style="list-style-type: none"> <li>Annual digi-strategy update with industries and research institutions on digitalization (Germany)</li> <li>Create a “challenge.gov” listing national contests and prizes on digitalization (US)</li> <li>Have a leading agency in charge of a unified national digitalization effort and execution (Israel)</li> </ul>
	<b>II</b> Formal role as connector	<ul style="list-style-type: none"> <li>Ensure dialogue between research institutions, companies and the government on digital topics</li> </ul>	<ul style="list-style-type: none"> <li>Create a digitalization network spanning across industries for idea sharing on multiple seniority levels</li> </ul>
Incentives	<b>III</b> Incentives and finance	<ul style="list-style-type: none"> <li>Fiscal incentives for digital investment</li> <li>Improved access for easier market-based innovation financing</li> <li>Supporting risk and seed finance development</li> </ul>	<ul style="list-style-type: none"> <li>Incentivize companies to invest into digital ventures and recruitment, e.g. by targeted funds (Canada)</li> <li>Faster amortization for digitalization investment</li> <li>Passing simple crowd financing laws (US)</li> </ul>
	<b>IV</b> Targeted support for business innovation	<ul style="list-style-type: none"> <li>Investing/sourcing in selected disruptive technologies to act as a catalyst for capability building</li> <li>Enabling new business models and citizen services from existing government resources</li> </ul>	<ul style="list-style-type: none"> <li>National investment into a target area to kick-start progress (Big data and cloud computing in US)</li> <li>Common and open data architectures (US opening up health data for private use)</li> </ul>
Enablers	<b>V</b> Education and resource flexibility	<ul style="list-style-type: none"> <li>Ensure fast and accurate matching between business resource demand and state vehicles</li> <li>Actively promote education to digital, including use of digital across sectors, not solely IT per se – ensuring investment and capabilities in megatrends across sectors</li> </ul>	<ul style="list-style-type: none"> <li>Set up an online job market for digital workforce, including providing access to labor in remote areas</li> <li>Coding in schools, reallocating financing to digital training</li> <li>Promoting tertiary education in trends common to all industries (e.g. big data analytics, cloud computing, mobile internet, internet of things, advanced robotics)</li> </ul>
	<b>VI</b> Regulation, infrastructure and standards	<ul style="list-style-type: none"> <li>Ensure sufficient IT infrastructure backbone (connectivity) and its use</li> <li>Provide stable and universal online standards</li> <li>Ensure security of public online services</li> <li>Participate in international collaboration and dialogue to support a universal digital market</li> </ul>	<ul style="list-style-type: none"> <li>Setting a national online ID standard (Estonia’s ambition to set eResidence as standard)</li> <li>Using open standards on public data</li> <li>Actively participate in EU programs, e.g. interoperability of digital IDs project (STORK 2.0)</li> <li>Set digital standards for areas of service export strength (e.g. construction)</li> </ul>

SOURCE: McKinsey Global Institute; team analysis

## Opportunities and challenges in Finnish service business

### 1 Introduction

These days, services play a key role in the competitiveness of businesses, regions and countries alike. In developed countries, service industries account for more than a half of all production and employment, and they are continuously gaining more ground in emerging economies as well. In addition to the actual service sector, service activities within manufacturing are also becoming increasingly central. This is explained by the facts that in many products markets are maturing and margins decreasing, many services offer a higher profit margin and a steadier income flow, and services provide an opportunity to build close and long-term partnerships with customers.

For long, services have been considered to be of secondary importance to the overall economic development. This view has been supported with theories and indicators that have presented value creation and productivity as characteristics unique to industrial activities. Lately, more attention has been given to broader approaches that are based on interaction between industry and services, not on an adversarial relationship between the two. In addition to services being produced *by industry*, many services are produced *for industry* to facilitate production planning, process management and product distribution. It is becoming increasingly understood that value creation involves more than just the production process: *the context of use and the user also play a key role*. Value is not an inherent part of goods and services; instead, value is created and shaped when goods and services are used.

Like in the production of physical goods, knowledge and information are also becoming increasingly important in services. The development of information technology was identified as a key driver of progress in the so-called knowledge-intensive services as early as the 1990s. Today, *digitalisation* is affecting all social and economic activities. It is an essential part of all kinds of business activities and the everyday lives of citizens – not just the ICT sector. The development of the Internet economy has entered a new phase as digital equipment are producing more and more information and are interacting automatically, without human interference. Data resources will multiply in the next few years. However, the related new opportunities will not be realised without services for integrating, analysing and interpreting information. Intelligent services will continue to constitute one of the most important infrastructures in society.

The present analysis will discuss in detail the importance of services for the growth opportunities of the Finnish economy. The focus is on service development in the private sector. The analysis will begin with some statistics to shed light on

the developments in Finland in recent years, briefly comparing them to trends in other Western and European countries in particular. The section will include a more detailed analysis of services that illustrate the interaction between industry and the service sector: services that industrial companies buy from external operators and services that they produce themselves. The contents and trends of both service groups will then be discussed separately (Chapters 3 and 4). This detailed examination will complement the statistical classification presented at the beginning of the article, because the statistics do not reflect the latest trends at the interfaces between different sectors or systemic cross-sectoral service packages. Towards the end of the article, the focus will be on factors that could affect the productivity and efficiency of service business. In this context, the article will highlight the importance of productisation and business models and briefly explain what their systematic development entails. A separate section is dedicated to international service business. It will summarise different ways to enter and operate in foreign markets, analysing the factors that affect these decisions. Finally, policy conclusions will be presented at the end of the article. I will propose a new service classification, reflecting more clearly the operating logic and role of different sectors in the economy.

## **2 Service business as part of the economy as a whole**

### **2.1 Service sector and its sub-sectors**

In most Western countries, service industries constitute at least 60 per cent of production and employment, but the share varies from one country to another. The United States has the most advanced service economy; in the country, services constitute almost 80 per cent of total production. In many European countries – like France, England and the Netherlands – the share is also approximately 75 per cent. In Finland, the share is slightly smaller (approximately 70 per cent), partly reflecting historical development: industrialisation and service growth began relatively late in the country, later than in other Nordic countries.<sup>13</sup>

The enterprise and establishment statistics of Statistics Finland give a more detailed picture of the service sector's breakdown and development by sub-sector. Based on the data, Table 1 includes details on the number of personnel in the private service sector and the development of the figures from 2007 to 2012. The figures are presented by principal activities. The table shows that in 2012 some 58 per cent of the employees in enterprises operating in Finland worked in service industries (in the figures, construction, electricity and water supply have been excluded from the service sector alongside primary production, mining and manufacturing).

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13 OECD Statistics, STAN Indicators.

**Table 1. Number of personnel in private sector establishments in 2007–2012, by principal activity (Source: enterprise and establishment statistics by Statistics Finland)**

Principal activity	2007	2012	Industry's share in 2012	Change 2007–2012	
				number	%
A Agriculture, forestry and fishing	69060	62984	4,75 %	-6076	-8,80 %
B Mining	4677	5560	0,32 %	883	18,88 %
C Manufacturing	370930	309831	25,51 %	-61099	-16,47 %
D Electricity, gas, steam and air conditioning supply	10173	10885	0,70 %	712	7,00 %
E Water supply, sewerage and waste management, other environmental management activities	6339	7464	0,44 %	1125	17,75 %
F Construction	146708	152837	10,09 %	6129	4,18 %
G Wholesale and retail trade; repair of motor vehicles	238747	240719	16,42 %	1972	0,83 %
H Transportation and storage	131187	126168	9,02 %	-5019	-3,83 %
I Accommodation and food service activities	59041	62372	4,06 %	3331	5,64 %
J Information and communication	78487	80466	5,40 %	1979	2,52 %
K Financial and insurance activities	43583	44721	3,00 %	1138	2,61 %
L Real estate activities	17756	18944	1,22 %	1188	6,69 %
M Professional, scientific and technical activities	85881	95855	5,91 %	9974	11,61 %
N Administrative and support service activities	99255	118253	6,83 %	18998	19,14 %
O Public administration and defence; social security	2798	2754	0,19 %	-44	-1,57 %
P Education	10343	8972	0,71 %	-1371	-13,26 %
Q Human health and social work activities	42809	60807	2,94 %	17998	42,04 %
R Arts, entertainment and recreation	11782	13857	0,81 %	2075	17,61 %
S Other service activities	24268	26392	1,67 %	2124	8,75 %
X Industry unknown	22	-	-	-	-
TOTAL	1453846	1449841	100,00 %	-4005	-0,28 %

Trade constitutes the largest individual service industry: the total number of personnel in wholesale and retail trade account for 16 per cent of all private sector employees. The second largest service industry is transportation and storage (9 per cent), followed by two business service industries: administrative and support service activities and professional, scientific and technical activities. The last mentioned industry forms the core of the so-called knowledge-intensive business services (KIBS) together with the IT services included in the category information and communication services. If these are combined with the human resource services, security services and cleaning services provided to enterprises, business services constitute well over 15 per cent of the economy.

Of all service industries, in 2007–2012 quantitative and relative growth was highest in human health and social work activities and in business services. The growth in health and social work activities illustrates how entrepreneurship has increased in the industry that has traditionally been part of the public sector. In business services, growth has been achieved in KIBS industries and in administrative and support services. Significant relative growth has also been experienced in real estate and cultural services, although they are much smaller than the above-mentioned industries. Declining industries include transportation and storage and education (in the latter, figures give a somewhat incorrect picture of the development as education services provided by enterprises are often included in consultancy services).

## 2.2 Services consumed and produced by manufacturing

Services are usually divided into two main groups: consumer services (B-to-C) and services targeted at organisations (B-to-B). This article focuses on the latter, but the analysis of business models and internationalisation apply to all services. B-to-B services can be further divided into services that companies sell to other companies or the public sector (business services) and services that companies produce by themselves alongside their main activities. The services produced by manufacturing are economically the most important section of services produced alongside an enterprise's principal activity and they will be discussed later in this chapter. First we will focus on business services on which there are various types of statistical information available. These services play a key role not only because of their size and growth, as mentioned above, but also because they form a knowledge and support infrastructure for industrial development. Table 2 illustrates the recent development of knowledge-intensive business services (KIBS) in Finland.

**Table 2.** Number of personnel in KIBS industries in 2007–2012 (Source: enterprise and establishment statistics by Statistics Finland)

KIBS industry	Year 2007	Year 2012	Growth 2007–2012		Breakdown 2012
IT services	40126	46094	5968	14,87 %	35,62 %
R&D services	3231	4460	1229	38,04 %	3,45 %
Legal services	3886	4378	492	12,66 %	3,38 %
Financial administration services	12988	15896	2908	22,39 %	12,28 %
Advertising and marketing services	8966	8887	-79	-0,88 %	6,87 %
Technical consultancy (incl. design)	35065	35301	236	0,67 %	27,28 %
Management consultancy	10559	14406	3847	36,43 %	11,13 %
<b>KIBS total</b>	<b>114821</b>	<b>129422</b>	<b>14601</b>	<b>12,72 %</b>	<b>100,00 %</b>
<b>All industries total</b>	<b>1453846</b>	<b>1449841</b>	<b>-4005</b>	<b>-0,28 %</b>	

The table shows that IT services (e.g. computer consultancy, data processing and web portals) and technical consultancy (engineering, architectural and design

activities) include almost two-thirds of the personnel working in KIBS industries. Even the largest non-technological KIBS industries – financial administration services (auditing, accounting, bookkeeping and tax consultancy) and management consultancy – are significantly smaller industries, and legal services and advertising and marketing services even smaller. For decades, the KIBS sector has grown significantly more than the economy on average, and latest developments show that the trend continues. In recent years, relative growth has been greatest in financial administration and consultancy (and research services, which are difficult to capture by statistics). IT and legal services have also shown some growth, but engineering services and advertising and marketing have not.

Despite its growth exceeding the average economic growth, the Finnish KIBS sector is still small – significantly smaller than in other Nordic countries, for example. In Sweden, the sector's turnover is nearly three times as large as in Finland. The Finnish KIBS sector is characterised by a strong focus on technological KIBS. In non-technological fields, the small scale of legal services is noteworthy. In addition, the shares of financial administration and advertising and marketing services are also slightly below the EU average.

Even though KIBS play a key role in providing expertise, other elements of the service infrastructure are also important to industrial development. They include security services, facilities support and cleaning services, equipment rental services, HR services and various office administrative and support services. All these services are characterised by a phenomenon called “kibsification”: tasks that have previously been routine work become more and more like expert tasks. A key driver in the development is the increasing use of information technology. The following figures show that there are many growing services associated with both facilities support and administrative services. The latter include, for example, travel, meeting and conference arrangements.

**Table 3.** Number of personnel in certain “kibsifying” service industries in 2007–2012 (Source: enterprise and establishment statistics by Statistics Finland)

Sub-industry	Year 2007	Year 2012	Growth 2007–2012	
security services	7637	9208	1571	20,57 %
facilities support activities	10997	14923	3926	35,70 %
cleaning activities	29346	34763	5417	18,46 %
rental and leasing activities	4250	4352	102	2,40 %
office administrative and support activities	7448	10048	2600	34,91 %

In the other main category of business-to-business services – industrial services – statistics are only available for installation, repair and maintenance activities. In 2012, they employed 19,680 people in Finland, which is approximately the same as in the five previous years.

Studies conducted at the University of Cambridge have made international comparisons of the service activities of manufacturing enterprises in 2007, 2009 and 2011 based on data drawn from the public OSIRIS database, consisting of enterprises' financial data<sup>14</sup>. The data sample includes approximately 10,000 industrial enterprises from all over the world and demonstrates that in all the years examined, some 30 per cent of industrial enterprises also provided services. In the comparison, Finland placed second after the United States: in the United States, the share of industrial enterprises producing services has ranged from 55 to 58 per cent and in Finland from 51 to 54 per cent. Thus, the share in Finland has not changed significantly from 2007 to 2011. However, in Sweden and Norway – where the share of industrial enterprises offering services was in 2007 much smaller than in Finland – growth was significant over the research period. The same applies to other major European countries, such as the United Kingdom and France, and also to Japan and China. According to the 2011 study, 19 per cent of Chinese industrial enterprises also produced services. Major industrial enterprises with strong service production include Rolls-Royce, Siemens, ABB, Alstom and Tyco.

Compared to statistics, the Cambridge study also provides a fuller picture of the different services produced in manufacturing. The largest group was design services, which were provided by a fifth of the industrial enterprises included in the study. The second most common service type was system and solution services that were produced by 15 per cent of the companies. These results confirm a finding from previous studies, according to which *knowledge-intensive services are growing both as services produced by companies themselves and as outsourced professional services*<sup>15</sup>. In other words, the growth of business services is not explained only by the outsourcing of certain activities, as has sometimes been argued. Services connected to retail and distribution and equipment maintenance (maintenance and repair services) were both produced by approximately 12 per cent of the companies examined. Other services produced included installation services, property and real estate services, transportation services, leasing services, consulting services, financial services, outsourcing services and procurement services, but these were much less frequent among the industrial enterprises.

### 3 Knowledge-intensive business services (KIBS)

#### 3.1 Characteristics of knowledge-intensive business services

The reason why KIBS firms have attracted so much attention is their role in innovation activities. The rapid adoption and application of new information are the lifeblood of these companies. Thus, they are active innovators, disseminate innovations and support the innovation activities of their customers<sup>16</sup>. One of their special features is *co-learning with customers*, to which the concept *knowledge-intensive*

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14 Neely et al., 2011.

15 Kox, 2002.

16 Miles, 1999.

refers (as opposed to knowledge-based activities which are these days relevant in all enterprises).

In KIBS firms, service production itself is also performed in collaboration with customers (Figure 1). In this form of business, there are only a few activities that the service provider can perform on behalf of its customer; these usually include routine tasks supporting the core service (e.g. bookkeeping tasks associated with financial administration). All consulting-type services require strong, two-way interaction for the customer to gain permanent benefits. It is not enough that the customer's representative who works with the consultant gets new ideas; instead, these ideas have to spread and become rooted across the customer organisation. The simple transfer of knowledge from the expert to the customer will not sufficiently support the customer's business. A key part of the service is to ensure that the customer has appropriate learning potential and that the customer has sufficient skills and competence at all stages of the process. That is also important for the KIBS firm itself, because the customer's lack of skills and competence may fundamentally prevent the service process from being successful.

**Figure 1.** Professional services as co-production between a KIBS firm and its customer

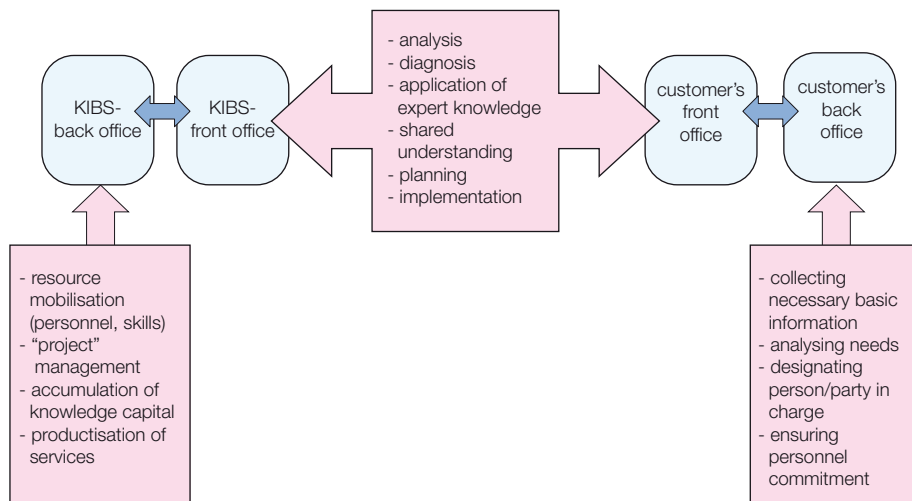


Figure 1 shows that interaction between a KIBS firm and its customer is a multidimensional and challenging process<sup>17</sup>. When analysing the customer's situation, it is essential to make tacit knowledge explicit – a well-conducted mapping of needs may in itself be an important service. In the application of expert knowledge,

<sup>17</sup> Gallouj and Toivonen, 2011.



key elements include integrating general knowledge with the customer enterprise's everyday knowledge and ensuring that both parties understand matters in the same way. When planning and implementing measures, service contents may vary from the development of an individual product to implementing major changes in the customer's organisation and business model.

To successfully connect the service provided to each situation at hand, a KIBS firm needs good baseline information from the customer and the customer's input in analysing its needs. It is important to clearly establish who is responsible for the service and to get management support: the more strategic the matter is, the higher in the organisational hierarchy decisions need to be made. On the other hand, it is also important to ensure that personnel at the grass roots level are committed to the development efforts made and the results achieved with the KIBS firm. When staff get to participate in the development work, they will advocate the outcomes of the efforts, thereby reducing the need for separate measures to put the results into practice.

One of the prerequisites of a successful service is that the KIBS firm understands the goals of the customer's business and the value chain or network in which the customer operates<sup>18</sup>. The KIBS firm is also responsible for navigating and driving the customer process towards the goals set, which requires competence in project management. Furthermore, it is important to continuously accumulate knowledge capital: information received through customer interaction should be refined into a form in which it can be shared and processed among experts. This requires finding words and concepts for ideas, beliefs and schemes and is closely connected to the productisation of services.

### 3.2 New trends and challenges in KIBS

KIBS have usually been defined as *activities performed by companies that focus full time on professional services*. These days, however, the line between KIBS firms and other service enterprises is blurring. As mentioned above, many service enterprises whose business has earlier been based on physical labour or routine tasks have expanded to consultancy services and are thereby "*kibsifying*". The trend is notable, for example, among accounting companies and in the security industry. The following section includes Finnish examples from both industries.

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18 Toivonen et al., 2008.

**Example 1:** The “kibsification” of traditional industries in Finland: accounting and security services

Accountor ([www.accountor.fi](http://www.accountor.fi)) is a fast-growing accounting company. In Finland, the accounting sector has traditionally been dominated by small companies. Today, Accountor is the leading provider of financial administration and payroll services in Northern Europe. It employs more than 2,300 experts in seven countries. In addition to its comprehensive range of accounting services, the company supports its customers in starting a new business and in enhancing the efficiency of their financial administration through new systems. It can also provide legal services in all phases of a customer enterprise’s life cycle. Customers can also hire a financial manager from Accountor.

Flexim Security ([www.flexim.fi](http://www.flexim.fi)) was established by seven small, traditional locksmiths. After the merger, Flexim launched in 2009 the concept of comprehensive service solutions in door security and automatics. Since then, the company has grown approximately 10 per cent a year and now employs some 200 people. In addition to installing and maintaining locks and security systems, Flexim provides planning, consulting and training services, administrative services and documentation services. Through the expanded offering, Flexim’s activities form a more integral part of its customers’ processes. Flexim actively follows service business research and uses 10 per cent of its turnover in R&D activities (e.g. with a focus on door automatics).

Because “kibsification” broadens and deepens the benefits gained by customers and the expertise of the service provider, it is a trend that should be increasingly highlighted and supported. The examples above also illustrate the clear trend of the *diversification* of services, which is also typical in core KIBS industries. Large international consultancy companies have the most diversified service offerings, but diversification could also be a potential source of growth for smaller domestic enterprises. For example, engineering offices that have had difficulties in recent years and “kibsifying” real estate service providers could take advantage of the opportunity, as the following international examples demonstrate.

**Example 2:** Diversification in international engineering offices and facility management enterprises

Interserve ([www.interserve.com](http://www.interserve.com)) is an international enterprise originally from the UK. For decades, it operated as an engineering office focusing on the construction industry. Today, its services cover the entire life cycle of buildings and infrastructure from sustainable development and energy questions to facility design and management services. It is noteworthy that the company also offers “softer” services, having developed several non-technological solutions. Examples include a nine-step change management programme that begins with drawing up a strategy and ends with ensuring employee commitment.

MITIE ([www.mitie.com](http://www.mitie.com)) is another British company aiming to be an outsourcing partner in facilities management services. MITIE’s comprehensive range of facilities management services provides important support for its customers’ business. The services range from cleaning to high-class specialist services, such as energy programmes and new workspace concepts for knowledge work. Customer-tailored service packages take into account the customer’s business profile and workplace culture.

*New areas of growth in the KIBS sector* are first and foremost associated with sustainable development and the new phase of digitalisation. Solutions supporting *sustainable development* require concrete planning, a significant increase in advisory and consulting services, and the development of methods to modernise impact assessment. It is crucial to move from the often narrow, technical and economic ex-post evaluations to anticipating impacts based on various criteria. The development of the energy sector is a good example of new needs. Smart grids, decentralised energy production and new sensor and monitoring technology require *new kinds of collaboration between production and consumption*. The effect home automation and smart urban environments have on energy savings largely depends on consumer behaviour and how the behaviour can be changed through energy systems and energy market regulation. New services are needed in metering, calculations and optimisation. Moreover, there is a need for consulting experts who understand the benefits and challenges associated with these new systems all the way to the end user and can provide related information to the different operators in the energy production and distribution chain as well as to policy-makers.

*The new phase of digitalisation* opens up new opportunities for KIBS that utilise large volumes of data. The concept *big data* refers to changes in three respects: the amount of data is multiplying, the transfer of data is becoming faster, and the sources and contents of data are becoming increasingly diverse. However, the majority of data are still contained in various sector- and theme-based silos, and connecting and combining these data could present considerable opportunities for

KIBS firms. They could also encourage their customer enterprises to use up-to-date and forward-looking information instead of merely analysing actual trends. The next example discusses a Finnish pilot service in which big data could be used to develop customer-oriented activities in SMEs.

**Example 3:** Big data service for developing business activities in SMEs

In 2014, Fonecta piloted a big data service called “Palvelumittaus”, service metering. Targeted at SMEs, the service identified the strengths and weaknesses of an enterprise’s customer service to enable the company to improve its service. The metering exercise examined the overall image customers form of the enterprise based on its advertising, website, customer service response time, sales situation and responses to complaints. In the examination, the enterprise’s service level was compared with that of its competitors to enable the enterprise to form a full picture of the industry.

Information about the quality of service was collected from various sources, including enterprise-specific service surveys to map customers’ experiences of different elements of service. SMEs could request their customers to fill in the questionnaire, and answers were also collected through Fonecta’s channels. Furthermore, data were gathered through a website quality meter that evaluated the comprehensiveness, search engine friendliness, scale and clarity of the company’s website. Data were also collected on how the calls connected through Fonecta directory assistance were answered. Attention was given to whether the calls were answered in the first place and how long the caller had to wait.

All data were gathered for the SME that purchased the service and for the whole industry in question, enabling the creation of benchmark data. Company- and industry-specific results were expressed as an overall score and according to each dimension of the RATER quality model (reliability, assurance, tangibles, empathy and responsiveness). End customers’ willingness to recommend the company was also considered. The customers received a report that included the company’s score, comparison to the industry, a verbal description and proposals for measures. One of Fonecta’s experts discussed the report over the phone with a representative or the entrepreneur of the customer enterprise.

The opening up of public sector data resources will support the creation of new services in the KIBS sector. In the EU area, the economic importance of *open data* is estimated to be significant in the next few years – in the order of tens of billions of euros. In Finland, for example the Finnish Meteorological Institute, the National Land Survey of Finland and some cities have already opened their data bases for public use. However, compared to many other countries, (such as the United Kingdom and the United States), business based on open data is still rather limited in Finland.

Therefore, measures should be considered to bring together the users and producers of data and stimulate market demand. The opportunities presented by digitalisation could also be utilised through social media. In *crowdsourcing*, an unlimited or limited group of people is allowed to participate online in brainstorming or evaluating specific matters, such as novel products or services or their preliminary plans. In this context, KIBS firms act as facilitators, as the next example illustrates.

**Example 4:** KIBS firm as a facilitator in crowdsourcing activities supporting innovation in the SME sector

InnoCentive ([www.innocentive.com](http://www.innocentive.com)) is a US-based company specialised in supporting open innovation. It has a global network of specialists whose expertise it offers to its customer enterprises wishing to outsource some of their innovation-related challenges. The work is performed through an online platform (Open Innovation Marketplace) where customer enterprises can enter their problems. The experts in InnoCentive's network can then choose the problems they are interested in and propose solutions. After choosing the best solution, the customer pays the person who suggested it a compensation agreed upon beforehand. InnoCentive facilitates the process by helping their customers to present their problems in clear and explicit terms and to determine the criteria used in evaluating the proposed solutions. It also acts as an intermediary in IPR matters. The service is particularly useful for SMEs, which are typically unable to make fixed investments in R&D.

Despite its strong growth, the KIBS sector is also facing certain challenges. The first key challenge is the *polarisation of enterprise sizes*. There are some large – mainly international – companies and numerous small enterprises in the sector. There are very few medium-sized enterprises, making it difficult for medium-sized companies to purchase services. Companies tend to prefer to purchase expert services from service providers that are roughly the same size as their own enterprise, because they believe that these companies will understand their problems best, in accordance with a “principle of equivalence”. The market void in medium-sized KIBS firms is another strong reason for supporting growth enterprises in the sector.

The other main challenge concerns *expertise in the procurement* of services. In Finland (and at the EU level), there has been a great deal of debate about the problems associated with public procurement. These include bureaucratic processes, lack of transparency and price-oriented procurement policy. Less attention has been paid to the fact that the procurement practices of private enterprises also have shortcomings that prevent the delivery of services based on co-learning. Both of these problems could be solved by introducing an advanced procurement model in which the customer organisation names a person responsible for the process, the definition

of the service being procured is performance-based, the procurement criteria are sufficiently diverse, the implementation of the service process is monitored and the customer relationship is based on trust and confidentiality. In more demanding services, the KIBS firm should be a strategic partner for its customer.

## 4. Services in the manufacturing sector

### 4.1 Different types of industrial services

Industrial enterprises can connect services to their tangible production either before products sales (design), in connection with product sales (training) or after product sales (maintenance). Services provided before or in connection with sales are not always clearly distinct from the business associated with the material goods. Especially in the past, these services have been included the price of products instead of separate pricing. As service activities have increased, these couplings have become problematic for the enterprises' revenue generation models: achieving sales may have entailed in-depth analyses of the customer's situation and training on the use of products may have required detailed understanding of the customer's processes. Thus, many industrial enterprises have begun to examine closer which services they provide and which of them could be given a separate price.

*The ways in which different services benefit the customer* are a good starting point for the analysis. Services can be grouped into services supporting the product, services supporting the customer's processes and services supporting the customer's business. Table 4 summarises the key characteristics of these service types<sup>19</sup>. Services that support the customer's business activities mainly involve consulting. They often include *integrated solutions* aiming to deliver a comprehensive solution that meets the customer's needs: physical products, services and information are combined in a way in which the overall value of the package is greater than the sum of its parts<sup>20</sup>. Offering solutions benefits the service provider, enabling it to form deeper, long-term customer relationships. It is also the most demanding service type since it requires a great deal of expertise, which is why some enterprises have been unable to offer them.

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19 Mathieu, 2001; Turunen and Toivonen, 2011

20 Brax and Jonsson, 2006.

**Table 4. Classification of industrial services**

	Services supporting the product	Services supporting customer's processes	Services supporting customer's business
Service objective	Ensuring the proper functioning of the product/equipment	Ensuring the optimal use of the product/equipment in the customer's environment, minimising downtime	Contributing to the success and growth of the customer's business activities
Customer relationship	Transaction-based relationship	Operating partner	Strategic partner
Knowledge required by the service	Basic knowledge of the product and customer enterprises	More extensive knowledge of different products, customers, production processes and operating environments	Extensive knowledge of the customer's value chain and the way services connect to it; knowledge about the customer's strategy
Service examples	Spare parts service, repairs and ordered maintenance	Proactive maintenance, periodic check-ups, continuous availability and on-call services, equipment modernisation	Consulting, training, financial advisory services, business optimisation and integrated solutions

To ensure that an enterprise can take the expertise required by different services, the organisation of services and customer relationships into account as efficiently as possible, it is important for it to *clearly structure its own product and service portfolio*. This structure serves as a basis, for example, when choosing the right decision-making level for negotiating and drawing up contracts – service solution contracts require higher-level communication than contracts for supplying spare parts. The scope, risks and duration of contracts also change significantly when moving from individual deliveries to services that include responsibility for the customer's processes and even its business operations. The following case is a concrete description of how service offerings can be organised based on customer needs.

### Example 5: Organising industrial services

Rocla ([www.rocla.fi](http://www.rocla.fi)) is one of the enterprises with the strongest service business in the Finnish manufacturing sector. During the past four years, its maintenance base has grown by 70 per cent. Rocla's goal is to be a pioneer in intelligent solutions and services for materials management. In manufacturing, its core business is manufacturing warehouse trucks. Its service offering includes a wide range of services from traditional maintenance to comprehensive solutions.

Rocla's service business is based on a clear organisation of customer needs and offerings. Customers are divided into basic customers, appliers, developers and delegators. The role of materials management gradually increases in the groups. For basic customers, it is a support function, for appliers and developers a function that is important for their activities and costs, and for delegators a competitive factor. Correspondingly, the service offering has four levels: at the basic level, the most important thing is providing the right product and an extended warranty for it. At the second level, key elements include predictable costs ensured by good service in the field. The third level includes the reliability and ease of use of the equipment, which requires knowledge of the customer's processes and risk management. Finally, at the fourth level, the customer outsources certain operations to Rocla, turning the customer relationship into a strategic partnership and making Rocla an integral part of the customer's business processes.

## 4.2 Developing and organising service business in an industrial environment

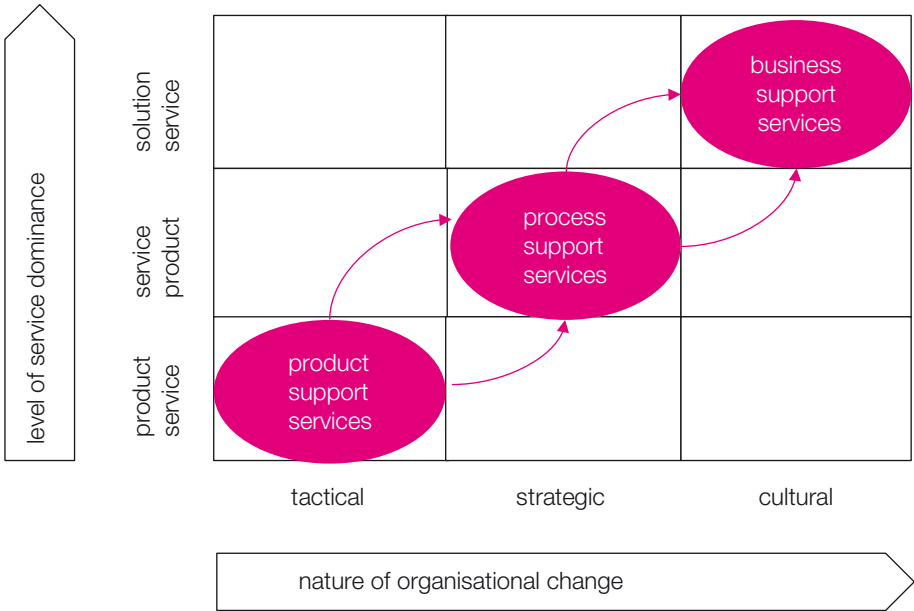
Developing service business in an industrial enterprise may be difficult because it requires the personnel to change its attitude and commit the change at different levels of organisation. Moreover, it requires practical measures to improve the monitoring of customer needs and to develop the necessary indicators. It is often best to begin development processes with services that support products, gradually moving on to services that support processes and business activities. This entails moving from a tactical to strategic and finally a cultural change in the organisation (Figure 2).<sup>21</sup> However, a gradual change may be unfeasible in certain industrial activities (e.g. process industry), because the services are not connected to the equipment sold. In these situations, service opportunities should be sought directly in supporting the customer's business activities, for example, by offering information on user experiences concerning the product.

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<sup>21</sup> Adapted from Cova et al., 2000, and Mathieu, 2001.



Figure 2. Changes service business requires in industrial enterprises



There are two main questions concerning the *organisation* of service business in an industrial enterprise: should the company itself produce the services or provide them through a subcontractor (“make or buy”) and should the services produced in the company be transferred to a separate unit or connected to the product business. There is more than one correct answer to both questions. In subcontracting, it is essential to ensure that the activities are customer-oriented and that information flows smoothly so that the parent company’s service promises are fulfilled in practice. Insufficient flow of information from the subcontractor’s representatives interacting with the customers (sales and maintenance) to the developers and decision-makers in the parent company may also prevent the parent company from gaining a proper understanding of its service business. If the parties are aware of these risks, agree on collaboration and monitor it, subcontracting – which is sometimes necessary – may be as good an alternative as producing the services in-house. In the internal organisation of service business, a separate service unit has often been recommended. However, the latest research has shown that the success of industrial services is largely dependent on the operating environment<sup>22</sup>, meaning that the specific situation of each enterprise determines which form of organisation is most appropriate.

22 Finne, 2014.

In addition to different types of service products, the fact that *service thinking also has a place in product business* has emerged as a topic of debate. The so-called service-dominant logic (SDL) emphasises that the main question is not whether to offer products or services but instead whether the customer relationship is based on mutual benefit<sup>23</sup>. In industrial thinking, the customer has often been seen as a target of sales, not as a partner. Yet, customers are important for enterprises – not only because of direct economic returns but also as creators of new network connections and as transmitters of reputation. For customers to be willing to help the enterprise in that respect and build a relationship based on trust, the enterprise must show genuine interest in the customers' needs and the situations in which the products or services are used. An individual product or service does not generate benefits in a vacuum but only after the customer has connected it to other products and services acquired from other providers. Consequently, *customers are always co-creators of value-in-use* together with the enterprises that produce the products and services. The following example illustrates how an industrial enterprise can apply a wider, service-dominant thinking in its own activities.

**Example 6:** Service-dominant logic in an industrial enterprise<sup>24</sup>

Kemppi ([www.kemppi.com](http://www.kemppi.com)) is one of the world's leading manufacturers of arc welding equipment; 90 per cent of its turnover comes from the international market. In addition to welding equipment, Kemppi has a long tradition of offering related services, with an emphasis on solutions that take into account the special nature of welding as high-skill work in which safety is critical. Kemppi's current service offering is a systematic whole in which the customer's processes are supported with a combination of human and data resources. The products and services are interconnected with intelligent information technology, enabling seamless collaboration among welders, supervisors and management, and across the customer's network.

The service constantly monitors the welding process and stores the related data on a server. The data and reports generated from it facilitate and automate the management of production and help to ensure that processes conform to the required standards. The bar code technology used in the system enables welders to add the parameters they need and introduce quality assurance methods. The system also gives welders instant feedback on their work. The data stored on the server can be connected to other relevant information to improve the quality and productivity of work, and they can also be used in training and consulting. Welded parts and their quality can be traced throughout the production chain.

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23 Vargo and Lusch, 2008

24 Korhonen, 2014.

### 4.3 Industrial Internet and services

The industrial Internet is based on technology that was developed in the 2000s, known as the Internet of Things (IoT). It means technology that enables machines and equipment to be seamlessly connected to information networks, making them an active part of business processes. The expression Machine to Machine communication (M2M) is used to emphasise the intelligence of devices. It also refers to communication without human intervention. These developments mean that machines and devices are increasingly equipped with various sensors and network connectivity opportunities.<sup>25</sup>

The industrial Internet refers to advanced applications in which complex combinations of machines and devices are integrated with sensors and software to enable the best possible performance. In these settings, industrial automation develops to a level in which processes are comprehensively monitored and regulated to reach and maintain optimal functioning. Machine to machine communication provides information via the Internet directly to terminal devices, enabling the telemetry of various meters, remote control of devices and mobile control of work. The data generated can be used, for instance, to minimise the spare capacity of devices, perform proactive maintenance, save energy and reduce emissions.

However, many detailed solutions, for example in sensor technology, still require more research, and the transmission capacity of information networks is a challenge, particularly in emerging markets. Furthermore, the collection, transmission, storage and analysis of data are major processes, because the number of transactions and data can be enormous. The costs of such operations have hindered the Internet of Things from becoming more commonly used. Progress requires collaboration between industrial enterprises, telecommunications operators and IT consultants. Thus, *services are an essential part of developing the industrial Internet.*

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25 Haller et al., 2009; Fleisch et al., 2009.

### **Example 7:** Services supporting machine to machine communication

The American telecommunications operator AT&T ([www.att.com](http://www.att.com)) and the conglomerate General Electric have announced collaboration in which devices included in GE's industrial Internet project communicate via wireless AT&T networks. In the project, employees are expected to monitor and control devices over the Internet. AT&T and IBM, on the other hand, have agreed on collaboration in which the telecoms operator will develop methods for gathering data on devices connected to the Internet and communicating the data using wireless transmission. IBM receives the data in its cloud computing services and analyses the data to generate useful information.

CGI (Consultants to Government and Industry, [www.cgi.fi](http://www.cgi.fi)) is a Canadian company that has a long history in the IT sector and is nowadays the second largest IT service provider in Finland (400 experts). In addition to IT infrastructure services, CGI provides consulting services concerning, for example, business process management. A new field of operation involves raising customer awareness of the opportunities presented by machine to machine (M2M) communication. In addition to M2M consulting, CGI offers a shared platform that enables M2M business and an interface for collecting M2M data and connecting several M2M business applications. Furthermore, CGI provides connectivity platforms on which its customers can build their own high-performance M2M platforms.

The industrial Internet enables new ways of operating in enterprise business activities and in collaboration between enterprises and their customers, including end users. Yet, debate on *business models utilising the industrial Internet* has been surprisingly limited. In Finnish debates, the focus on technology has been striking. In terms of services, the use of the industrial Internet has often been limited to the most traditional services: remote control has been used to enhance maintenance services supporting products. Reforms have been taken in small steps, and the processes have been unconnected. The approach has supported the view that there is nothing new in the industrial Internet because devices have been interconnected since the 1990s. Many enterprises are still far from adopting a more comprehensive approach to change, building diverse customer-oriented business activities on the industrial Internet.

Research is ahead of practical applications. In recent years, particular emphasis has been given to multiway connections associated with the industrial Internet and their effects on business models. Instead of focusing solely on the interaction between a producer and a customer, an ecosystem approach has been highlighted. This can mean either that different operators examine their own business models as a part of a wider whole or that joint efforts are made to direct the development of

the whole ecosystem in a jointly agreed manner<sup>26</sup>. In both cases, the collaboration benefits all parties, and the main change compared to before is that *collaboration crosses sectorial boundaries*.

It would be important to promote cross-sectoral collaboration through regulation and by supporting the related initiative, because such collaboration is difficult. It is also unclear which party should be responsible for building the network. Furthermore, it is still undetermined how the activities of small enterprises in the network could be made profitable and how to ensure they serve the whole system. The SME sector is nonetheless considered an essential part of the network based on the industrial Internet.

Certain problems also exist within enterprises. Organisational structures and operating models do not support the introduction of the industrial Internet; since the process is not an individual R&D project, it is often unclear in enterprises whose responsibility the development tasks are. There is also some concern about being unable to protect innovations associated with the industrial Internet. There are few incentives to sell integrated solutions, and selling them is far from easy. The products are not ready-made packages, and users are often unaware of their application potential. Thus, measures should be taken to support both the supply and the demand side. One of the key drivers of development is *the global nature of IoT business*, which has already attracted big international players to the market. With their own business models, these enterprises have shown how the Internet of Things enables acquisition of data on end user needs and opens up new value creation opportunities for direct B-to-B customers.

## 5 Services as scalable products

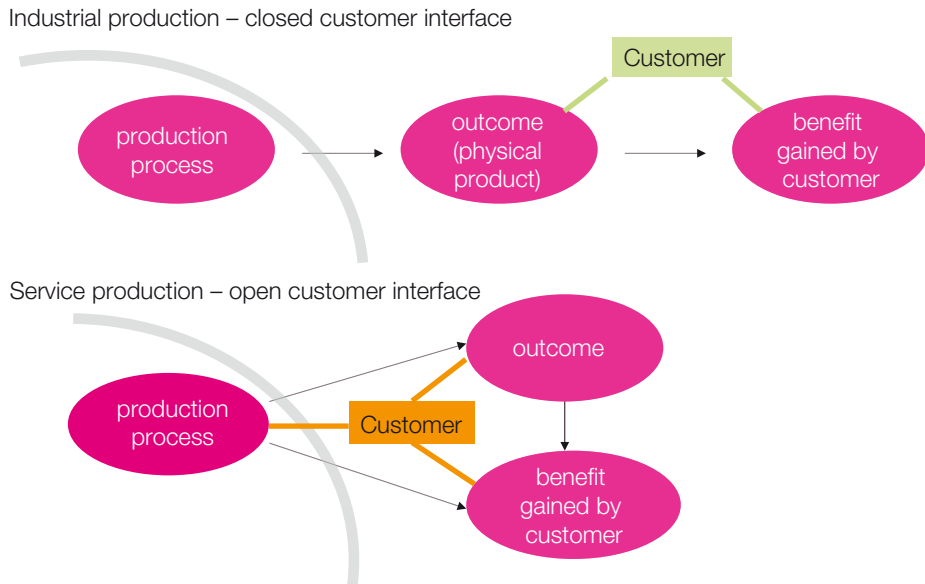
### 5.1 Combining customer orientation and efficiency

In industry and services alike, customers play a key role in connecting the value generated from different products and services. However, there is also an important difference between material production and service production: *in services, the customer is usually involved in the production process, which is rare in industrial manufacturing*. During service provision, the customer is more or less involved in certain activities. Moreover, unlike in physical products, *in service production, the customer benefits directly from the process and its outcome*. How the process goes may often be more significant for quality than the outcome of the process (e.g. in consulting and training).

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<sup>26</sup> Leminen et al., 2014; Westerlund et al., 2014.

Figure 3. Basic difference between industrial and service production<sup>27</sup>



Customer participation in the service production process means that services always include certain degree of tailoring. The key question is to *what extent services should and can be tailored* still ensuring the efficiency and profitability of activities and sufficient quality of service. If this question is not asked and answered, the service will remain dependent on situational factors and accusations of poor productivity are justified. The *productisation of services is an option* that addresses the problem, revealing the risk of inefficiency. At the same time, it enables the problem to be solved in a way that is not mechanically imitating the industrial process but preserves the natural characteristic and special strength of services: the close relationship with the customer.

Productisation, which is also called “conceptualisation” and “systematisation”, is a *necessary precondition for the scalability* of services. In productisation, the aim is not to create an assembly line, identically repeating the process. Instead, the goal is to *reduce customer-specific variation* in the providing organisation to a jointly determined level. In addition to the efficiency gains associated with reduced variation, the changes also indirectly increase efficiency by improving the organisation’s capacity to learn. If services are not developed into products, each service process has to be started from scratch and the practical experience gained in service situations is not accumulated. Productisation helps eliminate intuitiveness, randomness and the loss of lessons learned – *it promotes shared understanding in service organisations*.

<sup>27</sup> Brax and Toivonen, 2008, adapted from Grönroos, 1990.

Productisation and customer orientation are not opposites; instead, productisation supports customer orientation by improving the *uniform quality of services*, which is often difficult to achieve due to the wide range of customer needs and the varying skills, experience and attitudes of service personnel. Based on a jointly agreed operating model, a service organisation has significant influence over the latter factors, ensuring that the quality of service does not depend on the individual employee serving the customer. Productisation also enables the customer to have a clear understanding of the contents of the service, and thus solves the problem associated with the fact that *in services, customers always make purchase decisions based on promises*.

For the organisation providing the service, productisation clarifies what the organisation is selling, to whom and at what price. Productisation also often has a positive impact on innovation. The associated customer orientation, in particular, helps the service enterprise to *question the operating models established in the field* and to broaden the scope of their activities beyond common solutions. The systematic description of a service helps generate ideas for developing and reshaping the service – *innovation and systematic operating models are mutually reinforcing*. The productisation of a service can also involve developing the division of duties between a customer and a service provider, the methods of collecting customer data and the forms of customer participation.

## 5.2 Productisation of services: clarifying the offering structure and processes

Services can be developed into products in different ways, and the process may involve a light or a profound transformation. However, quick processes focusing on slogans to increase sales should not be considered genuine productisation – even a simple productisation process will require the utilisation of some systematic approach and tools. Figure 4 illustrates a three-phase process from which different elements can be chosen for the actual work, depending on the need for productisation and on the resources available.

**Figure 4. Phases of the service productisation process**

Launch	<ol style="list-style-type: none"> <li>1. Shared understanding of the objective – customer orientation and efficiency</li> <li>2. Structuring the organisation's overall offering to clarify relationships between services</li> <li>3. Customer segmentation</li> </ol>
Description of services	<ol style="list-style-type: none"> <li>4. Analysing the service structure in detail: core, support and additional services</li> <li>5. Describing the processes of selected services (blueprinting)</li> <li>6. (Re-)evaluating resources</li> </ol>
Implementation	<ol style="list-style-type: none"> <li>7. Drawing up a service promise and/or promises concerning individual services</li> <li>8. Pricing the services and developing monitoring indicators</li> <li>9. Training the personnel and ensuring their commitment to the common approach</li> <li>10. Describing the productised services for customers (e.g. website and brochures)</li> <li>11. Monitoring and managing the life cycle of services: reformed and new services</li> </ol>

The productisation process begins with setting an objective, clarifying the overall offering and segmenting the customer base. Combining efficiency and customer orientation are core considerations in defining the objective. The second main phase of the process involves describing the service, including the definition of the service structure, processes and the resources available. It should be highlighted that each enterprise has to decide individually the extent to which it tries to conduct its activities in a unified manner. *This extent depends on the nature of the service products and the strategy and operating environment of the enterprise.* In the third phase, the focus is on implementation: drawing up service promises, pricing the services, ensuring the personnel are committed to the new operating method, marketing the services, monitoring, and managing the life cycle of the services.

Service descriptions are a key tool in reaching a shared understanding within the service organisation. Due to the intangible nature of services, even *finding common words and concepts for ideas, beliefs and schemes* can be challenging. Providing these shared words and concepts is precisely the benefit gained through service descriptions, but the related discussions can also considerably promote shared interpretations and even help to reconcile different interests.

The manner of describing the service process is of utmost importance in the customer-oriented approach. It is noteworthy that *from a customer's perspective the service process is very different than from the service provider's viewpoint.* In connection with the service, the customer does many things that the service provider may not even think of without making particular effort. In enterprises, process descriptions are often descriptions of internal processes and connected to quality systems. They



should be complemented with descriptions of what is expected of customers in the service situation, and before and after it.

Describing a process from the customer's viewpoint often highlights many critical questions. The first of these is the manner in which customer needs are mapped. Customers cannot be expected to present their needs as a complete list; instead, their needs should be identified in dialogue. The needs should also be reconciled with the opportunities available so that customers have realistic expectations for the service. The other key consideration is the clear division of tasks: the customer should be explained what the service provider does and what the customer's own responsibilities are. Tasks that come as a surprise to the customer during the service are a common reason for poor quality assessments. If the service involves subcontractors, it has to be ensured that customers do not notice any bottlenecks. Customers should be kept up to date about what happens next and informed of any changes. To ensure good quality, potential difficulties in the service should be foreseen and the customer's activities facilitated.

The majority of Finnish enterprises that have undertaken a productisation process have said that clarifying the overall offering and making process descriptions – which are easy to learn and do not take an unreasonable amount of time – have significantly helped them to clarify their own business idea and combine a customer-oriented approach with efficiency targets. Usually, however, enterprises have needed help from external consultants, and the availability of such help is insufficient. Service productisation is one of those areas in which *the amount of immediately applicable research data exceeds its application in practice*.

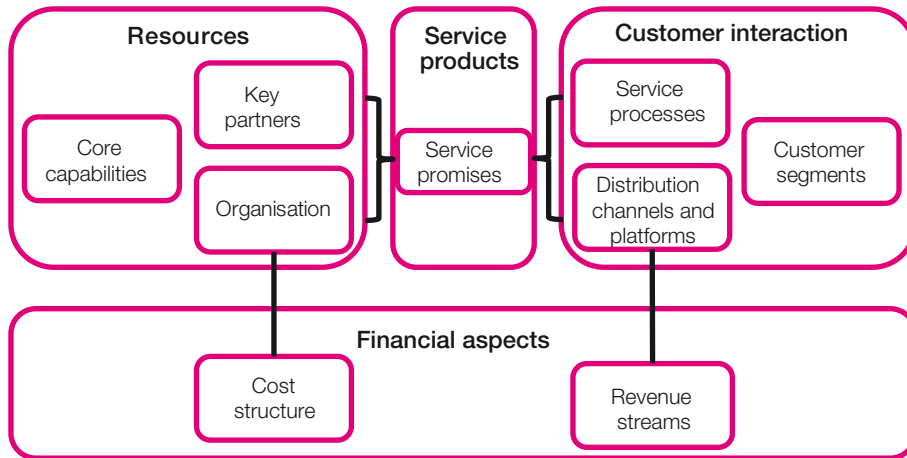
## 6 Service business models

### 6.1 Relationship between customer value and market value as the core of the business model

In an enterprise that provides services, productisation is a special task connected to the intangible nature of the offering. An enterprise also needs an overall strategy, which is given a concrete form in the enterprise's business model. It describes *the way in which the enterprise creates value together with its customers and persuades customers to pay a sufficient price for products and services*. The business model shows how the enterprise defines the relationship between the value gained by the customer and the enterprise's own market value to achieve a sufficient flow of income. It is clear that all enterprises define the relationship at some level. However, a systematic and comprehensive description helps the enterprise to keep the different parts of its business together and to see their relationships. It facilitates the internal and external communication of the organisation's business principles and methods. The business model approach emphasises the fact that the enterprise has several *alternatives in the same operating environment and that its success is largely dependent on the way it uses its resources*.

One of the most well-known business models is the canvas developed by Osterwalder: its main elements include descriptions of the kind of value the enterprise creates and to whom, how and with what financial consequences the value is created<sup>28</sup>. In Figure 5, Osterwalder's original model has been adapted to fit the customer-oriented approach and the context of services.

Figure 5. Business model building blocks



The service products offered to customers and the related *service promises* are at the heart of the business model. A service promise helps the enterprise to stand out in the market; therefore, it is important that the promise clearly addresses issues that interest customers: the quality, customisability and ease of use of the service, time and cost savings and novelty value.

Another element of successful business is managing interaction with customers. Issues relating to this aspect include *service process management*, *customer segmentation* and *designing channels for communication with customers*. The productisation of service processes supports their management: it helps an enterprise to understand how its own process should be connected to the customer's process. Segmentation is a key way of reducing customer-specific variation and can be done, for example, based on the nature of customer relationship or by examining the relationship between the customer and the service. The former often refers to a division into key customers, basic customers and occasional customers. In the latter, the aim is to understand the purposes for which different customers use the services. Sometimes segmentation based on external factors (e.g. by industry) can also be a functional solution. A careful analysis of distribution channels is important when a

28 Osterwalder, 2004; Viljakainen et al., 2013.

service is sold through a partner; it is often a critical part of international business activities. Alongside distribution channels, *service platforms* enabling customers to independently use a service have become increasingly important.

Examining resource-related factors is essential to ensure that service promises are realistic. These factors include the service provider's own *core capabilities*, *key partners that provide more expertise and resources*, and *the manner in which the activities are organised*. The scale of the enterprise's own resources is often less important than *how the resources are used*. In this context, more courage is needed in development activities – traditional R&D activities are too often targeted at the existing market context in which all operators try to achieve an “extra piece of the same cake”. Studies on successful entrepreneurs demonstrate that the objective does not have to be nailed down at the beginning; it is more important for the enterprise to clearly define what it can do and what it wants to achieve<sup>29</sup>.

Of the financial aspects of a business model, the first one concerns *the cost structure*. In this context, it is important to determine whether cost benefits are sought through economies of scale or economies of scope. In terms of *revenue streams*, pricing plays a key role. In pricing, the special challenges in services include *the services provided free of charge to attract customers*. Their cost effects should always be assessed. It should also be taken into account that it may be difficult to introduce charges for the same services later on. In services, the basic pricing alternatives include hourly rates, service package or module-based prices and so-called success fees, in which the price is based on the benefit gained by the customer. The last model entails great opportunities but also includes risks because the customer's own actions may affect the benefit it gains.

A business model can also be used to *describe changes in entire industries*. The following example illustrates how the on-going changes in the media sector (affecting magazines in particular) can be analysed as a change towards a more service-dominant business model.

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29 Read et al., 2009.

**Example 8:** Transformation of the media sector as a changing the business model<sup>30</sup>

The media sector has traditionally been very product-oriented. Today, the sector has rapidly become more service-dominant, which is reflected in the adding of services to the product offering and as an emphasis on customer value. The changes in the practices employed by magazines are a concrete example of the changes taking place in different parts of the business:

- Emphasis has shifted from printed products to brands that are repeated in different media: in addition to magazines, also in online and mobile contents and different merchandise.
- Value propositions are becoming stronger: the goal is to be a part of readers' daily lives.
- There has been a shift from mass markets to segmented and even niche-type markets.
- Readers are considered partners who are encouraged to create contents, for example, through social media.
- Content is also created for partners' channels, and reader communities are supported with online platforms.
- In addition to journalistic expertise, key resources are also considered to include customers and particularly semi-professional amateurs like bloggers.
- In the sector, a new ecosystem is emerging: in the new system enterprises also have partners outside the media business.
- In internal development activities, there has been a shift from traditional R&D activities towards experimenting.
- To control costs, basic costs are minimised and luxury products produced.
- The revenue stream consists of many small streams – whereas it used to consist of a few major streams (advertisers).

## 6.2 Network business and service enterprises' different roles in networks

Networking among enterprises has become a major phenomenon in modern business. Co-creation of value and co-development have been considered to help enterprises succeed. The key components of the competitive advantage of networks have been suggested to include economies of scale, optimal division of markets among network members and co-learning. To achieve these advantages in practice, it is important to invest in the mutual coordination of competence areas and in the development of communication and resource policies. The varying roles of different operators are a key challenge in networks: in a network, an enterprise can be a customer, partner or a competitor depending on the situation (e.g. a project).

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30 Viljakainen, 2014.

Network structures and operating models have been described based on value chain models (supply and demand networks) and as systems including both suppliers and customers<sup>31</sup>. Networks are often self-organising, but deliberately built networks have also been identified, particularly among strategic networks. In addition to strategic networks, other network forms include operative and regional networks and virtual enterprises. Operative networks are used to complement resources, while regional networks are communities based on social relations. Virtual enterprises represent collaboration between independent enterprises; the collaboration is based on shared values and its aim is to produce a specific product.

In terms of management, networks have traditionally been divided into networks led by leading companies and more open networks formed by equal partners. Supply networks have usually belonged to the first category and development networks into the latter. The management model of a network is important, and in addition to management by leading companies and shared management a third alternative model has been identified: administrative management. It means that all coordination tasks have been concentrated to an operator specifically chosen for the task. This operator is often called a *network integrator*.

Network integrators are found in industrial and service business alike. The integrator often combines physical products with services, forming comprehensive solutions for customers. Another important task includes communicating information on the needs of other partners to operators in different parts of the network. The integrator role can be played by producers as well as service enterprises, as long as the operator has sufficient coordination skills and understands the substance of the network's objectives. KIBS firms have been considered to be among the most potential integrators because they are able to generalise and apply knowledge and usually have numerous contacts among different operators.<sup>32</sup>

The role of an integrator is a challenging one; therefore, it is important to also be aware of other ways for an enterprise to reach a strong position in a network. One of the key tasks is to analyse the points in which the enterprise's offering creates most value and is the most profitable for the enterprise itself. The so-called *value-offering point* (VOP) is the point in a value chain or network in which the demand and supply meet. In other words, it describes, in the framework of a value chain or network, the manner in which customer needs are met. These days, many business model innovations are a result of changing the value-offering point. It is particularly typical to try to move from *order-based service offerings to services that include planning*. This shift means that the enterprise's activities focus on the beginning of the value chain where it is possible to gain a deeper understanding of the customer's needs, thereby increasing the value added and profit of the service.<sup>33</sup> Figure 6 includes examples of three Nordic KIBS firms operating in the Chinese market<sup>34</sup>. The first company is a

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31 Valkokari, 2009.

32 Miles, 2005.

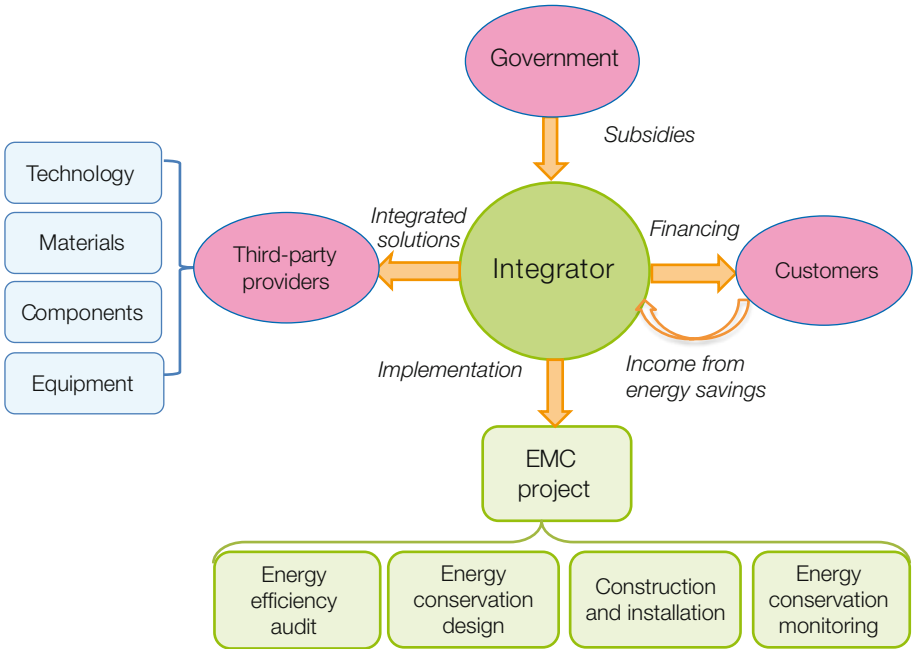
33 Holmström et al., 2001.

34 Bao and Toivonen, 2014.

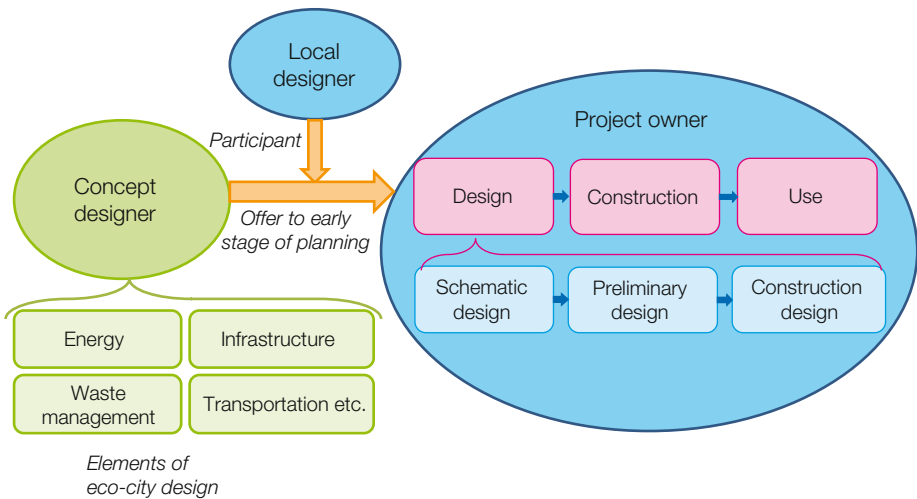
network integrator, and the second has positioned itself upstream in the value chain. The third company is a “multi-stage actor” applying a business model with several offering points. This alternative can be used when the other two are unfeasible.

**Figure 6.** Examples of KIBS firms’ business network positions in the Chinese market

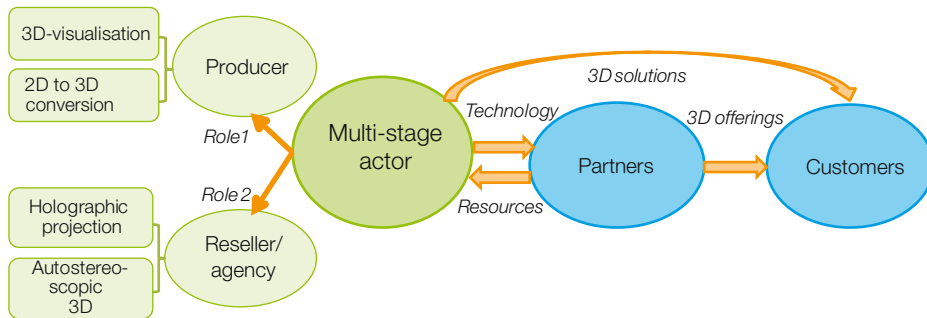
a) Green Stream Network as an integrator in energy projects



b) Eriksson Architects as a concept designer in eco-city projects



c) Stereoscope as a multi-stage actor in digital content creation



**Example 9:** Alternative positions of KIBS firms in the Chinese market

Green Stream Network acts as a network integrator and has specialised in Energy Management Contract (EMC) projects in China. The projects are based on a contract model developed for the energy conservation business: the savings achieved are divided between the customer and the supplier. Green Stream Network coordinates the products of third-party suppliers, providing its customers with integrated solutions. Its role is based on strong expertise in energy issues and long-term presence in China. The profitability of its activities is further increased by the fact that the Chinese government supports the energy saving business with tax allowances and facilitated access to loans.

Eriksson Architects is trying to gain a strong position upstream in the value chain. It operates as a concept designer in Chinese eco-city projects, in collaboration with a local operator. These projects have received a great deal of attention in the Western countries due to their massive scale and the broad contents of the concept. It includes, for example, respecting the principles of sustainable development in the construction of infrastructure and the production of energy, preserving the diversity of urban nature, and ensuring the sufficient production of services. In these projects, a concept designer is able to influence the basic decisions in the early stages and the types of technology and services needed during the implementation phase.

Stereoscape operates in the creative sector. It started with 3D movie productions, but has expanded its offering to include a wider range of marketing and visualisation solutions based on digital and interactive technologies. In the Chinese market, it aims to use two different value creation models. It tries to find niche markets in which it can sell solutions to customers for whom price is not the most important consideration. On the other hand, it also aims to operate in lower-price markets by using its own technology but local labour.

## 7 International service business

Services have traditionally been considered bound to the domestic market, but in recent years, they have gained a bigger role in the international market. Production and consumption have been inseparable in terms of time and location, but the development of information technology has broken this bond, which has traditionally been considered an inherent part of services. More knowledge has been gained concerning the different forms of internationalisation, and systematic development has resulted in wide-spread service concepts.

The KIBS sector is one of the most international service sectors and an example of the benefits internalisation can bring to the overall development of a sector. In countries where the KIBS sector is strong (e.g. the Netherlands), it is also international.<sup>35</sup>

The internationalisation and growth of enterprises usually go hand in hand; alongside growth, internationalisation is also important for the development of skills and competence. Best practices identified in other countries promote the broadening and deepening of enterprises' competence bases.

### 7.1 Forms of internationalisation in service enterprises

There are three main ways for enterprises to operate internationally: *exports*, *foreign investments* and *operating through third parties*. In exports, goods or services are sold abroad from the country in which they have been produced. Foreign investments refer to direct investment and the international presence gained through full or partial ownership based on these investments – in practice, the presence often takes the form of branch offices or subsidiaries. When operating through a third party, an enterprise's presence abroad takes place through the service provider's representative positioned between the provider and the customer.

Each main form of operation includes several alternatives. Service exports are carried out either *through an ICT network* or a person travelling abroad. In the latter case, *export projects* constitute a specific intermediate form between exports and foreign investments. Export projects mean a fixed-term temporary presence in the target country and usually involve several travelling persons. Unlike in investments, the goal is rarely to become permanently established and expand operations in the target country; instead, enterprises use the same expertise with slight modifications in different countries. In foreign investments, an enterprise begins operating in a foreign country by setting up its own branch or subsidiary or by establishing its presence through *an acquisition or a merger*, which has become increasingly common in recent years. The following example illustrates the foreign investments of a service enterprise and demonstrates how important a productised concept can be to success.

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35 Kox, 2002.



### Example 10: Service enterprise's internationalisation through foreign investments

Established more than 160 years ago, Lindström ([www.lindstrom.fi](http://www.lindstrom.fi)) is a Finnish company that has traditionally been known for laundry services. Today, it receives most of its revenue from textile rental services (e.g. restaurant textiles) and related support services. Particularly in workwear and protective equipment, Lindström supports its customers in ensuring occupational safety and building an image. Lindström began its internationalisation in the 1990s, and it currently operates in several European countries, China and India, where it has established service centres offering workwear rental services in several cities.

In 2002, Lindström patented its modular laundry – a concept that is unique even at the international level. The modular laundry enables gradual, cost-efficient expansion abroad. The concept has been expanded particularly in Europe, ensuring coherent, high quality in different countries.

The main forms of international operations through third parties include *franchising, licensing and other partner arrangements*. In all three forms, a network of third-party operators serves customers under a common brand and common quality standards, but there may be country-specific differences in their service offerings and service delivery methods, depending on the operating model. In franchising, these differences are small, while partner arrangements may involve more considerable variation. In the service sector, franchising is most common in productised personal services but it is also used by consulting companies (e.g. recruitment, management and quality system consultants). Licensing is usually connected to IT solutions. Less tight partner arrangements are the most common form of third-party operations. They may include a common brand, subcontracting collaboration, common acquisition of customers, common R&D and training, and partially common working methods.

## 7.2 Paths of internationalisation

Service enterprises can go global by following a client, independently and gradually, or independently and rapidly. Services have traditionally been thought to follow one of the two first-mentioned paths. In the past two decades, however, service industries have seen the rise of companies that have been “born global”. The strategies of these companies are based on international operations.

The benefit of *internationalisation with a client* is that it enables the service enterprise to have information about the market and contacts in the target country right from the start. That reduces its risks and enables it to invest in the target country more quickly and to expand its operations even to faraway countries. Choosing the first target country is easier when following a client, and multinational clients can help service enterprises to move to several markets. On the other hand, the client's strategy may impact the service enterprise's market decisions and often

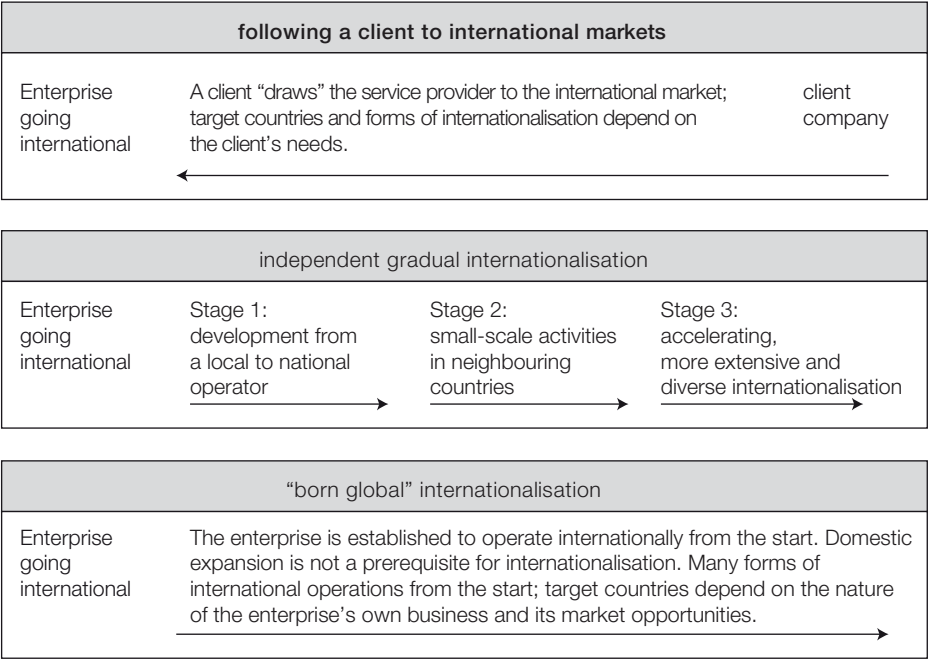
also the forms in which it operates in the markets. Being dependent on the client may make the enterprise's operations vulnerable if the client's volume of orders is seasonal or gradually diminishes. Thus, a service enterprise that follows a client to international markets, should also actively analyse its own market opportunities and establish its own contacts.

*Gradual independent internationalisation* may concern either the selection of markets or the forms of operation, or both. In the selection of markets, it means that enterprises begin their international activities in countries that resemble their domestic markets. Similarities in language, education, business practices and culture facilitate establishing customer relationships and building trust, particularly if they require personal interaction. In the forms of operation, the gradual approach means that enterprises begin with low-risk activities (e.g. through third parties) and gradually commit more resources to the target country. Primary reasons for choosing this approach include the importance of experiential knowledge of international operations and the fact that the accumulation of such knowledge takes time. Taking the path of independent internationalisation requires enterprises to establish customer relationships, find partners and build credibility and trustworthiness.

Nowadays, service enterprises may choose rapid internationalisation, expanding simultaneously to several countries or making major investments in a certain country all at once. If the investments are made at the beginning of the internationalisation process, the enterprise will have important network connections and competence resources right from the start. Rapid internationalisation also often involves experiments: enterprises may simultaneously try several products and markets and continue their activities in the most favourable environment. However, rapid internationalisation is challenging because developing service products and accessing new markets requires resources and personnel with expertise.

The *"born global" model* has been applied, for instance, in trade and KIBS firms. These companies typically begin their operations simultaneously in their home country and abroad – or even first abroad. Internationalisation takes many different forms: exports, investments, acquisitions and contract-based collaboration. In these companies, the management usually have already acquired international experience, which promotes rapid progress. Born globals are often small innovative enterprises operating in fields with global markets. They aim to attract pioneers from all over the worlds as their customers. Thus, the number of clients in one country need not be large to ensure sufficient demand. For the enterprises, knowledge of global operating methods is more relevant than information about the special characteristics of different markets. They quickly build extensive networks that enable them to operate locally in different markets and compensate for their own limited resources.

Figure 7. Three main paths in the internationalisation process



In practice, *the different paths of internationalisation are not mutually exclusive*; instead, the process may include features of several paths in different stages and different countries. Born globals may take their first international steps in neighbouring countries and only after that rapidly penetrate the global market. Cautious companies often speed up their internationalisation process when they have accumulated experience. Even though their progress is gradual, they may “skip” certain stages, and different enterprises may take the steps in different order. For example, many traditional Finnish engineering offices have first targeted countries where the operating environment is radically different from Finland. An enterprise may also follow a client to a specific market but select its form of operation independently.

7.3 Factors affecting the choice of internationalisation model

The internationalisation model chosen by an enterprise depends on *the nature of the service, the target market and the service provider's own resources*. As regards the nature of the service, the most important question is the extent to which production and consumption are separable, geographically and/or temporally. If they take place simultaneously, the service provider must be located close to its customers. In these cases, subsidiaries, export projects or travelling to the customer are suitable options. If production and consumption are separable, services can be delivered through

collaboration contracts or using ICT solutions. In knowledge-intensive services, information can usually be transmitted electronically or through third parties, but local presence is required if the interpretation of information and tacit knowledge play a key role in the service.

Factors relating to target markets include the markets' level of internationalisation, scope and stability of demand, cultural factors and existing barriers to trade. If the customers in the target market are used to international operators, it is easier for a foreign enterprise to begin operating in the market. It is important for enterprises operating in several markets to be prepared to even out business cycle and other fluctuations by transferring resources between markets (also between domestic and foreign markets). Awareness of existing trade barriers – including cultural hidden barriers – is highly relevant. The barriers may limit the mobility of personnel and access to distribution channels and influence the protection of intellectual property rights. Professional services are closely regulated in many countries.

An important new aspect is *the demand for services in emerging markets*. Interest in services – including KIBS – has rapidly increased particularly in China, reflecting the ongoing structural changes in the economy. To succeed, it is essential to be aware of cultural and developmental differences, but it is equally important to avoid simplified interpretations. For example in China, services are still only beginning to be recognised as a respected business; within the service sector, however, demand is diverse and concerns, in particular, solution provision.<sup>36</sup>

For service providers, the model of internationalisation also depends on existing contacts and networks, material resources, skills, competence and experience. If the enterprise has a wide range of skills and competence, it can operate in relatively extensive markets even in individual target countries, while enterprises with narrow and highly specific expertise can target small customer sectors in several countries. Experience in internationalisation includes three elements: business knowledge (customers, competitors and market situation), institutional knowledge (administration, values and regulation in the target country), and knowledge of the internationalisation process itself, in which understanding one's own capabilities plays a key role.

The ability to *control the quality of the service and to control risks* is a key starting point in selecting the form of international activities. Service exports involve the lowest risk, and certain forms of export – export projects and travelling to the customer – also enable a relatively high level of control. To save human resources, these forms are being increasingly often replaced with electronic channels. At the other extreme are foreign investments: they involve the greatest risks but may still be necessary if service quality is critical to the enterprise. Operating through third parties represents the middle way: the levels of risk and control are higher than in exports but lower than in investments.

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<sup>36</sup> Bao, 2011.

Enterprises have to make *strategic decisions* when considering internationalisation, entering the international market and carrying out international activities. First they need to select the markets and the forms in which they will operate in the markets. Later stages will involve decisions concerning practical questions in the target countries and more general questions faced in international markets. Key issues include ensuring the continuation of the first customer relationship, acquiring new customers, expanding the enterprise's expertise to a wider market segment and being able to meet the growing demand in the target country. The early stages of internationalisation call for perseverance, as success often requires several experiments and learning experiences. However, a carefully planned withdrawal from a market may sometimes also be a reasonable alternative.

## 8 Policy conclusions

### 8.1 Service typology based on operating logic

In addition to industrial classifications, since the late 1980s services have also been classified according to other features. The most well-known classification models include the *classification based on the nature of innovation activities*, in which services are divided into (1) supplier-dominated services, (2) production- and scale-intensive services, and (3) knowledge- and technology-based services<sup>37</sup>. Supplier-dominated services include public services (e.g. health care and education), personal services (hotels, restaurants and domestic services) and retail trade. Production- or scale-intensive services include basic customer services, the processing of information and services depending on physical or information networks (transport, wholesale trade, finance, insurance and telecommunications). Knowledge-based services include KIBS.

The above classification does not take into account the services produced by industry, not to mention the extensive service systems that have emerged in recent years. In the classification of private services presented in Table 5, these two service groups are added to the original three classes and services using physical and electronic networks are separated. The main service categories formed in this way are analysed in relation to three central forms of enterprise operating logic: business model, internationalisation model and innovation activities. Thus, the original classification has been *expanded from an innovation viewpoint towards industrial policy*. In each service category, the table includes the main challenge concerning the business model, typical forms and paths of internationalisation, and the special characteristics of innovation activities. Due to the rough level of classification, the descriptions are simplifications: each category also includes individual enterprises with operating methods and challenges that are characteristic of some other category. The main purpose of the table is to highlight certain key aspects to which measures could be targeted to support the development of a large number of enterprises.

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37 Soete and Miozzo, 1989.

**Table 5. Proposal for a service classification taking into account key forms of operating logic**

	Main challenge in the business model	Forms and paths of internationalisation	Special characteristics of innovation
knowledge-intensive services (KIBS)	strong customer involvement in the service process	following a client, export projects, chains and “born globals”	dissemination of innovations, conceptualisation
services using physical distribution networks (logistics and transport)	ensuring subcontractors deliver on the service promise	internationalisation through partner networks	value chain innovations (value-offering point)
services using electronic networks (ICT, banking and insurance)	connecting scale efficiency to customer orientation	electronic exports, licencing, international chains	use of big data
consumer services (retail, personal services and domestic services)	individual experiences play a key role in service evaluation	foreign subsidiaries, electronic exports, concept exports	co-development with consumer communities, use of social media
industrial services	separating vs. combining physical products and services (incl. price)	foreign subsidiaries, representation through a third party	expanding product-related R&D experience into services, IoT
systemic services (e.g. energy supply, waste management and smart cities)	managing complex entities in value networks consisting of different operators	export projects, a few experiments with the role of an integrator	modelling of and support and indicators for systemic innovations

In terms of business models, the classification highlights as the key characteristics differentiating services the intensity of customer participation, the challenge of keeping the service promise, combining scale efficiency with customer orientation, the importance of individual customer experiences, combining material and immaterial products and managing systemic entities. Customer participation is most characteristic of KIBS firms, and it requires a clear division of duties between the service provider and customer. Keeping the service promise is particularly challenging when other operators in the distribution channel also play a key role in the service. In services relying on electronic distribution channels, it is becoming increasingly possible to achieve economies of scale through productisation and self-service, but without a customer-oriented approach these business activities will not be sustainable in the long term. In personal services, the importance of personal experiences is a challenge that can be tackled with interactive operating methods and customer segmentation that truly takes into account the customers’ contexts. In industrial services, it is essential to skilfully create and price an overall offering that comprises both services and material products. In systemic services, the key question concerns the ability to manage a network of several operators, enabling each party to benefit and the overall system to be developed as planned.

In terms of internationalisation models and processes, KIBS firms apply almost all methods, even though direct exports are not common. Traditionally, they have

followed their customers to international markets, but export projects and, in large enterprises, foreign investments are also fairly common. The industry also includes a growing number of firms that are “born global”. For companies that depend on physical distribution networks, geographically small and large partner networks play a key role. These days, actual service exports mean, in practice, electronic exports. They are easiest for enterprises whose activities depend on electronic networks in other respects as well. Licencing – although a relatively rare form of internationalisation in service enterprises – is sometimes used in enterprises relying heavily on ICT. On the other hand, electronic commerce has enabled service exports to expand to traditional consumer services in which concept exports are another important form of internationalisation alongside electronic commerce. Some foreign subsidiaries can also be found in the sector. Local representation through subsidiaries or third parties has played a key role in industrial services, but remote monitoring and the industrial Internet are changing the situation. Systematic service packages have rarely been exported from Finland, and they have mainly taken the form of export projects.

In the classification, innovation activities are examined from the perspectives of creating and disseminating innovations and supporting operators and innovation activities. In addition to their own strong innovative nature, KIBS firms also play a key role in carrying innovations and helping new ideas to take root. In service enterprises using physical distribution networks, an innovative approach is often manifested in the reanalysis of the company’s own value chain and efforts to gain a stronger position. In the future, innovation activities based on big data analytics can be carried out in enterprises representing different fields, but companies using electronic networks could be pioneers. Co-development with customers is a growing trend in consumer services, supported by the opportunities presented by social media. In industrial services, innovation activities are related to the question of how enterprises – many of which have experience in R&D activities concerning material products – are able to utilise their expertise to develop services. Innovation activities in systemic services are at such an early stage that development efforts are needed in several directions. Services need to be modelled to identify interdependencies between different areas of development. It is also important to understand how to support the development of systemic entities and how the effects of innovations created in them can be evaluated and verified with different indicators.

## 8.2 Policy implications

Based on the above analysis, this section includes proposals for policies that would help to integrate services in the overall development of the Finnish economy and to solve the current challenges associated with the task. They are as follows:

- 1) raising awareness of the interconnection between the fates of industry and services and the necessity of service development in connection with digitalisation

- 2) increasing the demand for knowledge-intensive services through sophisticated procurement services
- 3) systematising service offerings through business models and productisation
- 4) increasing the credibility of the internationalisation potential of services by disseminating and promoting example cases
- 5) promoting closer collaboration between industrial and innovation policy
- 6) increasing the effectiveness of development projects based on proactive evaluation
- 7) developing meters and indicators.

Raising awareness of the importance of services is a necessary precondition for enabling services to gain a key position in Finnish industrial policy. It takes systematic work to eliminate the outdated polarisation between industry and services. The fastest way to achieve that is to *highlight the services purchased and produced by industrial enterprises*, the amount of which is constantly increasing and which clearly are vital to the economy. In this respect, continuous initiative is required in public debate and political forums at different levels – both in Finland and in the EU institutions. However, this does not mean that consumer services are secondary to business services and industrial services; it is a question of how to change the direction of the debate. At the EU level, it is important to continue developing services as part of industrial policy, alongside the development of the internal market.

Industrial services are closely connected to understanding the contents of the next phase of digitalisation – a phase that has already started. In addition to reforming the ICT sector, it will fundamentally change the way in which enterprises create value in the future. In future years, the challenge is not only to improve the internal efficiency of companies and activities but also to find innovative ways to combine products and services across industry boundaries. The new phase of digitalisation is not merely a technological project: in essence, it concerns the *deepening of the service economy*, connecting humans and technology. Thus, it is important that development efforts make full use of the knowledge gained in service research. In practice, it should be ensured, for example, that the customer perspective is taken into account in on-going industrial Internet projects in Finland.

Bottlenecks in service development are often caused by demand-related factors – business services being an illustrative case. Outsourced professional services, in particular, have been considered vital for the development of competence in enterprises, but even in these services poorly organised procurement may cause collaboration to be occasional or based solely on price. There has been a great deal of debate about developing public procurement, but the problem is much larger: skilful, strategic service procurement is rare in the private sector as well. A *systematic procurement model*, which would improve the situation, is being developed at the international level. The model is based on four pillars: an emphasis on good customer



relationships, a transparent process, performance-based specifications and the use of several evaluation indicators. The current situation could be significantly improved by complementing the model being developed on the purchasers' side with support for SMEs offering services. The aim of the support should be to improve tendering competence and develop tenderer networks to help small enterprises to compete with large ones.

In terms of service offerings, the first key task is to identify new and underdeveloped fields, which can be found, for instance, in services associated with new energy forms. As smart grids and distributed energy production gain ground, consumer behaviour becomes a critical issue in the energy market. Efforts should be made to enhance advisory and consulting services in parallel with the development of technology. In the context of existing services, *the systematisation of business models and the productisation of services* could be supported by gathering and promoting best practices. At the international level, encouraging experiences have been gained in “learning circle” type initiatives, which could be implemented, for example, in collaboration with trade bodies. The development of productisation expertise could be easily integrated into the work of the consultant network operating under the Centres for Economic Development, Transport and the Environment. There is an urgent need for support measures to increase the number of operators integrating service networks.

To help the service sector go international, it would also be important to collect “success stories” and systematically describe them as processes and operating models. Even though exports are the most significant form of internationalisation from a macro-economic point of view, internationalisation in the form of export projects or local presence should not be underrated. All ways of entering foreign markets are closely connected to the *growth of enterprises and the development of competence*. Thus, in addition to market-related information, advisory services supporting internationalisation should present more alternatives and help enterprises find a way that optimally enables to be active, take initiative and flexibly prepare for changes.

Closer collaboration between industrial and innovation policy is needed particularly in two respects. First, *systemic innovations*, that are more comprehensive than individual product and service innovations, should be highlighted in different political arenas. In these innovations, development efforts are expanded to *networks* of several operators, in which the principles of *open innovation* are becoming increasingly common. It means that in addition to protecting their innovations, enterprises increasingly often offer their innovative ideas to other enterprises, receiving other ideas in return. Current legislation does not sufficiently foresee or address these changes. The other important aspect concerns innovation processes. Alternative models of *rapid application* are emerging alongside traditional R&D activities. In these models, innovation activities are entwined with daily business activities, and the introduction of innovations is motivated by new ideas generated

in the customer interface, requiring an immediate response. These kinds of models are still insufficiently recognised in the support forms used in innovation policy.

Developing the service economy requires both *real-time information and foresight*. Apart from the contents of the service economy, the new phase of digitalisation will also change our ability to evaluate what is happening. It is important to fully exploit these new possibilities. It requires that instead of looking back – simply legitimating what has already been done – we use up-to-date information to evaluate what lies ahead and what alternatives are available to us. It is essential to make masses of data a more integral part of decision-making to be able to factor in the impacts of complex and long-term processes and to examine their advantages and disadvantages from the viewpoints of different operators.

At the moment, statistical measures and indicators mainly recognise the benefits and impacts of industrial activities. They measure productivity and profitability only from the provider's viewpoint, ignoring the value gained by the customer. In service business, however, the long-term profitability of an enterprise depends crucially on the benefits provided to customers. Input/output indicators completely disregard these benefits and should be complemented with *indicators measuring customer value* in diverse ways. In terms of the overall economy, *the effectiveness of services* should be placed on an equal footing with productivity as an indicator of success.

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## Digital trends and the service economy revolution in the Internet economy

*"The greatest impacts on our society and economy will be caused by digitalisation, climate change and change of the natural environment. [...] Digitalisation in society and the economy, which is only taking its initial steps, will significantly change the ways in which we learn, work and act. This will challenge research, education and business life alike, at the same time opening up entirely new opportunities for business and innovation. The changing dynamics of the environment will also challenge public sector roles and operating methods."*

(Research and Innovation Council document, 5 November 2014 [http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-\\_ja\\_innovaationeuvosto/julkaisut/liitteet/Review2015\\_2020.pdf](http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/Review2015_2020.pdf)).

*"In 2025 the second economy (i.e. Internet Economy) will be as large as the 1995 physical economy."*

(McKinsey, [http://www.mckinsey.com/insights/strategy/the\\_second\\_economy](http://www.mckinsey.com/insights/strategy/the_second_economy))

Digitalisation is an economic whirlwind. The phenomenon extends to all industries and all areas of life. Digitalisation is not directly comparable to the changes that other new phenomena, like bioeconomy or cleantech, have brought about in their respective industries or industrial clusters; instead, it affects these fields too, acting as an enabler and an engine of implementation. Digitalisation is accelerated by the phenomena and challenges that our society faces, such as the need to protect the nature or save energy – it is linked to every aspect of our lives. Digitalisation channels energy from other societal changes, at the same time catalysing these transformations.

One of the attributes associated with digitalisation is speed. We are already living in a world in which the pace of development partially exceeds our ability to learn. In future, progress is unlikely to slow down. We must accept the pace of change and jump on board. And accept that we cannot adopt and absorb everything.

The Finnish economy is in a bad state and requires action. Despite the difficulties, we have every opportunity to turn the trend. More specifically, the opportunity lies in the Internet economy that has developed through digitalisation, a phenomenon this article aims to explain.

The present article is based on the miniseminar "Introduction to the Internet economy" organised by DIGILE on 14 November 2014 and on the report *"Internet-talouden rakennekuva"* [The structure of the Internet economy], dated 5 December

2014. The report was drafted by DIGILE CEO Reijo Paaanen and presented to the Government.

### The emergence of the post-industrial service society

The agrarian society was followed by the industrial society. The industrial logic and the related economics replaced the agrarian logic, enabling societies to take a giant leap forward in productivity and national economies to soar. To this day, the structures of our society have been adapted to support and utilise the industrial economic logic serving the industrial society.

These days, the effectiveness of the industrial logic is widely questioned.

We are currently in a transitional phase with the industrial society making way for the emerging post-industrial service society. Consumption and enterprise purchases alike are increasingly concentrating in intangible goods. The service logic and the related economics are replacing the industrial logic. Societies need to implement structural changes, adapt their activities and utilise the economic thinking of the service economy.

The service society has won the conceptual competition between the information society and the service society. Services are the dominating mechanism of delivering value to customers. In the digital service society, information (data, information and knowledge) plays a key role, but it is ultimately only raw material that enables services. As an economic factor, the ownership of or access to raw material is at least as important now as it was in the industrial society.

**The Internet economy** is perhaps the most appropriate term for describing this new entity; digitalisation is only one – although vital – part of this transformation. It enables and creates phenomena that are entirely new to the humankind.

As the society progresses from one phase of development to another, productivity and prosperity increase with each successive step. Right now, productivity growth is the most central force driving the development of the Internet economy. In contrast, genuine new growth will take time. At first, jobs and entire professions will be lost and unemployment will grow, even significantly. This is because it is easier for new industrial operators utilising the Internet economy to first take over old sectors than create entirely new ones. For example, the rapidly growing electronic commerce will first capture market shares from other trade and only after that create something genuinely novel. However, people often have a different image of the situation because the only changes noticeable in their daily lives are the changes in market shares: domestic brick-and-mortar businesses are withering away as foreign online shops dominate the market. That is miserable.

Before long, however, new forms of work and new jobs requiring new kinds of skills will be created.

### Change in industrial logic

After the Second World War, the thinking and logic behind the industrial society helped Finland prosper. The need to pay war reparations accelerated development and forced Finland to adopt industrial operating models.

This well-known and internalised industrial thinking – the goods-dominant logic – is based on concrete goods that are first designed, then manufactured and finally delivered to the customer. The value of the product is created in the processes of the industrial operator, and the product is merely a transmitter of value added. The customer consumes the product's value added, disposes of the product in one way or another, and replaces it by buying a new, even better product. Industrial production feeds the cycle from raw material to waste dumps and consumes natural resources.

Some services are also based on this old goods-dominant logic. These services include hair cutting and laundering services. The service will give the customer neat and tidy hair or a clean shirt, but after time and use the value added will be lost and the customer needs to buy the same service again. Clinging to this kind of thinking slows down the adoption of the true service economy logic, hampering the reform of the society and its structures.

Thus, it is important to point out that when we speak of services in the Internet economy and the transformation towards a service society, it does not mean that in the future we will all serve each other washing shirts or sewing on buttons.

The logic of the new service economy – the service-dominant logic – is completely different from the logic of the goods-dominant economy. Customer value added is created in the interplay between a service and a customer. In digital services, the service cannot be exhausted; instead, the service improves every time it is used, as a result of each interaction. All global services are already using recommendation applications as a way of personalising the service: a digital TV guide or recipe archive learns users' preferences as they click on the "like" button of their favourite shows or recipes. Soon the service will be able to recommend similar shows or recipes. As a result, the user becomes increasingly happy with the service, recommends it to friends, and the service will gain more users and money for further development... and so on, and so forth.

Mobile technology will continue to evolve, enabling better and more efficient phones, tablets and wearable technology, such as smartwatches, to be placed on the market year after year. However, devices alone are no longer enough to make an enterprise a global success. A more relevant issue than devices is how to facilitate the uptake of different digital and mobile services by larger user groups, bypassing the structures of the goods-producing industry. Apple and Google have already succeeded in that, and have therefore also been able to gain large market shares in mobile phones and other mobile products. Their success is based on the service-dominant logic and its booming value creation mechanism, which all operators from the goods-dominant era have not been able to adopt.

Value has become a part of services and is transmitted to customers through services, following the service logic. Enterprises that base their operations on the goods-dominant logic are becoming subcontractors of the service industry. They are no longer able to generate genuine new growth to the same extent as industrial growth models have produced until now. The current trend is that producers of goods are shifting to offering only a specific activity performed with machines and equipment, using the service business model. It means that customers no longer buy devices; instead, the supplier owns and maintains the devices and the customer only pays for the work done by the devices – buying it as a service.

### Global developments

In developed Western economies, services constitute 60–80 per cent of the gross domestic product (GDP). In the United States the share is approximately 80 per cent and in Finland 75 per cent. Germany is structurally slightly behind the two at approximately 70 per cent. Overall, Europe is lagging behind in adopting the digital service industry logic and is mainly just wondering how to create a digital single market.

Europe is unable to help the Finnish service economy grow. At present, the leaders of the Internet economy come from the United States. The leading position of the United States has been challenged by the rapidly emerging China: it has been able to create enterprises like Alibaba and Tencent, which are truly able to compete with the likes of Amazon and Facebook.

In Europe, faster progress would require a completely new and – most importantly – bold mindset. In the aftermath of the financial crisis, that is more than a challenge. Finland has to take responsibility for its own future in the service economy revolution and be selective in committing itself to joint European projects.

The centre of global growth is gradually moving from Asia to the service industry. Global investments are directed at digital solutions. On stock markets, operators involved in the new Internet economy have surpassed the previous leaders of the industrial world and the value of their shares is growing rapidly. For global capital that flows where value increases rapidly, Finland is an economic backwater. Even though we have a positive startup culture with the Slush conference and a few success stories in the game industry, in terms of global economic importance Finland is nothing more than an interesting curiosity. Or a weak signal.

### "It doesn't concern me!"

"Everything that can be digitised will be digitised," said the Nobel Prize-winning economist **Paul Krugman** already in 2008. Despite Krugman's prediction, cellulose will still be cellulose and meatloaf will be meatloaf even in 2030, and beyond.

The main products of process industry cannot be changed into ones and zeros, but almost everything around the production process will change. In device control and maintenance mechanisms, sensors will measure the wear and abrasion of machine

parts and report the need for maintenance before breakdowns cause production downtime. Even today, the logistics chain of cellulose or meatloaf includes numerous phases of manual labour, prone to human error, before the product reaches the end user. The manufacturing industry will continue to produce machines and equipment, but the offering visible to customers will become strongly service-oriented: office supply manufacturers will offer document management services in which the multifunction copier is just one part of the overall solution.

Working methods are changing in factories and offices alike. HR and marketing processes are becoming automatic. In other words, digitalisation and the Internet economy do not only mean the digitalisation and automatisisation of various activities, but also entail new kinds of processes and methods which will accelerate the economic cycle. These include

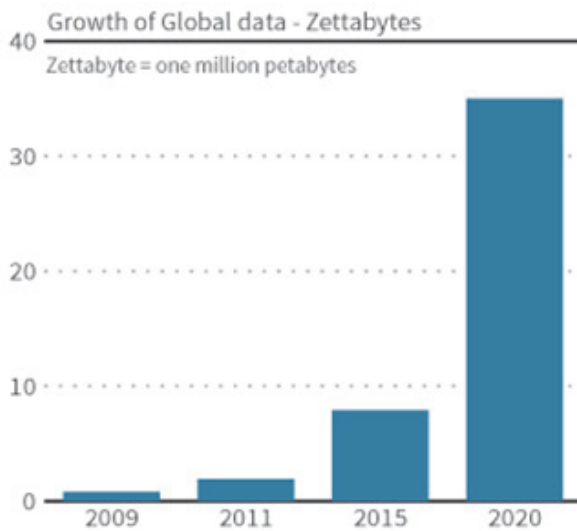
- business opportunities (new digital products and services)
- indirect business models
- new, larger user groups (crossing national boundaries or oceans is no longer a problem, and language barriers are also diminishing as machine translation applications are improving)
- new ecosystems and value chains (digital distributions platforms for applications)
- new working models (crowdsourcing and open collaboration models)
- faster flow of information (social media, real-time customer feedback and customer service)
- real-time economy.

Management practices will also need remodelling. Future factories and organisation can no longer be managed like in the past. Managers have to be proactive: foresight and business intelligence will gain an increasingly central role. Managers have to be broadminded and ready to question the traditional ways of doing things. They have to proactive and foresee changes – reacting means already being too late. In a way, management will become a support function: the actual value is created by the employees.

### The next phase – platform economy

Digitalisation and the related phenomena are constantly evolving. The underlying technological development – growth in the amount of data and data processing capacity – is still exponential in relation to performance, as the following figure illustrates:





Source: IBM

Up to 90 per cent of the existing data has been created in the past two years!

Cloud computing, big data and open data are all useful tools, but right now the platform economy is emerging as a driving force in the development. The term 'platform' has already been used on a few occasions in different stages of the Internet economy, but now it has once again been given a new meaning. (The term 'platform as a service' [PaaS] is used in the context of cloud computing, but it refers to a different kind of a platform.)

The starting point of platform economy is that a techno-economic service platform is connected to a set of **ecosystems**. The most important ones are the ecosystems of users and application developers. This entity functions on the basis of the service-dominant logic and accumulates value for the owner of the platform, interacting with the ecosystems. It is essential to realise that in ecosystems no one operates alone; instead, operators from various fields work and develop services in collaboration, as a community. The end result is a service that is more than the sum of its parts.

Value is not lost, but it is accumulated in the system: the more customers there are, the more value is accumulated. Customers see it as better services, and application developers receive, at least when they develop popular applications, a reasonable remuneration for their efforts, even though the platform owner will retain some of the value. In practice, any interested operators can connect to the platform through open interfaces, but the creator of the platform manages the whole entity – and reaps the greatest benefits.

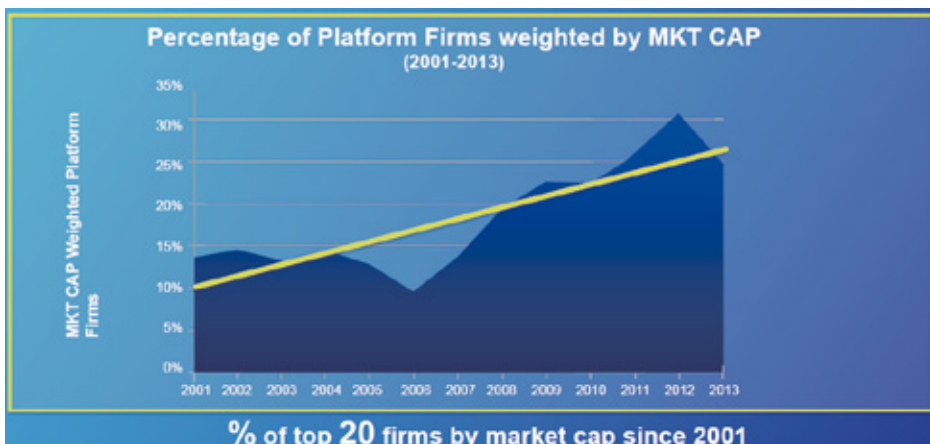
The platform economy is a new way of productising an entire economic ecosystem using the tools of the Internet economy. Right now, the platform economy is advancing through a variety of verticals, and platforms are created in all industries. One example is manufacturing, in which more and more emphasis is given to future

production environments, referring to the development as the industrial Internet, the Internet of Things or the fourth industrial revolution (the term Industry 4.0 is used particularly in Germany). On new production platforms, machines and devices are automatically organised, logistics chains are seamless, and finished devices continuously transmit data on their own condition, enabling faults and failures to be addressed before major problems arise.

Cars can be used as another example: modern cars are *mobile service platforms*. They include numerous interactive functionalities, and the algorithms in cars learn to read the driver's behaviour and suggest more economical ways of driving or breaks during long journeys.

In the above examples, platforms are still seen as silo-like solutions, focusing on individual verticals, although solutions with a broader scope are already being developed.

At the global level, the importance of platforms has been recognised. In fact, certain enterprises have already been classed as platform firms: Google, Amazon, Apple, IBM, Microsoft, SAP... For example, in the United States their share among listed companies is increasing, as the following figure illustrates:



Source: Cisco

In the future, companies will be asked what platform they use or in which platform ecosystems they are involved. That future will be here in 2015.

Platforms are insidious capturers of value – which is, of course, the financial gain sought by platform owners. For example, car manufacturers have not taken on the responsibility for developing the algorithms of their cars; instead, they outsource the expertise. If this operating model does not change, car manufacturers will not own their platforms, but the expertise, development work and value creation will drain outside the car industry. In the future, we may end up in a situation in which we first buy a *car service*, i.e. the functionalities and other additional features of the car, from

a company that specialises in the service. After that, we can order the body of the car and leather seats from the body manufacturer of our choice, such as Volvo or Ferrari.

For the society, platforms are an efficient mechanism for transferring value, easily even more efficient than taxation. The creation of value in digital cloud environments crosses current national borders. How should the value added of global cloud services be determined? Methods based on transfer pricing cannot keep up with the pace of development.

For example, in the case of Finland the value created in the platform economy is divided as follows:

First, we need to purchase or begin using a platform. Because there are not that many Finnish platforms, this initial investment will transfer capital abroad – at the moment, predominantly to the United States. If the platform is acquired as an investment in, for example, a hospital or an industrial plant, it will be further developed with the platform owner, and the value created in these development efforts will accumulate in the platform. The normal use of the service or platform alone will increase the value of the platform. *This value will flow to the platform owner.*

Thus, platform use will deliver Finland traditional productivity gains, but the actual profits, with interest, will be seized by foreign operators in accordance with the laws of the platform economy. Finland will be left with nothing but a growing army of unemployed workers.

Moreover, without its own platforms Finland will not accumulate platform business expertise or even technical expertise. In addition to capturing value, platforms also capture a significant share of the ecosystems of competence development. These are some of the issues that should be considered in connection with the municipal reform and the social welfare and health care reform.

The mechanism is the same regardless of whether the platform is targeted at industry or consumers or whether or not it involves direct initial investments. The accumulation of value is the determining mechanism of business and therefore justifies the way in which investments are used in the United States to create new companies. The first step is to acquire customers. Only later, they will create a reasonable, profitable business model.

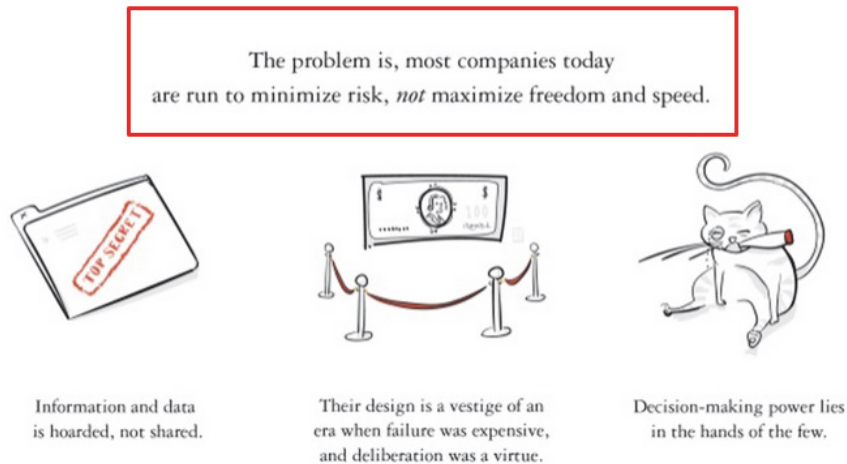
In the early days of industrialisation, when for example an electric generator was purchased to Finland from abroad, practically all the value added, electricity, generated after the investment remained in Finland. The same also applied to mobile networks and traditional IT purchases. The new Internet economy, in which value escapes abroad through the platform economy, is a very recent phenomenon. And that is exactly why it is dangerous – it is simply not understood, because the phenomenon has been practically non-existent in the past.

Thus, value creation in platforms is already largely explained, and it has been noticed by many international operators. In Europe, there are still very few of these novel operators, and without making severe corrections Europe and Finland will clearly be the losers in this phase of development.

The vicious circle is difficult to break without taking radical, protectionist measures. Russia has started demanding that the personal data of its citizens must be stored in Russia. A will to break up Google has emerged in Europe, and the MyData initiative is turning into a mass movement. Albeit understandable, these countermovements may create a negative environment in which it is difficult to start catching up with the leaders. That, in turn, will delay seizing the development opportunities presented by technology. In international competition, the primary goal should be to develop offerings that are able to fare well against the competition.

In terms of digitalisation, Europe is at a crossroads. It will either rely on digitalisation as a driver of growth and make tactical moves to safeguard its own rapid development or defend its past glory and remain even further from being a shaper of development.

### Case Google



Source: <http://www.slideshare.net/ericschmidt/how-google-works-final-1>

As a company, Google is a creation of the Internet age, but it has, of course, been established before the emergence of the Internet economy and its subpart platform economy discussed in this article. However, Google has been in the vanguard creating these principles and models that are now gaining ground.

Google started with search engine activities, creating an advertising-funded and thus indirect business model. Originally, the search engine consisted of a group of cheap servers, which have later grown into the largest data centres in the world. The service is based on a search engine (originally called BackRub) that determines the relevance of a website based on links.

Founded in 1998, Google currently describes its mission on the company website as follows: “Google’s mission is to organise the world’s information and make it universally accessible and useful.”

Google has not opened the technology behind its platform, but it has many interfaces that have been opened and described. These days, its technology is of course state-of-the-art. The search engine business has opened up opportunities for developing new business activities, and it is typical of platform operators to bravely branch out to new business sectors. The search service is also a versatile paradigm, for example, for redesigning office activities. This has led to Google now offering a cloud platform for office applications. It has also forced Microsoft to move into the cloud environment and create its 365 offering.

As a modern operator, Google is agile, quick and flexible. It is not afraid of failure. For example, its unsuccessful social media experiments with the services Buzz and Wave have not reduced the company’s ability and willingness to innovate or diminished its value in the eyes of users. Almost on the contrary.

Google has integrated its platform in terminal equipment through the Android operating system, while Google Play is a market place for applications. For business customers, Google has other similar solutions. In practice, Google bases all of its business on the idea of scalable platforms.

Google does not have R&D&I activities in Finland, but all development work is carried out elsewhere, mainly in the United States. As a platform economy operator, Google has rapidly grown into a global enterprise. In 2013, its turnover was approximately USD 55 billion – 22 per cent higher than in the previous year. In Finland, Google’s volume in the advertising market is approximately EUR 100 million a year. Thus, Google is a model example of the platform economy: Finland is a market that benefits from the search results, while Google receives all the actual financial benefits. All of this is legal, highly successful business.

Google and Apple are platform economy operators in the consumer segment, but the same phenomenon is spreading to all activities in both the private and public sector. In the future, when more than 90 per cent of all digital activities will take place on platforms, *financial benefits from all digital service use will flow abroad* unless the platforms are owned by Finnish operators. Finland will only benefit from the productivity gains promised by the platforms, nothing else. Workers will become redundant, but new jobs will not be created or new competence acquired in Finland. We will outsource the production of digital services abroad.

The worst case scenario is that in the long run the whole society will be outsourced: what if in the future the whole Finnish society is operated on Google platforms?

### The structure and growth of the Internet industry from the ICT industry perspective

ICT technology has been an enormously important enabler in digitalisation. Finland has traditionally had strong expertise in this particular field of technology, and that

expertise should continue to be utilised. Therefore, the following section will focus on the structures of the Internet economy, examining them from the viewpoint of ICT technology and the Finnish ICT industry.

Based on all the information presented above, the structure of the Internet economy can be described in a very simple manner. Here we have divided it into two main categories: business based on the goods-dominant logic and business based on the service-dominant logic.

### 1. IT and ICT industry based on the goods-dominant logic

The growing use of digital services, exponentially accumulating amounts of data and new data transmission needs are increasing our need to acquire new cables and computers, additional memory, new terminal devices and other goods traditionally produced by IT and ICT industries. We need more capacity.

The principles described above still apply to this goods-related part of the Internet economy. Because the performance of technology is rapidly improving and becoming more affordable and because competition in the sector is fierce, any increases or reductions in the value of goods manufacturing can be expected to be marginal.

Of course, the sector will continue to develop and individual operators may be able to increase their market shares, but the sector is comparable to traditional manufacturing which is losing its importance in the creation of value. Technology is becoming simplified and increasingly prevalent in everyday life.

Like other goods, it is profitable to produce technology close to large markets. Because the Finnish market is small, it is difficult for Finland to benefit from reshoring, at least not to the extent dreamed of in the United States. Nor does Finland have the benefit of new sources of energy and the associated cheap energy to support such developments.

In terms of the value chains in IT and ICT manufacturing, the following can be said about the Finnish situation:

**1a) Components and technology:** In Finland, the components industry and the manufacturing of production machines and robots are insignificant, even though a few relatively new enterprises are emerging in the market. In the technology sector, our key asset is software expertise.

**1b) Devices:** The manufacturing of computers, television sets and mobile phones has practically ended in Finland. Some Nokia network devices are still manufactured in Oulu, but other manufacturing in the field is very limited. Independent software products do not play a significant role in the Finnish national economy. The game industry and mobile phone applications are often highlighted. They of course have an encouraging effect, but in the big picture their importance is limited. The majority of other software products developed over the years have already been sold abroad.

**1c) Solutions:** Nokia produces mobile network solutions and the IT industry customer-specific IT solutions. However, the latter has been unable to develop productised solutions for the global market, which means the sector mainly

comprises domestic industry or traditional IT industry serving the markets in neighbouring countries, still trying to find its role in cloud computing. Finnish operators mainly offer solutions to other industrial verticals, but their conventional approaches constantly leave them lagging behind truly revolutionary solutions.

## 2. Business based on the service-dominant logic

While the goods-dominant logic complies with the normal value chain model, the service-dominant logic is easier to understand as a layered structure.

**2a) Infrastructure:** The bottom layer of the structure consists of telecommunications and mobile networks, data transmission and the operation of these networks and activities. Data centres can also be included in this layer. The better the state, performance capacity and coverage of the infrastructure, the more digital business, data transmission and service provision it enables. Finland's internal infrastructure is good, and it is mainly operated by Finnish or Nordic players. Limited international connections are its weakness.

In building data centres, Finland has been too late to achieve international success, and apart from mobile networks Finland has been unable to produce international builders of infrastructure. There is still room for new offerings in the market, but enterprises would have to boldly enter the international market. There are no promising signs of that happening.

Finland has tried to attract data centres to the country by relying on its inherent strengths (cool climate, solid bedrock and stable society) and certain fiscal and other policy measures. Forming international connections and offering an overall conducive competitive environment are still key elements that may help Finland attract future data centre investments.

Even though data centres as such do not create significant growth or new jobs, they are part of global networks and business from which Finland can also benefit through the data centres built and operated in the country. Infrastructure operations are a stable but slow-growing business when compared to other Internet economy activities.

**2b) Cloud computing and platforms:** Finland is the home of the leading open source operating system Linux. The system and its modifications are used from super computers to affordable stand-alone devices. Another Finnish platform with global importance is the MySQL database system and its fork MariaDB. Since Linux and MySQL/MariaDB, Finland has been unable to produce any cloud computing or big data technologies, platforms or key building blocks with similar global importance. In recent years expertise acquired in, for example, cloud computing has been applied in the domestic or neighbouring markets. However, it is a positive sign that a few enterprises have had the courage to use the new expertise to either reform their own international offerings or try to find new markets.

This field is where the above-mentioned challenge of the Internet economy lies. If Finland does not have its own platforms functioning with the service-dominant logic,

it will soon lose the benefits of digital productivity investments: economic value will flow abroad and the development of competence will be slow. In the long run, the latter is a fundamental loss. Replacing lost expertise is extremely slow.

This layer – cloud computing and platforms – will determine the winners and losers of Internet economy at the end of this decade. The business sector is growing rapidly, and Finland simply cannot afford to be excluded from the growth.

Customer-specific services are also part of this layer. They can be produced in Finland, but without platform thinking exporting them will merely entail unproductive tailoring or non-scalable business. The alternative is to rely on an existing platform and work within its framework. That way we will ensure that we stay on the sidelines.

**2c) User interface:** In this decade, users are connected to digital services through various terminal devices and displays. The connection from terminal devices to services is implemented with increasingly expressive protocols.

Modern-day users already expect services to continuously become more and more intelligent. The more services have access to users' data, the better they work. The current business model favours the operators that have started collecting the data early.

However, it can be expected that users will, after all, be reluctant to handover the ownership of all of their data to one or a few service providers. In the end, how many users want Google, and Google alone, to know almost everything about them based on their basic information, browser search history and their “likes” in online applications? This will revolutionise the business logic of user data. At the moment, the MyData initiative is the strongest driver of change. (Earlier in 2014, the Finnish Ministry of Transport and Communications published the report *My Data - Johdatus ihmiskeskeiseen henkilötiedon hyödyntämiseen* [*My Data - Introduction to human-centred use of personal data*]. The report – unfortunately in Finnish only – is a clear introduction and worth reading.) However, major service providers can be expected to fight back and propose new common standards for the management of personal data. These would still not explicitly grant the ownership of the data to users.

This presents Europe with a genuine opportunity to change the rules of business and adopt regulation that will help the European industry to achieve new growth.

The user data business will grow significantly. Unlike the exhaustible natural resources of the Old World, data is the inexhaustible resource of the Internet economy, and data volumes are growing exponentially. This is another area where the Internet economy is contradicting the goods-dominant logic: there is no shortage of raw material.

Instead of quantity, the quality and timeliness of data will become key competitive advantages and factors of production. Operators that can sift through, process and analyse data the most efficiently will be at the leading edge.



## What can Finland do?

“Let’s do nothing,” is not an option. Neither is “let’s see what others do”. Our dependency ratio is weakening year by year, and the key economic indicators are flashing red. In public debate, there is general consensus that increasing productivity is the solution that will help us through the tough times. The problem is that productivity is examined through the traditional goods-dominant logic: we should produce more goods, faster and at lower prices. That will, of course, enable us to increase our productivity up to a certain point, but not enough to improve the national economy. We can always try to build paper machines and icebreakers a little bit faster than before, but eventually we will run up against the laws of physics.

In practice, our only option is to seize the opportunities presented by digitalisation and the Internet economy. But the best thing is that the only risk involved is not trying at all. Everything else will be to our benefit.

The following table summarises the structural elements of the Internet economy described in the previous chapter. It also includes an estimate of Finland’s present state and the future importance of each structural element. Thus, it evaluates the situation only from one perspective, the structures of ICT and the Internet economy.

Structural element	Present state in Finland	Future importance
1a) Components and technology	Limited business activity, software expertise a potential strength.	Business will wither away if the expertise cannot be connected to a growing platform or ecosystem.
1b) Devices	Finnish device design expertise is strong, but the product business is largely dependent on Nokia.	Current cost structure threatens to cause the business to leave Finland.
1c) Solutions	Apart from Nokia, Finland has very limited international business of its own. A few international players are increasing their solution development activities in Finland.	Growing the sector to a business with importance for the national economy is challenging.
2a) Infrastructure	Infrastructure in Finland is mainly good and in safe hands. The volume of domestic business is good but its growth modest.	Achieving international growth in a mature market is capital-intensive business. The present state should be defended and strengthened: e.g. submarine cables and their operation.
2b) Cloud computing and platforms	Finland lacks a strong domestic offering. There is some business activity, but on a global scale it is still small. Nokia’s HERE map business represents the platform thinking of the previous generation and is accumulated in Germany.	Finland simply cannot afford to rely entirely on foreign platforms. The situation calls for radical measures like the national Internet economy platform proposed by DIGILE (described elsewhere, not in this report).
2c) User interface	Finland is up to date but has no significant business in the sector.	Together with leading European countries, and hopefully all of Europe, Finland could be a forerunner in the regulation on user data.

In summary, elements 1a-c follow the goods-dominant logic and further investments in these elements are no longer strategically important. Instead, the elements 2a-c are based on the service-dominant logic and are all strategically significant. Thus, all possible measures should be taken to make progress in them, thereby creating new growth.

The strategic situation is clear, enabling effective and manageable measures. However, they require national consensus, legislative changes and courage to take the leading role in Europe. That calls for thought leadership, breakaways and blazing our own trail. Being a pioneer is by no means easy.

## Measures

Because the Internet economy is evolving so rapidly, measures should be targeted where they are most effective. Based on the above, the focus should be shifted to building service industry competence and growth in Finland.

The strategic direction should be to invest in own-initiative activities – the birth of the Finnish mobile phone business is a good example. The mobile success was ensured by collaboration between the public and private sector: both understood that the national interest required them to collaborate and understand that we are all in the same boat. The consequences of that collaboration were historic.

Structural element	Measure	Additional comments
2a) Infrastructure	Keeping Finland's internal infrastructure in top shape; expanding international connections beyond what is absolute necessary; promoting the establishment of data centres in Finland.	This is the foundation that should be strengthened and not be allowed to go to ruin.
2b) Cloud computing and platforms	Developing a new national platform for the Internet economy, meeting the needs of the public and private sector; setting compatibility standards for other platforms used in Finland based on the future platform.	This is feasible now, when the rest of the world is just waking up to the rise of the platform economy.
2c) User interface	Seizing the opportunity provided by the My Data approach and giving citizens the right to their personal information. In this, Finland should join forces with the rest of Europe.	Finland's and Estonia's (soon joint) X-road data exchange layer for services forms a good basis for these measures.

These ideas may seem wild at first, but the measures are all feasible. Despite the dominance of Google, Amazon and other major players, the technological development has not reached a level at which Finnish expertise could not compete. Expertise we still possess. Our greatest challenge is business; in that area, Finland could take the reins through extensive public and private sector collaboration.

Another challenge is the Western democracy in which decision-making processes do not support rapid experiments or changes of direction. However, these challenges can be overcome as long as there is common will and vision.

Finland's and Nokia's chances were belittled in the early days of the mobile business. At present, we are not undervalued by others – the problem is Finland's own lack of willingness to set an example and faith in its ability to do so. The risks involved in trying are low. The risks involved in not trying are far greater. If we try hard, we will be more aware of the developments taking place in the field and more able to make informed choices about the right partners, technologies and platform building material. We will also be better able to understand the logic of the business.

Conducting analyses and drawing up report after report will take us nowhere. The only way to make progress is to get our hands dirty and learn from our own actions.

No one will look after Finland but Finland itself. Therefore, Finland must have the courage to set itself a clear target. **Let the target be that by 2020 digital services will account for 80 per cent of Finnish exports.**

To reach the target, we need to work across industrial boundaries. The next important digital service industry innovation could well be made, for example, in the manufacturing industry.

## Summary

The present developments are the greatest transformation since the agricultural or the industrial revolution. In digitalisation, changes are even greater, faster, more pervasive and more efficient. The Internet economy enabled by digitalisation is constantly evolving and finding increasingly efficient ways to increase productivity through digital services and solutions, attracting more and more investments. It is creating a self-sustaining, virtuous circle of business innovations.

As a result, the service-dominant logic will subordinate the goods-based economy as its subcontractor. The service economy will first take control over the customer interface, logistics management and the distribution of goods, and will progress deeper into the internal structures of the goods-based economy.

The platform economy is emerging as the winning productivity solution of the present decade. With electronic commerce as its driving force, it has already found a functional form and is spreading like wildfire, reshaping the structures of economy. The key idea is that value added and, most importantly, the competence and knowledge accumulated will accrue to the owner of a platform. Platforms compete in global markets, across borders. In fact, the platform economy is a masterpiece created by digitalisation and global economy.

Platforms extend to all parts of society: e-democracy, e-health, e-learning, e-payment, e-transport services, innovation automation and the industrial Internet – it is actually more difficult to come up with a sector not affected by the development. Work, management and business logic will all change in one way or another. And

the pace of the developments will be extremely rapid – perhaps even too fast for our learning ability to keep up. We simply have to understand and accept that.

Finland is starting to severely lag behind. However, the situation is not hopeless: even though the United States and China are far ahead, we have every opportunity to leap among the leading players. The Internet economy will open up numerous opportunities for growth and new business.

Progress will require strong focus, national measures, determination and courage. We will not get a better opportunity for independent growth in this decade. Unless we make a concerted effort, Finland will miss this time window and the opportunity it provides, becoming in the foreseeable future sucked into a whirlpool of poor overall productivity and declining economy. We will also be left at the mercy of foreign platforms, allowing profits and increased expertise to drain abroad.

The lyrics of the traditional Finnish song, *The Song of a Hungry Land*, were written in the early 20th century, in a situation that was even direr than our present challenges. Nonetheless, its second verse is a perfect ending for our discussion on the structures of the Internet economy:

*“There may be obstacle in our path – they will not stop us!  
The harvest may be lean – let us make every effort to succeed!  
In a remote corner of this gloomy land of our birth,  
our cottages hide deep in the trees.  
Fires of oppression, be subdued!  
Robbers and bandits, be on your way!  
We need no swords – just strength of will  
in the name of heart, of kin, of country.”*  
(Ilmari Kianto)

So let's make every effort to succeed!

## Suggested reading

Economic complexity: A different way to look at the economy

[https://medium.com/sfi-3o-foundations-frontiers/  
economic-complexity-a-different-way-to-look-at-the-economy-eae5fa2341cd](https://medium.com/sfi-3o-foundations-frontiers/economic-complexity-a-different-way-to-look-at-the-economy-eae5fa2341cd)

*“Where does complexity economics find itself now? Certainly, many commentators see it as steadily moving toward the center of economics. And there’s a recognition that it is more than a new set of methods or theories: it is a different way to see the economy. It views the economy not as machine-like, perfectly rational, and essentially static, but as organic, always exploring, and always evolving – always constructing itself.”*

Ilkka Kakko: Platforms – A Secret Tool to Disruptive Innovations

<https://www.linkedin.com/pulse/article/20141128083212-72500-platforms-a-secret-tool-to-disruptive-innovations>

My Data – Johdatus ihmiskeskeiseen henkilötiedon hyödyntämiseen [My Data – Introduction to human-centred use of personal data]. Published by the Ministry of Transport and Communications, available in Finnish.

<http://www.lvm.fi/julkaisu/4420389/my-data-johdatus-ihmiskeskeiseen-henkilotiedon-hyodyntamiseen>

## The Serve programme and the lessons learned about developing service business

### Background

Tekes implemented the programme Serve – Pioneers of Service Business in 2006–2013. The programme was targeted at the trade sector, knowledge-intensive business services (KIBS) and industrial services. Its aim was to encourage companies to renew their operations through service business and develop innovative and customer-oriented service concepts.

The following programmes have focused on service industries:

- Tourism and Leisure Services (2007–2012)
- Innovations in Social and Healthcare Services (2008–2015).

These days, service development is included in most Tekes programmes (e.g. Green Mining, EVE, Green Growth, Learning Solutions, Witty City and Feelings). More than a half of all Tekes funding is targeted at service industries (58 per cent in 2014).

### Serve's key contributions to innovation policy

Serve broadly raised awareness of service innovations' significance for the national economy. Due to the expertise gained through the programme, the importance of service business to the national economy is now identified and recognised better than before.

There is a broader understanding of “services”. The word is no longer automatically associated with certain industries or a certain sector of the economy; instead, services are considered a business opportunity in all sectors from well-being to trade, manufacturing and consulting.

Tekes measures targeted at services have succeeded in increasing the credibility of service enterprises and industries by making the related innovation activities more visible and systematic. Tekes funding has generated new tools and competence that enable operators to recognise the special characteristics of service innovations. The tools help enterprises to systematically develop customer-centred services that are scalable and thus enable them to grow and go global. Enterprises recognise the product development of services better than before and allocate more resources to the activities.

The enterprise projects funded under the Serve programme are an example of how different industries can be renewed through service business. Serve focused on service business pioneers in selected industries. That enabled the accumulation

of expertise and generated new tools and examples of service business activities that have helped enterprises to renew themselves. Next we need to ensure that the expertise and competence spread from the pioneers to other enterprises.

### What it takes to succeed in service business – Serve's teachings on service development

In most cases, the separation of products and services is no longer relevant and the traditional division into service industries and manufacturing industry no longer applies. In successful service business, the customer's needs are met with comprehensive solutions, regardless of the industry. Solutions offered by enterprises increasingly often combine service elements, physical products, knowledge, skills and technology – with ICT playing a key role. Solutions are often produced in networks, and the management of these networks is an important part of producing uniform service experiences and assuring quality.

Service development is always based on a good knowledge and understanding of the customer and end user. The value of a service, a product or a comprehensive solution is created by the benefits of its use, and customers participate in the creation of value through their own actions. Succeeding in service development efforts requires the courage to allow customers to participate in the product development process.

Pioneer enterprises use different methods and tools (e.g. ethnography, engaging games, design methods and art methods) to achieve customer insight. Pioneers examine in diverse ways the significance and importance the service has for customers and end users, realising that the value of products and services alike is created through the benefits, experiences and significance they deliver.

Companies should recognise and seize the service development opportunities that digitalisation provides. By international comparison, Finnish enterprises are lagging behind in exploiting digitalisation.

A key part of service development is productisation. It means defining, systematising and standardising services and improving their quality and productivity. The successful productisation of services increases the value experienced by the customer and improves the enterprise's profitability. Productised services are also easier to sell and buy.

The development of service business requires an organisation to change its mindset and operating models. These changes are reflected in the enterprise's business models and strategy. Managing change takes time and requires special skills. All this is particularly important in services produced in networks.

The startup sector already shows a customer-oriented approach, and its business models are based on service-dominant logic. This enthusiasm should be fostered by enabling the service-dominant logic to be developed in enterprises and partnering new enterprises with leading service business experts.

### What should we do next?

We should invest in the opportunities opened up by digitalisation in all fields and in the front line, focusing on customers instead of technology and putting the end users' needs first. The industrial Internet, the related new way of using information and 3D printing are changing the logic of business activities, and Finnish enterprises should be among the first to make use of these possibilities.

The Government and the Ministry of Employment and the Economy have recently adopted several industrial policy guidelines (e.g. on bioeconomy, cleantech, industry and health care). Servitisation and its enabler, digitalisation, affect all of these fields. Because digitalisation facilitates the decentralisation of business, helps new operators to enter the market and weakens the protection of the domestic market, there is a risk that the targets set in these policies cannot be reached without investing in services and digitalisation in all sectors of business.

We should continue investing in the development of the service business in industry. Measures should be taken, in particular, to encourage industrial enterprises to develop knowledge-intensive services that create high value added. That will enable industrial pioneers to be part of the next wave of service business.

Alongside the development of knowledge-intensive industrial services, it must be ensured that the principles of service business and the customer-oriented approach are disseminated across industry. Many technology and industrial enterprises still follow the production-based and goods-dominant logic and need new viewpoints to develop.

According to studies, knowledge-intensive business services (KIBS) are relatively profitable and show growth even in difficult economic conditions. The Finnish workforce is highly educated, but unemployment is nonetheless increasing. Finland should invest more in the long-term development of business services to create innovative and internationally competitive concepts and business models for enterprises. Investments are needed particularly in those niche markets in knowledge-intensive business services (KIBS) in which we have globally unique expertise (e.g. environmental measuring and monitoring).

The trade sector is undergoing a major transformation. To survive, companies need new ways of creating and managing customer experiences in a multichannel environment. Measures are needed to help the trade sector to renew its operating methods with ubiquitous, people-centred concepts.

Creative industries should be promoted to foster the emergence of KIBS firms that are able to grow and become international. Fields like design, architecture, fashion, advertising and marketing communication are KIBS fields that help other industries to renew themselves.

To be able to renew itself, the media sector also needs service business models and concepts that enable enterprises to gain new competitive advantages in the international market.



The internationalisation of services should be understood to encompass more than just traditional service exports. Not all enterprises are able to succeed in the global markets alone, but they may be able to do so as part of international value networks. We should help companies find appropriate global networks in which they can grow and go international.

In addition to developing service exports, it is important to ensure that Finland has high-quality and profitable domestic service business. Companies operating in the domestic market should be helped to renew their operations and offer solutions that create more customer value. That will be reflected in the regeneration of the entire business sector and the increasing productivity of the service sector, making it a more attractive employer. It will also make Finland a more attractive target of investments.

A few internationally significant service research groups have emerged in Finland. That these groups remain among the global leaders in the field, should be ensured through funding and other resources for enterprise-driven interaction.

The expertise acquired by these research groups should be disseminated among enterprises through training and consulting. In particular, it should be ensured that the knowledge gained in service research can be utilised in new service research projects in different fields of application, particularly in research and development concerning digital services.

At the EU level, Horizon 2020 is a major investment in innovation. Efforts to develop the service innovation dimension of EU innovation policy should continue to be actively pursued.

<b>Tekijät   Författare   Authors</b>		<b>Julkaisuaika   Publiceringstid   Date</b>	
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		<b>Toimielimen asettamispäivä   Organets tillsättningsdatum   Date of appointment</b>	
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Palvelutalouden murros ja digitalisaatio – Suomen kasvun mahdollisuudet			
<b>Tiivistelmä   Referat   Abstrac</b>			
<p>Tämän raportin tarkoituksena on nostaa palvelut Suomen hyvinvointia koskevan keskustelun keskiöön yhdessä teollisuuden ja digitalisaation kanssa. Digitalisaation vaikutukset palvelusektoriin ovat yhtä voimakkaat kuin teollisuuteen; se lisää tuottavuutta ja muuttaa kilpailuololoja esimerkiksi digitaalisten palvelualustojen myötä. Palvelusektorin laajuus korostaa muutokseen varautumisen tarvetta, sillä digitalisaation vaikutukset voivat olla erittäin suuria. Rakennemuutosta tukevat politiikkatoimet ovat siksi elintärkeitä.</p> <p>Raportti sisältää viisi eri asiantuntijanäkökulmaa palvelualojen kehityksestä ja digitalisaation vaikutuksista. Etlatieto tarkastelee palvelujen skaalautuvuutta ja vientipotentiaalia sekä näiden vaikutuksia henkilöstön määrän, jalostusarvon ja tuottavuuden kasvuun. McKinsey &amp; Company toteaa Suomen palvelusektorin olleen toistaiseksi vakaa kasvun ja työllisyyden lähde ja arvioi tältä osin digitalisaation vaikutuksia. VTT luo näkökulmassaan laajemmän kuvan palvelujen globaaleihin muutostrendeihin. DIGILE:n näkökulman mukaan alustatalous on nousemassa voittavaksi tuottavuusratkaisuksi. Tekesin Serve – Palveluliiketoiminnan edelläkävijöille -ohjelmaa koskevassa näkökulmassa kuvataan ohjelman opit palveluliiketoiminnan uudistumiseen.</p> <p>Asiantuntijanäkemyksen pohjalta Työ- ja elinkeinoministeriö esittää johtopäätöksensä jatkotyön perustaksi. Palveluyritysten mittakaavaetujen ja viennin mahdollisuuksien hyödyntäminen on kansantalouden tuottavuuskehityksen ydinkysymyksiä. Tietoisuutta teollisuuden ja palvelujen ”kohtalonyhteydestä” on lisättävä ja palvelut tulisi nähdä liiketoimintamahdollisuutena kaikilla aloilla. Tulevaisuuden haasteena on tuotteiden ja palvelujen yhdistäminen innovatiivisin tavoin ja myös yli toimialarajojen. Digitalisaatio globalisoi palvelujen markkinoita ja mahdollistaa tuottavuuden kasvun samalla vähentäen työvoiman tarvetta monilla nykyisillä aloilla. Digitalisaatio kuitenkin luo myös uusia työpaikkoja muille, osin täysin uusille talouden aloille ja avaa mahdollisuuksia suomalaisten innovaatioiden vauhdittamiseen. Siksi tulisi tunnistaa keinot päästä mukaan palveluliiketoiminnan globaaliin kasvuun ja kytkeä politiikkatoimet palvelemaan tätä kehitystä.</p> <p>Työ- ja elinkeinoministeriön yhdyshenkilöt: Elinkeino- ja innovaatio-osasto/Pekka Lindroos, puh. 029 506 3597, Martti Myllylä, puh. 029 504 8034, Eija Laineenoja, puh. 029 504 7099</p>			
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Tjänsteeconomien förändras och digitaliseras – Finlands tillväxtpotential			
<b>Tiivistelmä   Referat   Abstract</b>			
<p>Avsikten med denna rapport är att lyfta fram tjänsterna och ställa dem i centrum för debatten om Finlands välfärd tillsammans med industrin och digitaliseringen. Digitaliseringen påverkar tjänstesektorn lika starkt som industrin; den ökar produktiviteten och ändrar konkurrensförhållandena, t.ex. genom de digitala serviceplattformarna. Tjänstesektorns omfattning framhäver behovet av beredskap för förändring, eftersom effekterna av digitaliseringen kan vara mycket stora. De politikåtgärder som stöder strukturomvandling är därför livsviktiga.</p> <p>Rapporten innehåller fem olika expertperspektiv på tjänstesektorns utveckling och digitaliseringens effekter. Etlatieto granskar tjänsternas skalbarhet och exportpotential samt hur dessa faktorer påverkar antalet anställda, förädlingsvärdet och produktivitetstillväxten. McKinsey &amp; Company konstaterar att den finländska tjänstesektorn har varit en stabil källa till tillväxt och sysselsättning och bedömer digitaliseringens effekter i det avseendet. VTT skapar ur sitt perspektiv en större bild av de globala förändringstrenderna inom tjänsterna. Enligt DIGILEs perspektiv håller plattformekonomin på att bli en vinnande produktivetslösning. Enligt det perspektiv som anknyter till Tekes program "Serve – Pionjärer inom service-business" beskrivs programmets lärdomar för innovation och branschernas förnyelse med hjälp av tjänsteverksamhet.</p> <p>Utifrån expertperspektiven lägger arbets- och näringsministeriet fram sina slutsatser till grund för det fortsatta arbetet. Utnyttjandet av tjänsteföretagens skalfördelar och exportmöjligheter hör till kärnfrågorna i samhällsekonomin produktivetsutveckling. Medvetenheten om industrins och tjänsternas "ödesgemenskap" måste förbättras och tjänster bör ses som en affärsmöjlighet i alla branscher. En framtida utmaning är att kombinera produkter och tjänster på innovativa sätt och även över branschgränserna. Digitaliseringen globaliserar marknaden för tjänster och möjliggör produktivitetstillväxt samtidigt som behovet av arbetskraft minskar i många branscher. Digitaliseringen skapar emellertid också nya arbetstillfällen på andra, helt nya områden inom ekonomin och öppnar möjligheter att sätta fart på de finländska innovationerna. Därför är det viktigt att identifiera sätten att komma med i tjänsteverksamhetens globala tillväxt och anknyta politikåtgärder till denna utveckling.</p>			
Kontaktpersoner vid arbets- och näringsministeriet: Närings- och innovationsavdelningen/ Pekka Lindroos, tfn 029 506 3597, Martti Myllylä, tfn 029 504 8034, Eija Laineenoja, tfn 029 504 7099			
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# Service Economy Revolution and Digitalisation

## Finland's Growth Potential

The report puts forwards viewpoints to the ongoing revolution of the service economy and the role of digitalisation in it.

The report comprises five expert opinions on the development of the private service sector and the effects of digitalisation. Etlatiето examines the scalability and export potential of private services and the effects that they have on the number of staff, the rise of added value and the growth in productivity. McKinsey & Company says that the Finnish service sector until now has been a source of steady growth and employment and assesses the impacts of digitalisation in this respect. VTT Technical Research Centre of Finland provides a wider perspective to global trends in services. According to DIGILE, platform economy is about to emerge as a winning profitability solution. Tekes, the Finnish Funding Agency for Innovation discusses the lessons learned from The Serve – Pioneers of Service Business programme and as an exercise in renewal of service companies.

Drawing on these expert opinions, the Ministry of Employment and the Economy presents its conclusions that provide basis for further work. Future challenges include productivity growth and creation of new jobs with high added value. They should be met in companies by combining products and services in innovative ways while utilising opportunities offered by digitalisation.

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