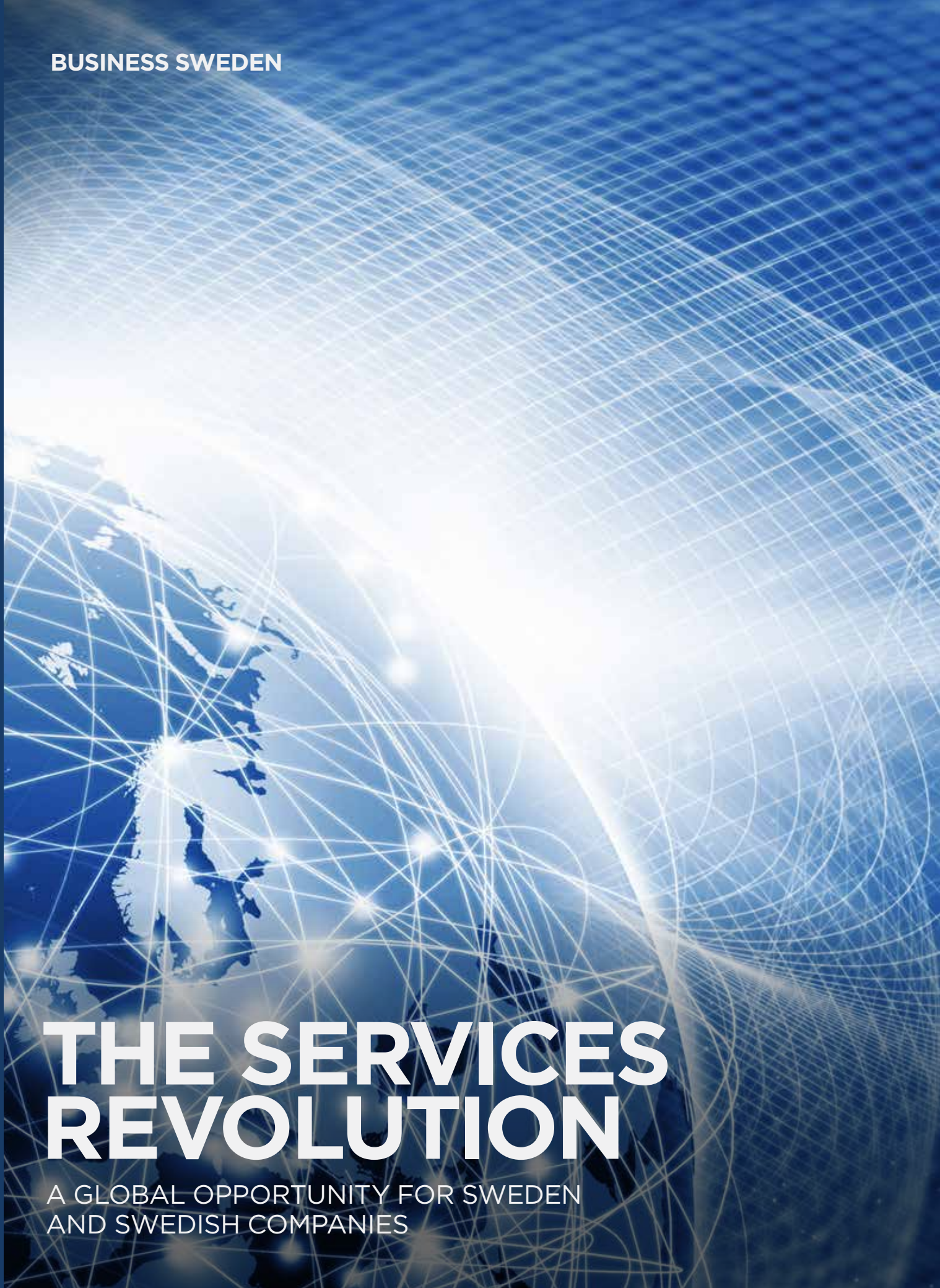
BUSINESS SWEDEN



THE SERVICES REVOLUTION

A GLOBAL OPPORTUNITY FOR SWEDEN AND SWEDISH COMPANIES

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INTRODUCTION

THE SERVICES REVOLUTION IS SWEDEN'S FUTURE

LENA SELLGREN
Chief Economist
Business Sweden

Industrial companies are the engine of Sweden's business sector and have long been a pillar of the country's prosperity. Swedish industry has successfully exported products worldwide that not only meet the highest quality standards but are designed to push innovation. Today's Swedish companies have key positions in global value chains and industrial ecosystems. Over the past decades, the services sector has grown at a steady rate along with the export of services. The manufacturing sector is no exception – services-oriented solutions are rapidly emerging and revenue streams are shifting. And there are clear indications that this trend will continue.

The servicification of the business sector is a global development but by no means a new phenomenon. At the same time, new technologies and innovations are fundamentally changing the way we communicate, manufacture products and interact in business – from the introduction of 3D printing to the Internet of Things which are connecting people and machines. When adding the steady growth of digitally-driven companies to the equation, a dramatic increase in global services becomes nothing less than a revolution.

Swedish companies in industry and services are facing considerable challenges as well as vast opportunities. The Swedish government's strategy for industrial renewal – Smart Industry – demonstrates a firm commitment and willpower to pave the way for the industrial sector's transition to services-oriented production and business.

We are in the midst of a global technology shift where connectivity, monitoring and data analysis are increasingly taking centre stage. Most companies today are stepping up their focus on services-oriented business models and strategies, but the pace at which this transition is taking place and the impact it will have on global societal development is yet unclear.

For that reason, Business Sweden has, in cooperation with the trend analyst consultancy Kairos Future, outlined three potential paths for Sweden's industrial and services sector over the next decade. For each scenario, Business Sweden has calculated and analysed the economic effects for Sweden.

To better understand how servicification is likely to impact industry, Business Sweden has conducted a number of interviews with business executives at large companies in Sweden.

I hope that you find this report a useful guide to further understand the underlying forces of the services revolution and its impact – and that it helps illustrate that Sweden's economy and businesses are facing a critical moment filled with challenges and unprecedented opportunities.

Lena Sellgren
Chief Economist

EXECUTIVE SUMMARY

The global marketplace is at a technological turning point. New technologies and innovations, industrial ecosystems and the expanding reach of digitally-driven platform companies are fuelling the pace of a global services revolution. Sweden's business sector and Swedish companies are in a strong position to lead the trend and stake their claim in tomorrow's reshaped worldwide markets.

To ensure continued success and export strength, Swedish companies need to reassess the future and adopt services-oriented business models. The ones with a bold vision can become tomorrow's innovators and lead the services revolution. At the same time, this imposes challenges in terms of meeting their demands for skilled talent.

Business Sweden has outlined three potential paths that Sweden's manufacturing and services sectors can take over the next decade. The scenarios are based on different levels of servicification. The first scenario builds on the assumption that Swedish companies in industry and services follow the same trajectory as in the past 15 years. Manufacturers continue to embrace digital innovation and autonomous systems, but they do not develop ecosystems and new, global service platforms.

The second scenario assumes that industrial companies seize the opportunities of the platform economy. They set up industrial ecosystems as well as global service platforms targeted to specific markets. The third scenario explores the effects of a fundamental shift toward a services revolution in the business sector – where even service companies become fully automated and build ecosystems and global service platforms.

In the first scenario where the pace of development remains the same as in recent years, the effects of increased servicification on Sweden's economy and businesses would only be moderate. By way of contrast, the second and third scenarios demonstrate a radically different outcome involving large productivity increases and sharp growth of GDP and exports, particularly in services. Annual GDP growth is 4 per cent in the second scenario, and 6 per cent in the third scenario. Similarly, it is estimated that exports would grow by 8 and 11 per cent respectively in these two scenarios.

The way the business sector and the labour market are structured will be different from today, as some sectors will increase their profitability and expand their footprint while other less profitable sectors will fall by the wayside and disappear. Physical processes in industrial production of high-quality goods will continue to be a cornerstone of Sweden's economic power – and lay a foundation for much of the development and export of services. However, the extent to which they contribute to wages, employment and profits will fall. Increased profits will to a greater extent occur in the knowledge-intensive services sector and especially in business segments such as IT services, technical consultancy, research and development, rental and leasing, recruitment and security and surveillance.

Leveraging the global technological shift will yield significant productivity gains, leading to increased production, particularly in services, as well as higher profits and wages. Increased services output will mean more consumer spending power and greater prosperity for Sweden, but also increased export opportunities for companies, again with emphasis on services.

A key prerequisite for unlocking innovation power and increased export of services is that the increased demand for qualified staff at companies is met. This can be achieved through better accuracy when matching skills with industry needs, improved integration of foreign-born workers, increased influx of foreign labour, adjusted timing of entry and exit from the labour market as well as competence development.

The fact that Sweden has a flexible workforce and solid social welfare system makes the labour market better equipped for transformation. Add to the mix a highly educated population, which underpins the ability to acquire new knowledge and skills, and it becomes clear that Sweden could have a strong position on the global services market of the future.

SUCCESS FACTORS FOR SWEDISH COMPANIES

When analysing the evolution of services over the past decades, it is only reasonable to assume that offering a broad palette of services will be essential for competitiveness, in lockstep with the accelerating growth of digitalisation and automation.

A number of success factors determining the ability of Swedish companies to lead the services revolution have been identified following a number of interviews with business development executives at larger enterprises in Sweden. Three areas are particularly relevant: the customer, the business model and skills. The growth of global service platforms means that customer relationships are changing. In a business climate that is more competitive than ever, companies need to decide which type of relationship they want to have with customers and how their position in the future supply chain is likely to add unique value. What are the advantages of owning a global service platform? Would selling services via third-party platforms be a better choice, or should your company avoid taking action at this particular moment? Regardless of the steps taken, the company's business model needs to be reviewed and reconfigured to a more services-oriented value proposition.

But that does not mean the transformation challenge is over. Companies need to make sure that the skills base can be constantly renewed and upgraded in order to keep pace with the technological development and the shift from a product-based customer approach to focusing on services.

ECONOMIC IMPACT IN THE THREE SCENARIOS FOR THE PERIOD 2015–2030

Annual rate of change in percent and share of total

Scenario	Productivity	Goods production	Services production		GDP	Total exports	Goods exports	Services exports	Share of employees in industry	Share of employees in services
					2%	4%	3%	6%		Past record[1]
									16%	67% Current status
1				Impact	2%	3%	1%	5%	11%	78%
2				Impact	4%	5%	3%	8%	9%	81%
3				Impact	6%	8%	4%	11%	8%	84%

[1] Average rate 2000-2015

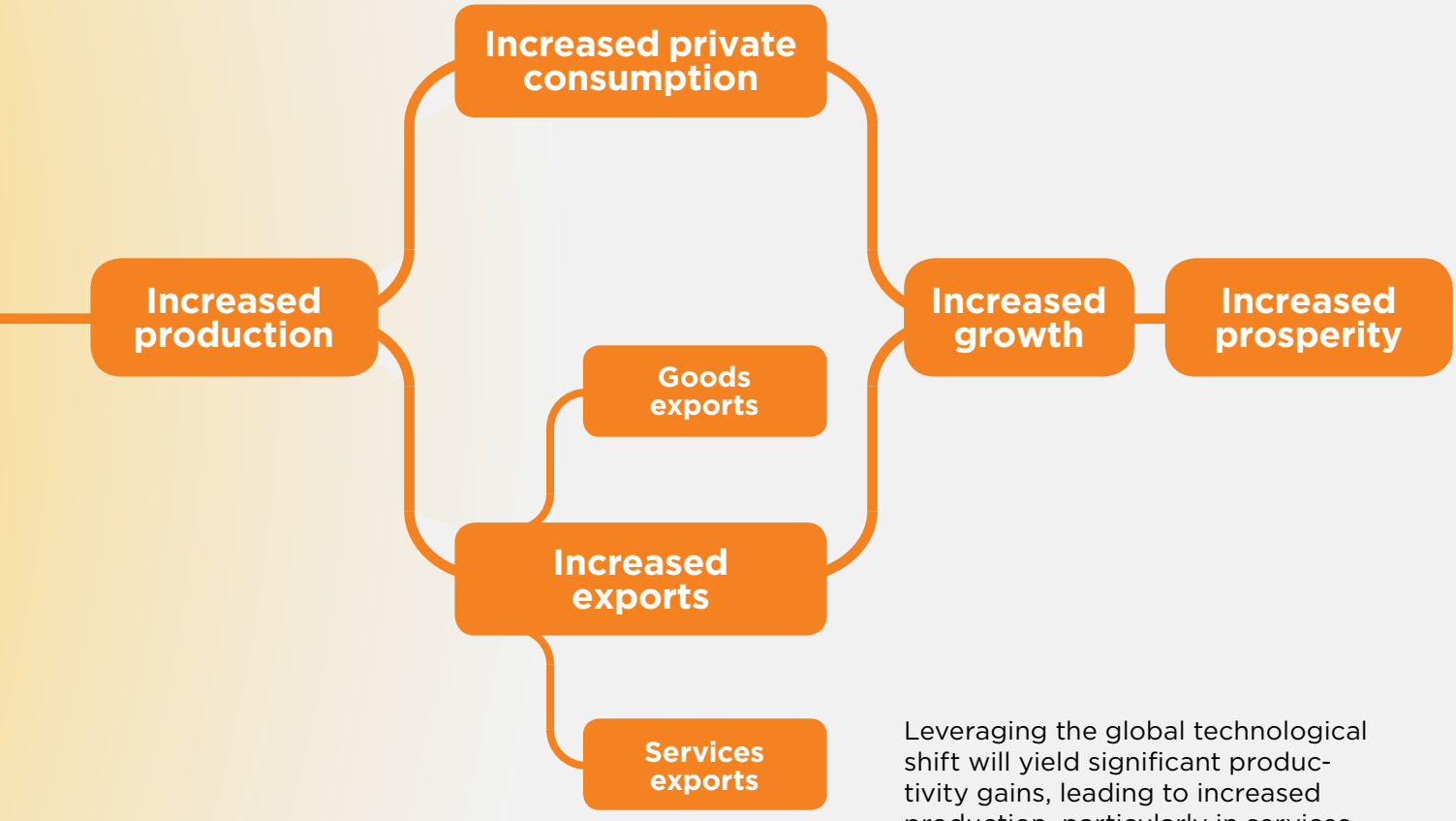
Note: The reason the share of employment figures do not amount to 100 per cent is that the analysis focuses on the manufacturing industry (also referred to as 'industry' in the report)

THE SERVICES REVOLUTION

THE TECHNOLOGY SHIFT

Increased productivity

INCREASES PROSPERITY



Leveraging the global technological shift will yield significant productivity gains, leading to increased production, particularly in services, as well as higher profits and wages.

Increased services output will mean more consumer spending power and greater prosperity for Sweden, but also increased export opportunities, especially in the services sector.

TWO DIMENSIONS OF SERVICIFICATION

Servicification, in its simplest form, means that service purchases increase as does the services share of total sales. Results from several studies reveal that servicification in Sweden as well as internationally has increased over a long period of time. With that in mind, the increase of services as a share of the economy is not a new phenomenon. It is the result of a deliberate choice by companies – due to growing international competition and the fight for profitability – to focus on their core business and entrust others with all other matters.

Thanks to new technologies and innovations, combined with the rise of ecosystems and digitally-driven, global platform companies, the servicification trend is accelerating dramatically and transmuting into nothing less than a services revolution. As a result, companies are facing a new business challenge and opportunities that require a rethink of business models.

Business Sweden has opted for a two-dimensional view in an attempt to summarise the current transformation of industry. The first dimension shows the *intelligence level* that is expected to increase as business operations rely more and more on digital-based, autonomous systems as opposed to conventional human input. The second dimension represents the *complexity level* at companies.

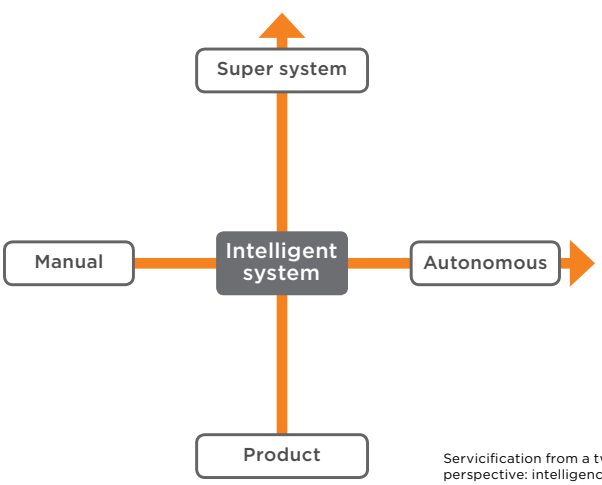
As businesses increasingly shift their attention from purely product-focused operations to assuming the role of co-creators (manufacturers of goods or services) in a long and complex value chain, in some cases they will be initiators of ecosystem partnerships, or even owners of what Business Sweden has decided to call super systems.

Ecosystems involve all relevant partners, from manufacturers to distributors, and are based on the premise of exchanging information and business opportunities in a network. Companies that have built super systems become owners of ecosystems and are responsible for the framework of interaction, bringing customers and suppliers together via, for example, digital service platforms. The big platform businesses built around complex, scalable and autonomous systems are currently pioneering the servicification trend, see illustration below.

INTELLIGENCE LEVEL:
FROM MANUAL TO AUTONOMOUS

Shown at the far left of the horizontal axis of the illustration are companies where operations are entirely manual. These businesses have usually adopted digital ERP (Enterprise Resource Planning) systems, but every decision and step in the production process is taken by a human.

The next step on the development ladder at these companies is to automate simple tasks in closed systems. For example, customer interactions and certain work processes would typically be automated to a degree. However, the systems are not adaptive or self-learning and most key decisions require human intervention. This is the stage where most Swedish companies find themselves today, or partly at least.



Servicification from a two-dimensional perspective: intelligence and complexity

At the centre point of the figure, a degree of intelligence will be incorporated into the business systems, which are capable of certain complex tasks as they learn from feedback and previous experience. Companies at this level will be able to increase efficiency thanks to the access and use of large amounts of data that can optimise parts of processes or systems.

To the right of the centre point, humans no longer play a key role in operations as sensors and artificial intelligence (AI) are both elements of a fully digitalised infrastructure. Intelligence is used to manage workflows and the flow of data is just as important as the flow of goods and services. That said, humans are responsible for holistic aspects and outcomes and will partly work together with machines to monitor flows and processes.

Companies with fully autonomous operations are found at the far right of the horizontal axis. They adopt self-governing and self-learning systems and will, for example, find the most suitable sub-suppliers at the most competitive prices while simultaneously meeting customer needs for goods and services. AI will be at the centre of operations, managing most processes while taking the majority of all decisions.

In the most futuristic of scenarios, AI will autonomously manage all facets of business operations: product design, business models, production, distribution and customer service. There are currently no companies at this advanced stage, which is largely a future vision.

COMPLEXITY LEVEL:
FROM PRODUCT TO SUPER SYSTEM

The vertical axis of the model reflects the transformation of companies from product-focused operations, at one end, to global super systems at the other. At the bottom of the axis are companies that only produce products or services. At the top are companies that have actively developed what Business Sweden will refer to as super systems that encompass all data and customer interactions. These companies not only take part in ecosystems but own them and set the ground rules.

In between products and super systems are companies that are gradually starting to build up a services-oriented portfolio around their products, spanning everything from maintenance to financing solutions. Companies that are undertaking larger responsibilities, such as systems development or even running operations on behalf of customers, can also be found in this space. Overall, these businesses begin to expand beyond the traditional boundaries of their sector.

The most disruptive placement is found just above the zero point on the vertical axis. This is where companies make a radical departure from previous practices, where products are just one ingredient of services-oriented platforms. These companies will, in the long-term, develop their own global platforms and digital solutions and move further and further away from their original segment, toward so-called super systems. This model encompasses industry as well as the services sector – they are all impacted by the services revolution. Companies that already focus on services will, just like their industrial peers, take steps to offer complete solutions related to everything from research and development to ecosystems and digital platforms.

It is important to point out here that the example above is a simplification of the reality that companies are currently experiencing. All changes and challenges that industry is faced with naturally cannot be represented in this illustration. The aim is rather to illustrate which aspects of servicification Business Sweden has chosen to analyse.

Facts:

PLATFORM COMPANIES

Google, Facebook, Alibaba, Uber, Ebay, Amazon and Airbnb. These are all examples of business models and digital platforms that have achieved a global impact in recent years. New platform companies are fast emerging and their market values keep rising. In 2016, four out of five companies on the Forbes list of the world's most valuable brands were platform companies. Similarly, in the same year, the consulting firm Accenture published its *Technology Vision Survey* in which 40 per cent of business leaders confirmed that adopting a platform-based business model and joining ecosystems together with digital partners was a key success factor.

Thanks to their rapid growth, high return on investment and considerable profit margins, investors are unfailingly putting a higher value on platform companies than traditional product-focused businesses. With scalability as a cornerstone of their strategies and technologies, they can engage a global audience while costs for expansions are kept relatively low as all communication and information exchange takes place online.

Platform companies come in many shapes and sizes. The main categories are communications platforms (Skype, WhatsApp), social platforms (Facebook, Linkedin), media platforms (Twitter, Youtube), search platforms (Google), development platforms (Windows, Apple App Store, Google Play), service platforms (Airbnb), product platforms (Alibaba, Ebay, Amazon Marketplace), transaction platforms (Visa, Paypal, American Express) etc.

Although platform companies can be divided into different categories, they often share the same basic elements of their business models: value is created through enhanced and simplified interaction between two or more parties, usually consumers and producers. In contrast to traditional product-oriented businesses, the platform companies do not own the production of the goods and services they provide.

Beyond this, the business models of traditional product companies differ from those of platform companies is the way in which value is created. In the former case, value creation is linear and one-sided – from factory processes to distribution right through to marketing and consumer purchase. Meanwhile, platform companies create value in two directions – around the ecosystems where partners interact as well as for end-consumers.

Business Sweden has decided to highlight three companies that have developed platform solutions. Two of them are e-commerce giants – Amazon and Alibaba – which are both global and dominate the sector in terms of business turnover and market value.

The monumental success of platform companies in retail has led to the rapid development of new concepts – both global and market-specific platforms – in manufacturing and other areas of the services sector such as healthcare and education. For this reason, Business Sweden has chosen to analyse the industrial group ABB which has developed a niche platform for its business areas in manufacturing.

ALIBABA

Alibaba is a Chinese IT conglomerate founded in 1999 by its current Executive Chairman Jack Ma. Initially focused on the domestic market in China, the company branched out and today it has business operations in several countries including the U.S., the UK, Italy, France, Germany, the Netherlands, Japan, India, Australia and New Zeeland. Alibaba originally tailored its services toward small businesses, but in recent years retail giants such as Nike and Gap have begun using Alibaba's services to connect with the company's 400 million customers.

Alibaba's growth has been consistent and solid and the company now accounts for 80 per cent of all online retail in China. The company makes large profits from advertising and added services on three of its web portals: Alibaba, Taobao and Tmall, which are targeted to different customer groups. Alibaba is an international *business-to-business* (B2B) platform for retailers while Taobao is aimed at the *consumer-to-consumer* (C2C) market. While, thirdly, Tmall aims to appeal to large companies with a *business-to-consumer* (B2C) platform that have well-known brands focused on reaching China's middle class.

AMAZON

Founded in 1994 in the U.S. by its current CEO Jeff Bezos, Amazon currently has more than 300 million registered customers worldwide. In addition to being an e-commerce giant, Amazon sells internet services through Amazon Web Services – a cloud-based service platform that provides computing power, data storage and other features that help customers grow and expand. In contrast to Alibaba, Amazon has its own network of storage warehouses and, in this sense, resembles traditional product companies.

Apart from its huge product selection, Amazon's e-commerce business encompasses four of its own low price brands; Amazon Basics (everyday items including home electronics), Amazon Fresh (sales and delivery of groceries), Amazon Studios (entertainment streaming), and Amazon Warehouse (returned and repaired warehouse products at discount prices), the Amazon Kindle as well as second hand items. Amazon is also a sales channel for other retailers that want to benefit from Amazon's platform. In these cases, Amazon retains a share of sales in exchange for providing the platform, but avoids warehousing responsibilities while sellers handle all advertising and delivery procedures.

ABB ABILITY

ABB is a Swedish-Swiss multinational corporation operating in power generation and automation technology. The group has subsidiaries in more than 100 countries with a total of 13,000 employees, of which 9,000 are based in Sweden. ABB's four business areas are *Electrification Products* (low voltage products), *Robotics and Motion* (electric engines and drives), *Process Automation* (instrumentation, automation and optimisation of industrial processes) and *Power Grids* (power and automation technology). The company's products focus on enhancing customers' productivity while reducing the environmental impact of energy companies and manufacturers.

In the spring of 2017, ABB launched the industry leading digital platform solution ABB Ability which offers customers the ability to stay up to date with the latest digital innovations. Via the platform customers can enlist the help of experts to develop new and existing processes.

The development of ABB Ability's digital solutions and services involves a strategic cooperation with Microsoft's leading cloud platform Azure. In this way, ABB's industry expertise can be transformed into software offers that reach customers through Microsoft's digital platform.

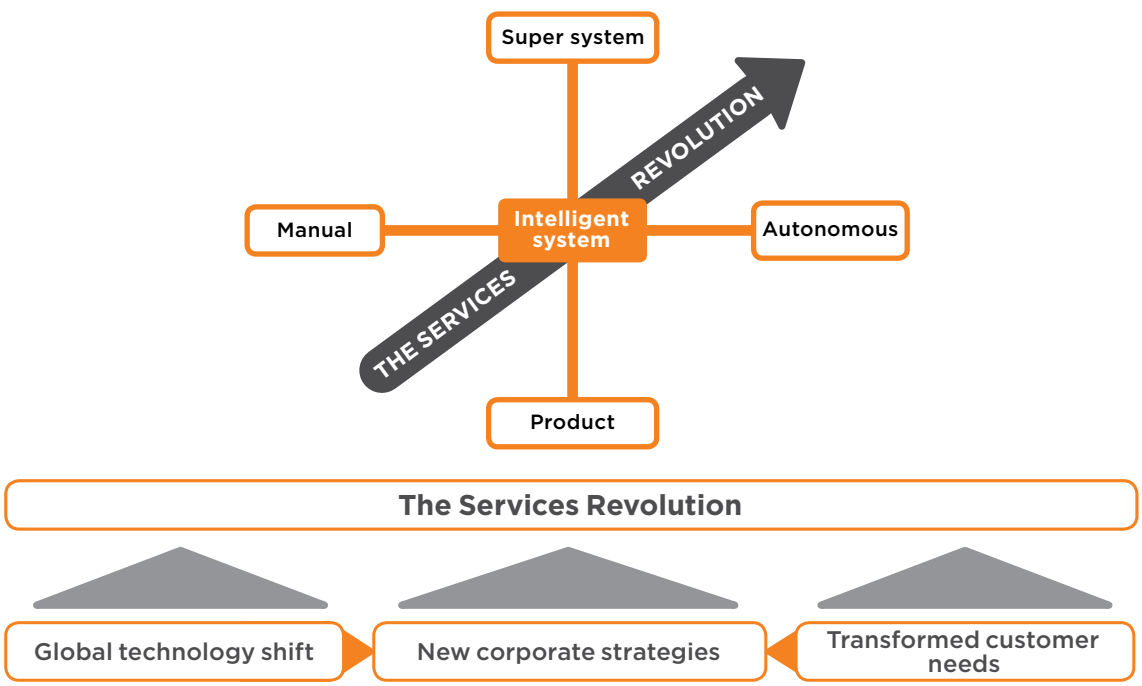
THREE POTENTIAL PATHS FOR SWEDEN

Business Sweden has identified three potential paths for Sweden and Swedish companies in light of the services revolution, in industry as well as in the services sector. These scenarios explore how the servicification trend can potentially unfold over the next decade. The economic effects are estimated for the period 2015–2030.

The first scenario is based on the assumption that Sweden's economy continues to develop as it has done in the past 15 years. Manufacturers continue to digitalise their operations and adopt autonomous systems, but do not take advantage of opportunities to offer holistic solutions, manage industrial ecosystems or create new, global service platforms. In the second scenario, industry takes a greater step toward servicification and develops autonomous solutions, ecosystems and global service platforms within various segments.

In the third scenario, servicification takes a leap forward and transforms the entire business sector – leading to a services revolution. Companies that are already services-oriented will adopt more autonomous solutions, introduce new holistic solutions and create ecosystems and global service platforms. All scenarios are illustrated by a fictitious company.

In the second and third scenarios, considerable productivity increases take place, as a consequence of more efficient resource handling made possible by



automation and the introduction of ecosystems and global, digitally-driven service platforms. Productivity gains are overwhelmingly greatest in the third scenario where services-oriented companies become fully automated and adopt advanced AI-based systems and platforms. This productivity increase enables higher production output, particularly in the services sector.

In order to measure the economic effects of the accelerating transition from products to services, Business Sweden adopts an input-output-model which demonstrates how a changing business landscape impacts on different variables of Sweden's economy, such as GDP growth, employment and foreign trade. The three scenarios analysed here make it possible to include different economic projections and calculate the economic effects for the year 2030. All three scenarios are then compared with the starting position, which reflects Sweden's economy in 2015. The input-output calculations show the impact of different levels of servicification on the Swedish economy. The public sector is not included in the analysis as the linear relations of the input-output-model do not apply there, while also bearing in mind that the public sector depends on political decision-making and public financing. In addition, the purpose of the analysis is to single out the effects of increased services innovation in the private sector.

> We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction

BILL GATES

INDUSTRY CONTINUES TO ADOPT SERVICES INNOVATION

The basic premise of this scenario is that Swedish businesses continue on the current path of servicification and adopt digital solutions that pave the way for automated production. However, companies do not take the opportunity to introduce more far-ranging solutions such as ecosystems and global service platforms. There are no radical changes and Sweden's economy develops more or less at the same rate as in the previous 15 years.

As digitalisation and automation of industrial processes continue, productivity rates will rise which, in turn, leads to increased production at companies. Services output will continue to rise but at a moderately slower rate than previous landmark advances. This is due to the fact that production increases from complex system solutions do not occur in this scenario. The production of goods, however, continues to increase at the rate of the previous 15-year period.

TRUCKS SWEDEN AB

Trucks Sweden AB is a Swedish manufacturer of high performance loading vehicles such as wheel loaders and forklifts. With a distribution network spanning the U.S. and Europe, the company has built a long-standing reputation for quality products. Two decades ago, Trucks Sweden decided to increase its focus on aftermarket services such as preventive maintenance, operator training, vehicle upgrades and extended guarantees, as a way of enhancing the product portfolio.

Gradually, the company transformed and became a solutions provider rather than an equipment supplier. This meant that customer engagement could be reinforced worldwide. In addition, new revenue streams from aftermarket services and spare parts started to outpace vehicle sales.

Trucks Sweden was an early adopter of digital technologies and began to equip its wheel loaders and forklifts with sensors connected to monitoring systems and analytics tools. Customer expectations on cost efficiency could now be met throughout the lifecycle of products, and service could be planned based on real life status and needs, rather than pre-planned intervals specified in service manuals.

In addition, the company could begin to sell machine user data and offer customers the possibility to optimise work schedules and operator shifts. As customer relationships developed and service technicians took greater responsibility for managing the profitable aftermarket services, Trucks Sweden went on to establish subsidiaries in all of its key markets which helped the company improve quality and sales.

Empowered by its success, Trucks Sweden decided to expand internationally and become a world leader in materials loading. Making the transition from products to modern, digitalised services was the key enabler. Instead of selling trucks, the company connected all its equipment and began to charge on a pay-per-use basis. This reduced pressure on capital investment for customers while it enabled Trucks Sweden to expand into both developing and fast growing economies. As a next step, autonomous loaders were introduced as was AI which made self-diagnostics possible for service and maintenance related to engines, tires and consumables. The result was reduced wear and tear and increased service life of all equipment. The largest profits no longer came from vehicle sales and limited after-market services, but rather from providing a total materials handling solution, coupled with reduced production costs and longer product life cycles.

By 2030, Trucks Sweden will have become a world-leading provider of cost-efficient materials handling services. The success story is impressive, but the company will still only have leveraged the potential of its own network and not fully tapped into the customer's logistics ecosystem through, for example, systems integration with other suppliers.

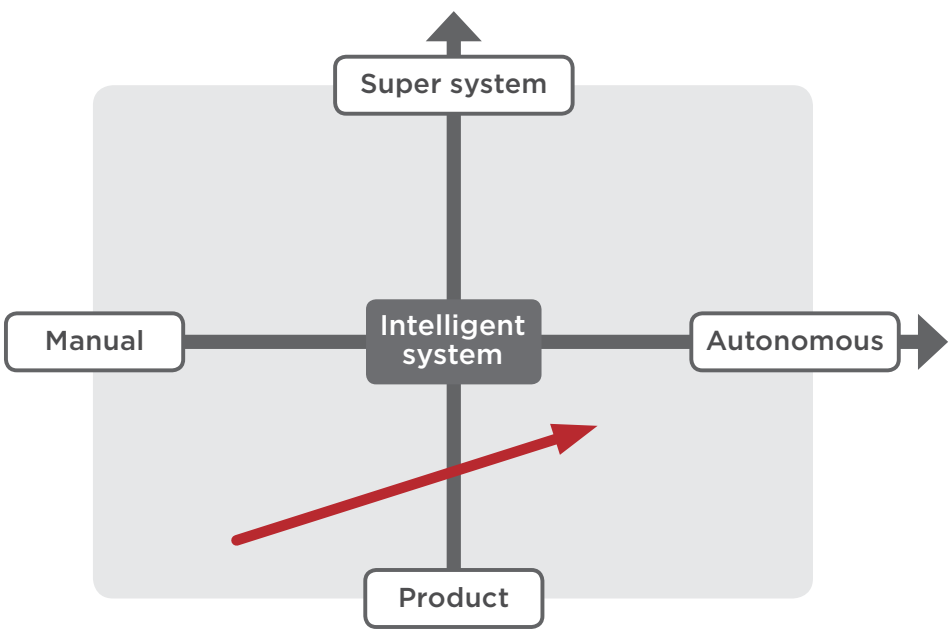
CONSEQUENCES FOR SWEDEN'S ECONOMY

Swedish companies are doing well and continue to adopt services-thinking in their business strategies, but they are not developing more complex system solutions involving ecosystems and global, digitally-driven platforms. Sweden's economy grows more or less at the same pace as in the past 15 years. GDP increases by about 2 per cent per year and annual exports increase by 3 per cent. The production surplus generated by new productivity levels will, in addition to higher domestic consumption, open up for increased exports – particularly in the services sector where the biggest production increases are expected to occur. However, the increase in exports is below the historical average of 4 per cent. One reason for this is that services output is below the historical rate of development.

The business sector's basic structure will change as some segments become unprofitable and disappear from the market, while other, mainly services-related areas become more profitable and expand. Industry value-added increases, but when measured as share of GDP at factor price (excluding taxes and subsidies) it decreases to 14 per cent, from the current level of 17 per cent. The services sector expands and here, value-added as a share of GDP grows to 76 per cent from the current level of 70 per cent.

Total employment in the business sector will increase but is concentrated to services growth. The services sector share of total employment in the private sector increases to 78 per cent from the current 67 per cent level. Employment levels in the industrial sector decrease to 11 per cent from the 16 per cent level. The reason for this is that increased production levels do not compensate enough for the negative effects that increased productivity will have on industry employment.

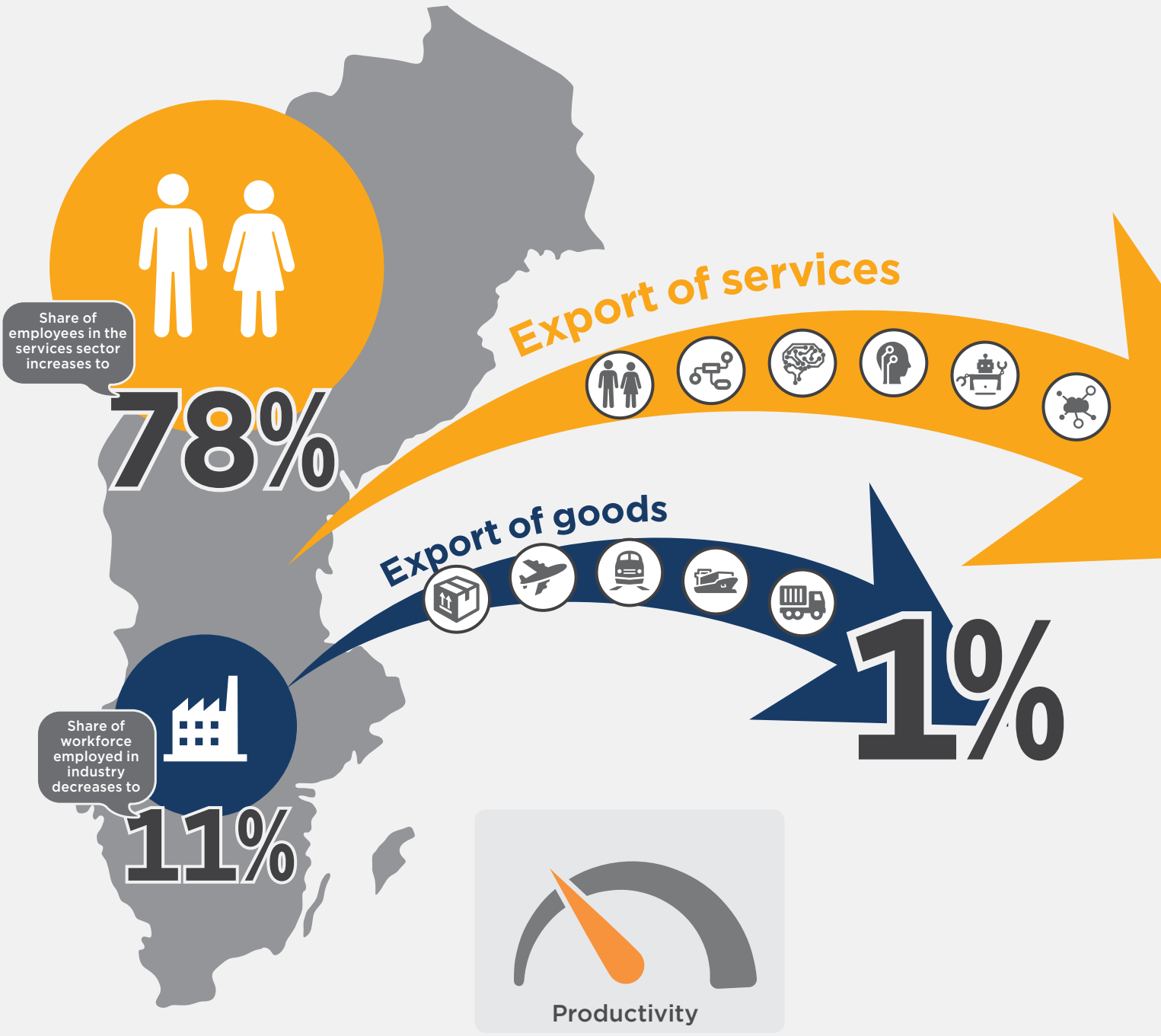
In conclusion, future jobs created from industrial growth will be limited to the services sector where the largest profits are expected. Some examples of subsectors that will benefit from increased servicification include data and information services, financial services, technical consultants, research and development, rental and leasing, recruitment services and surveillance services.



Scenario 1

Industry continues to adopt services innovation

Manufacturers continue to digitalise their operations and adopt autonomous systems, but do not take advantage of opportunities to offer holistic solutions, manage industrial ecosystems or create new, global service platforms.



2%

AVERAGE GDP GROWTH PER YEAR

3%

AVERAGE GROWTH OF TOTAL EXPORTS PER YEAR

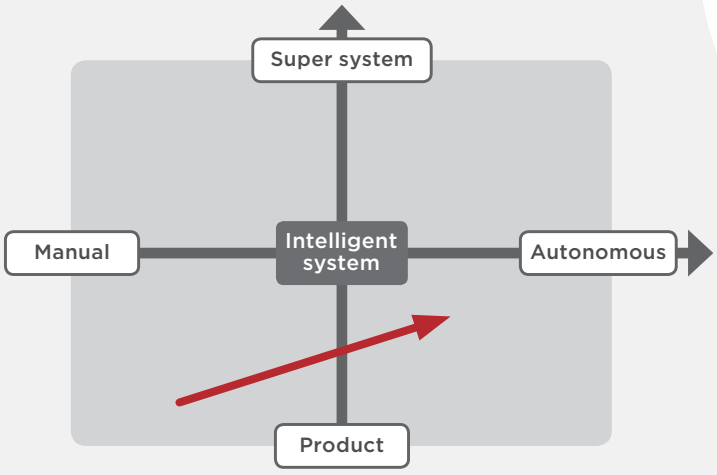
14%

INDUSTRIAL SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

76%

SERVICES SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

5%



INDUSTRIAL COMPANIES EMBRACE THE PLATFORM ECONOMY

This scenario plays out on the assumption that companies develop extensive services portfolios over the next decade and build industrial ecosystems. Manufacturers will move further and further toward autonomous systems while simultaneously introducing complex service platforms in different business niches with a global reach. By immersing themselves in the technology shift they stand to make large productivity gains – which are twice as large as in the first scenario.

The productivity gains will pave the way for substantially increased production, particularly in services, which has a spin-off effect and increases goods production to a degree. The growth rate of both services and goods will be twice as high as in the first scenario, which follows the historical rate of development. The increased output of services is further bolstered by greater market demand for data management and support as more companies own and run their platforms.

It is estimated that revenues will increase dramatically as services growth all but replace conventional product sales. The manufacture of goods and products will increase as well but will not be supplied on a product-only basis. Instead, they will be included in the services sold both domestically in Sweden and in the country's export markets. The fictional industrial company Easy Machines AB – which developed from a traditional manufacturing business to become a successful global provider of industry service platforms by 2030 – will be used to illustrate this more advanced scenario.

EASY MACHINES AB

Easy Machines AB is a supplier of manufacturing equipment that has long been an established brand in Sweden and on international markets. The company operated in a fierce environment where an increasing number of companies offering similar equipment competed on price. To distinguish itself from competitors, Easy Machines decided to develop a new product line. A development team with strong IT and digital services competences was put together to connect the company's machines and lay the foundation for Industry 4.0 operations. The new product line involved the use of sensors and AI which meant that data collection and algorithms could be used to predict deviations in production cycles and to plan preventive maintenance. The upgrade also allowed Easy Machines' customers to adapt and optimise production flows thanks to direct access to machines via the customer platform.

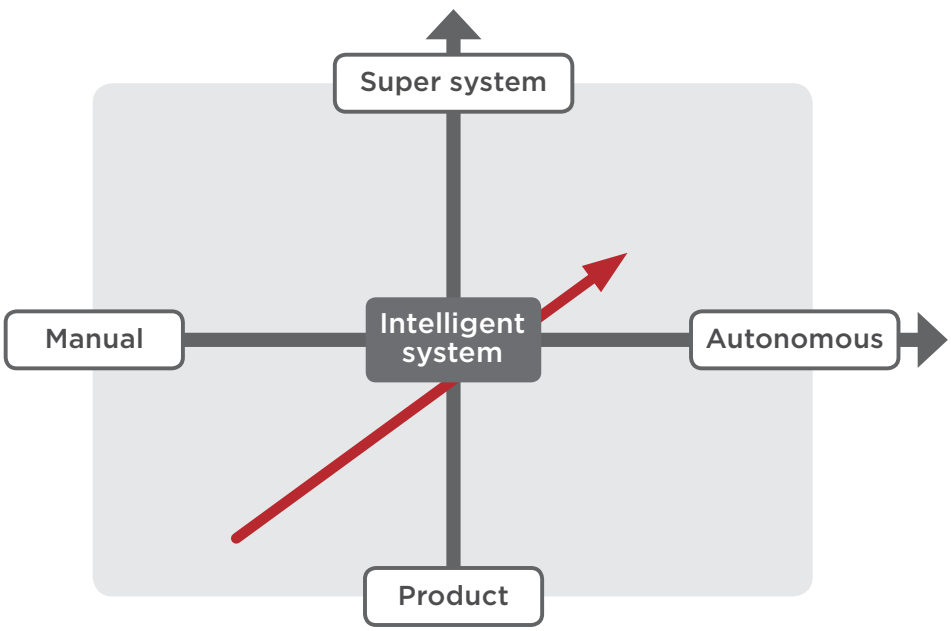
Eventually, as Easy Machines expanded its focus on optimising customers' performance levels, the company allowed the development team to make the platform accessible for other machines by other suppliers. This meant that customers could optimise the entire production cycle, reduce energy consumption and improve the efficiency of all materials orders. Easy Machines took a strategic decision to not only supply advanced equipment but to work in close partnership with customers to improve operations. In addition, the company contacted other suppliers and convinced them to connect their machines. This led to a radical increase in collectable data which meant that production managers could compare their machine performance with other managers worldwide. The platform also incorporated knowledge sharing as well as ranking of machines and service providers, coupled with an open marketplace for buying new machines, spare parts, maintenance and optimisation services.

By 2030, Easy Machines has engaged the vast majority of the world's relevant production managers as active users, and the majority share of all purchases are made through Easy Machines' service platform.

CONSEQUENCES FOR SWEDEN'S ECONOMY

If Swedish companies follow the same route as this fictional equipment supplier, productivity will increase dramatically and benefit Sweden's economy and long-term prosperity. It is estimated that GDP will increase by 4 per cent per year, and that exports will increase by 8 per cent per year over the next decade. Wages and profits in industry will increase considerably with emphasis on the services sector. The rapid growth and progress of services-oriented strategies means that some subsectors become highly profitable and expand, while others become less profitable and fade away. Value-added in industry increases, but its share of GDP decreases to 13 per cent. The services sector as a whole expands dramatically and its value-added as a share of GDP increases to 77 per cent.

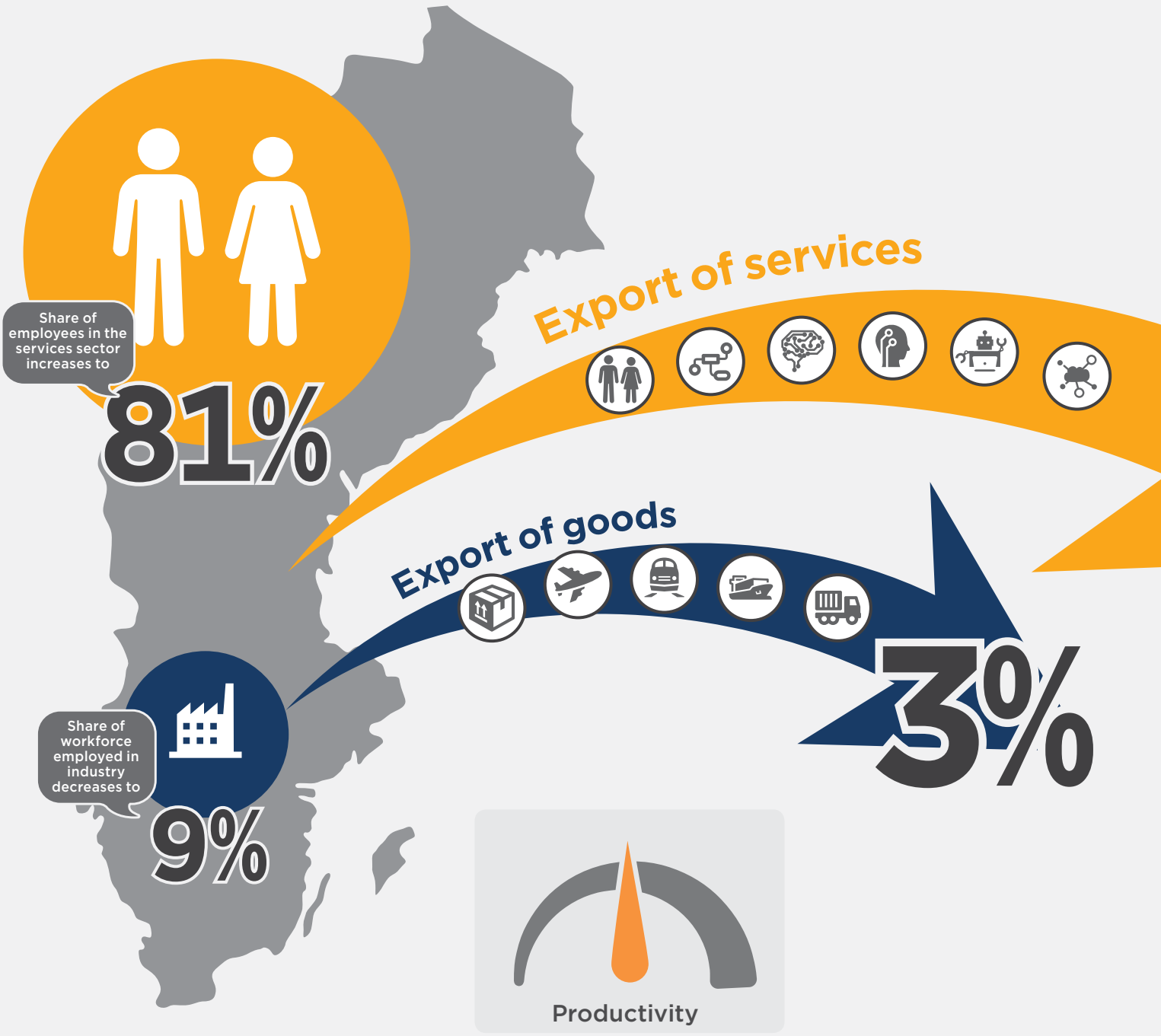
Similarly, there is sharp growth in total employment figures – which will increase by almost a million full-time professional positions.



Scenario 2

Industrial companies embrace the platform economy

The industrial sector moves increasingly toward services-oriented business strategies and develops automation solutions, industrial ecosystems and global service platforms for a wide range of specialised areas.



4%

AVERAGE GDP GROWTH PER YEAR

5%

AVERAGE GROWTH OF TOTAL EXPORTS PER YEAR

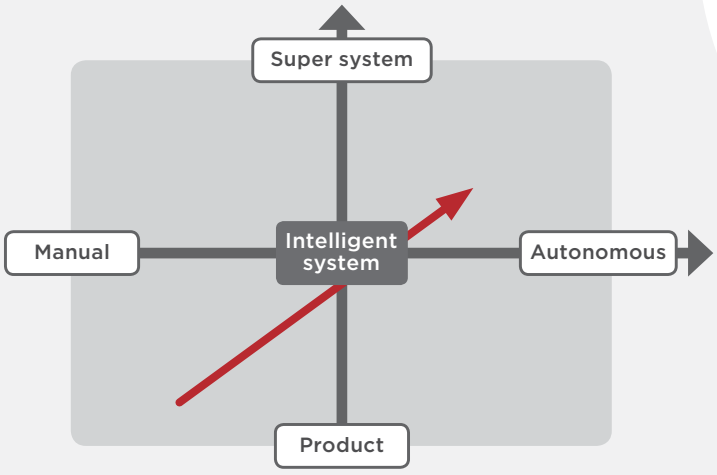
13%

INDUSTRIAL SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

77%

SERVICES SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

8%



Scenario 3

THE ENTIRE BUSINESS SECTOR SHIFTS TO SERVICES

In this third scenario a comprehensive shift to services-oriented business models plays out in the private business sector resulting in a productivity leap with a three-fold increase compared to the first scenario. Service providers adopt full automation as well as advanced ecosystems and new, global service platforms.

The steep productivity gains lead to major increases in production output which, in turn, drives increased production of goods. Both services and goods production increase more than three times. A good illustrative example here are healthcare service providers which, by adopting global health service platforms, can develop new services and significantly increase the quality of care. The fictional healthcare provider Health Focus AB will be used in this scenario, and the success story begins with a new healthcare platform and subsequent expansion.

HEALTH FOCUS AB

Health Focus AB is one of Sweden's leading private healthcare providers which owns and runs elderly care homes across the country. As part of its mission to provide the best possible care, the company initiated a digital development project to see if it could bring connectivity to patients and personnel, as a pathway to personalised care solutions with continuous health monitoring and analysis. This new way of working was introduced at all of Health Focus' care homes and data analysis became part of the regular routine.

Empowered by its successful results, Health Focus branched out to find partners around the world who could help generate more data and further advanced proactive care methods. The next step was to develop user friendly software that would enable patients and health professionals to interact and improve care. Following its steady success, Health Focus began to attract attention in international healthcare circles and was approached by healthcare companies that wanted to buy the company's software solution.

Health Focus decided to go a step further as it launched a service platform where patients and family members could plan their own care programmes regardless of which healthcare provider they were using. With a superior user experience involving proactive care suggestions based on current health status and analysis of large amounts of data, Health Focus welcomed other healthcare providers to its service platform.

The patient software was further developed to include more areas of healthcare, rating of care providers, digital pharmacy services for medicines, care products, assistive devices, insurance products and financial advice. Thanks to its well-functioning and regular contact with patients using the platform, Health Focus could rapidly grow an international footprint and become one of the world's leading care providers in markets where it does not operate any care homes.

With most of the largest healthcare companies as customers, Health Focus decided to develop healthcare robots using AI. This meant that hygiene and care robots were introduced, along with robot-assisted surgery solutions for standard operations and robot therapists. By 2030, Health Focus of Sweden will have become one of the world's cutting edge, star platform companies in healthcare.

CONSEQUENCES FOR SWEDEN'S ECONOMY

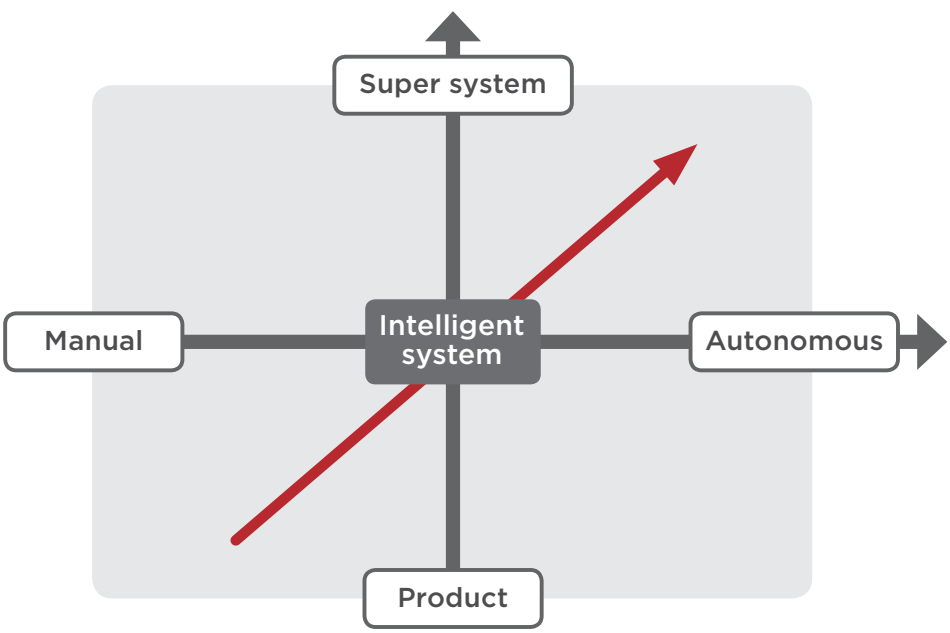
The extensive servicification of the business sector gives a powerful boost to GDP growth which increases by 6 per cent per year on average over the next decade. This is on a par with fast growing economies such as China and India.

The growth of services output has a considerable impact in foreign trade. Exports increase by 8 per cent per year on average and services exports increase by no less than 11 per cent per year. Import penetration rates increase, but are unable to keep pace with exports.

The sharp growth of production results in higher profits and wages among companies. The largest increase in value-added takes place in services-focused subsectors as they also represent the largest increase in production.

Although the value-added increases in industry, when measured as a share of GDP it falls to 10 per cent. The services sector expands considerably and value-added in the services sector increases to 80 per cent of GDP. With rapid growth of services, Sweden's future economy becomes totally dependent on progress in the services sector.

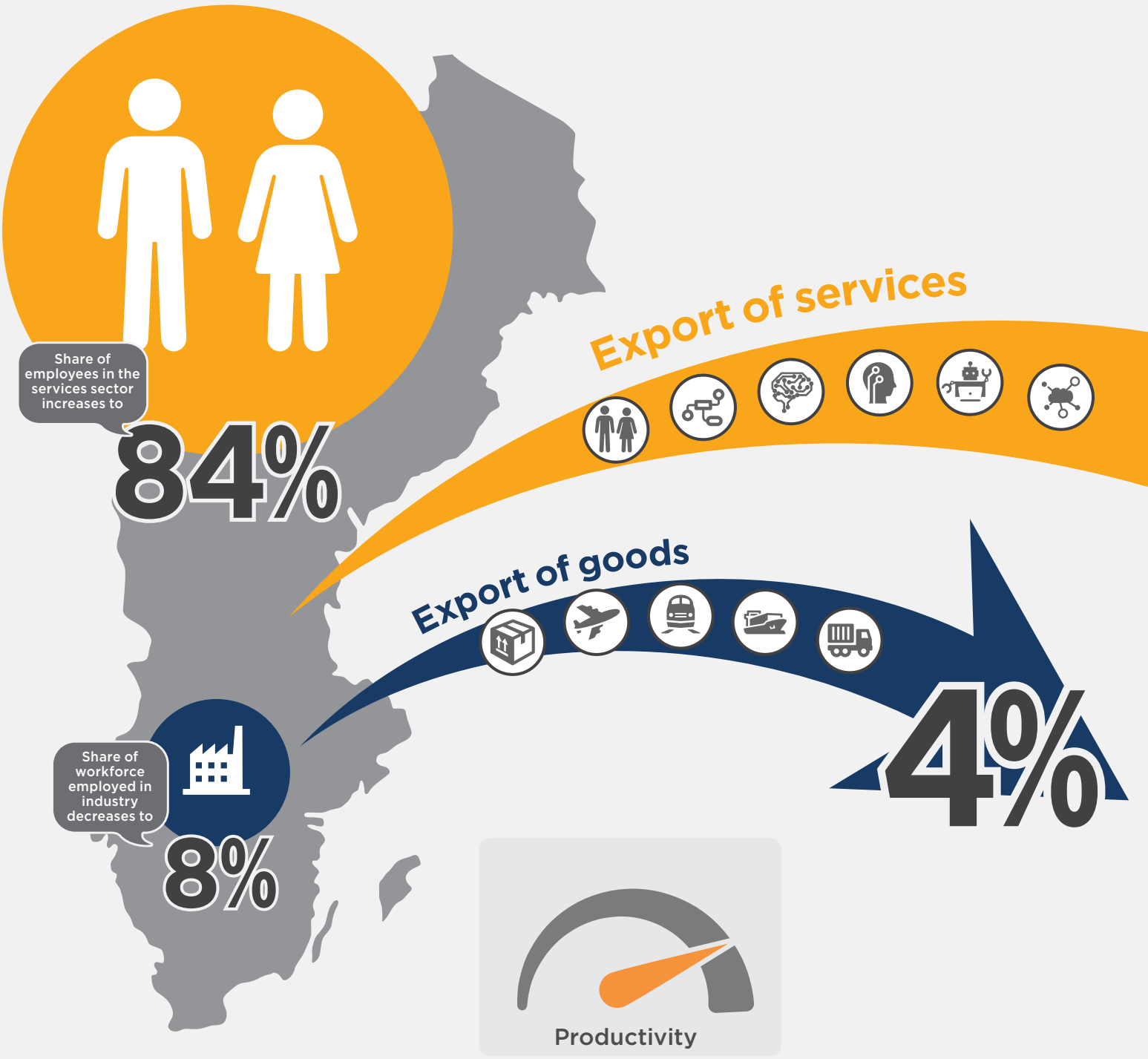
The large increase in services production also has an important impact on total employment which increases markedly. All of this employment growth takes place in the services sector, while employment decreases in industry. The services sector's share of employment increases to 84 per cent while the industrial sector's share of the workforce is reduced to 8 per cent. It should be noted that the number of employees in the services sector that are required to support the industrial sector increases from the current level of 190,000 to 396,000. This is due to the increased demand for services in industry.



Scenario 3

The entire business sector shifts to services

The services revolution is in full swing and impacts every domain of the business sector. Services-focused companies increasingly introduce automation while creating holistic solutions, ecosystems and service platforms.



6%

AVERAGE GDP GROWTH PER YEAR

8%

AVERAGE GROWTH OF TOTAL EXPORTS PER YEAR

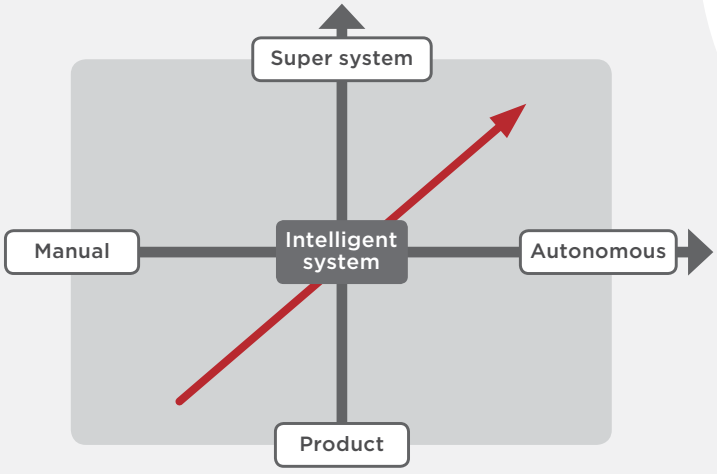
10%

INDUSTRIAL SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

80%

SERVICES SECTOR'S VALUE-ADDED AS A PERCENTAGE OF GDP

11%



CONCLUSIONS

The business sector in Sweden – and worldwide – will undergo dramatic structural changes in in the next decade. As in many other countries, recent years have ushered in more and more services in industry, and it is likely that this trend will only continue to accelerate. The production of services will increase and new services will be created. Sweden's prosperity will depend on what may be called *the services industry*, which permeates all areas of the business sector.

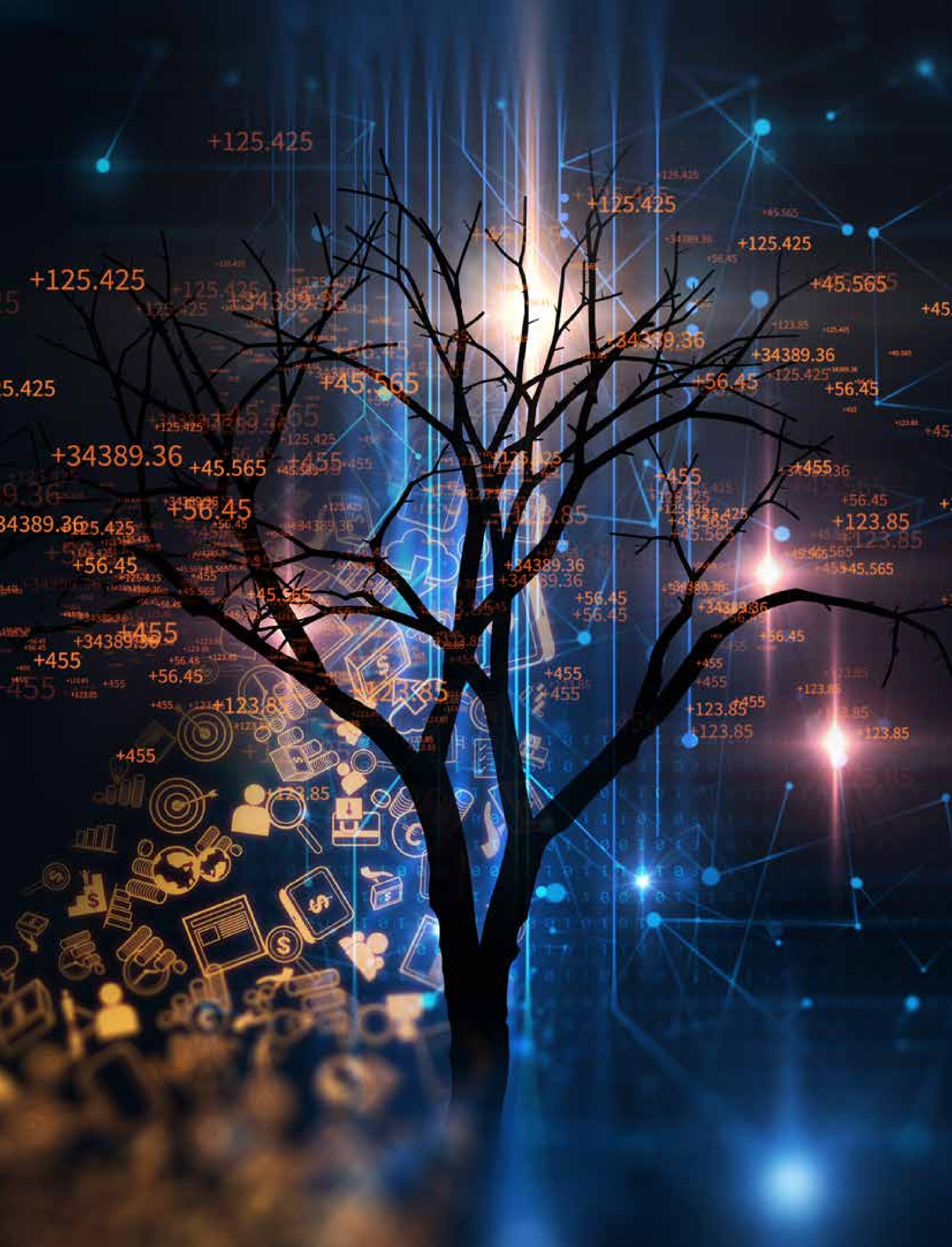
Production of high quality goods will continue to be a linchpin of Sweden's economy – and a prerequisite for much of services production and services export. However, its share of total wages, profits and employment will decrease.

Value-added increases in all of Business Sweden's three scenarios as a result of more efficiency in the production system. Income will rise for households as well as for businesses, but also for the public sector in the form of increased tax revenue. Better efficiency in operations will lead to production increases which, in turn, will generate greater resources for the economy. Business Sweden assumes that the production increase will be distributed evenly between private consumption and exports, which are both seeing growth on the upswing. Increased exports are an instrumental source of growth, especially for a small, open economy like Sweden that is dependent on the outside world.

It is important to underscore that some factors, which have not been highlighted in the report, can appear limiting for exports. For example, healthcare services have been excluded from the European Union's services directive which most likely has and will continue to limit the export of healthcare services. As such, it is likely that the results presented in the report are somewhat overstated.

The beneficial effects in terms of profitability will vary between different sectors of the economy. Companies in some goods-related sectors will experience moderate or decreased profitability and some will be knocked out of the market. At the same time, the most astute service providers can become extremely profitable. The increased servicification will also have a large impact on employment. In all three scenarios, total employment increases despite increased productivity.

This growth is concentrated to the services sector which is notable in all three scenarios. However, employment figures in industry are declining, when measured both as a share of total employment and in absolute numbers. That said, industry represents a considerable share of the increased employment in the services sector, as industry increases the demand for services in production.



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THE ROAD AHEAD

While the future is never a foregone conclusion, indications strongly suggest that technology will continue to develop rapidly. Similarly, a large and varied services portfolio is becoming an ever-more important competitive tool in companies' global sales operations. By combining these trends, a number of fast-growing platform companies, particularly in the U.S. and China, have begun to challenge the business models of established companies in both the consumer market and in the production segment.

PLATFORM AS AN OPPORTUNITY

Business Sweden has outlined three paths for Sweden and for Swedish companies where potential growth depends on how companies leverage the global technology shift, and how they reorganise their services portfolio. The final scenario reveals nothing less than a services revolution where a number of Swedish companies become leading service providers – expanding their global footprint through industrial ecosystems and scalable platform solutions.

In the value chains of the business sector, there are many profitable markets and opportunities. While not everyone can make the transition and become global platform companies, developing bespoke platform solutions for specific markets can rapidly assist companies on their path to creating a global reach for products and solutions.

In recent years, the dominating market power of major platform companies has been questioned widely and it is reasonable to expect certain political measures, especially in the U.S. The tightening up of national and international regulations on information flows and data handling is another issue of concern for platform companies. It is yet unknown if global giants among platform companies will successfully enter new business areas or sectors. Will they, like other conglomerates, be forced to divest unprofitable operations and go back to focusing on core operations – which could open the door to global platform companies in niche business areas?

RECOGNISING THE POTENTIAL

Sweden and Swedish companies are uniquely positioned to lead the transition to an advanced, global services economy. Sweden is well placed in international rankings of innovation skills and competitiveness, despite the fact that the perceived quality of Sweden's education system and infrastructure has deteriorated in recent years. That said, the differences between countries at the top of international rankings are marginal and small improvements can lead to a several points higher ranking.

A key strength is Sweden's top performing business sector with its advanced competences and long experience of international business. Sweden has a diversified business sector structure which means that adverse effects from market fluctuations can be counterbalanced and fended off in different industry segments. The manufacturing sector is currently experiencing an upturn and Sweden's research environment is thriving.

Meanwhile, in order to retain its competitive strength, Sweden depends on a strong social structure and the trust and support of its citizens. In addition, the country needs a fine-tuned economic policy that is open to reforms as well as constructive consensus thinking in politics and the labour market. Using logical reasoning to solve problems can reinforce the innovation strength of societies, and business in particular.

As a result, Sweden offers one of the world's most attractive environments for research and development and is home to many successful and innovative start-up companies. This exciting position needs to be reinforced and further developed.

WHAT ACTION CAN COMPANIES TAKE – AND SWEDEN?

Business Sweden has identified a number of success factors for Swedish companies that aim to forge an international presence in the services-oriented markets of the future, coupled with issues that Sweden can address to help pioneering companies facilitate the transition to services-based business.

THE BUSINESS SECTOR

ESTABLISH A DIRECT CUSTOMER RELATIONSHIP

Companies that have succeeded internationally have a close relationship with their customers. Genuinely understanding customer needs and requirements is a key path to safeguarding a relevant portfolio of products and services. Interacting directly with customers – instead of relying on intermediaries – often results in stronger brand value and enables higher profit margins.

Customer proximity is a key priority and leading platform companies often go to great lengths to ensure that their services and products are always available and top of mind. Some companies even refer to their customers as 'citizens in tomorrow's consumer societies'. Companies that want to be winners need to take well-defined positions in new value chains and work either in direct contact with customers or add value at keys steps of any given process. Regardless of the new position taken, understanding customers and the needs of stakeholders is paramount.

Technology advances coupled with the growing influence of platform companies in customer value chains are driving increased demand for compatibility and turnkey solutions that allow products, services and operations to co-exist and function seamlessly with products and services of third party suppliers. Which is the best course of action – to follow technological and business-model reinvention or to take initiative and lead the charge? This is an important question for many successful companies today. Moreover, they must decide which partners, sub-contractors and competitors to include in their network in order to bolster new value-chain positions and maximise global revenues.

In addition, to reinforce the path toward international growth, regional and market-specific differences among customers need to be considered, as do local value chains, power imbalances between global and local businesses as well as local rules and regulations. For example, the discrepancies between the U.S. and China in terms of regulatory systems, value chains, the role of platform companies, consumer behaviour, social media and the nature of supply chains are today unmistakable.

The key question for Sweden's frontrunners in services-oriented business is: which action step is needed to make new platform positions indispensable in customers' global value chains?

DEVELOP A PROFITABLE BUSINESS MODEL

Sweden's economy is built on the strength of industrial companies that have consistently achieved global success. Their business models have overwhelmingly focused on high quality and capital-intensive products sold to global markets with one-time revenue streams. When products are sold they leave the supplier's balance sheet. Over the past decades, companies have focused on developing aftermarket services involving spare parts, service agreements, training and other support functions.

When companies switch from charging for capital-intensive goods and begin to charge exclusively on a pay-per-use basis, business models need to be fundamentally changed. Costs for development and manufacturing of products are the same. But the products now remain on the companies' balance sheets, and instead give rise to steady revenue streams from customers.

Before this changeover can occur safely, companies must address critical questions about their financial stability and how potential issues will be solved using financial instruments or complementary business entities with vertical or horizontal positions in the value chain.

Furthermore, before companies shift their positions in value chains they need to conduct a thorough analysis of the competitive strengths of these new positions. Who are the competitors? What does the current price situation and price elasticity look like? Are there alternatives to homegrown solutions? What are the purchasing patterns and trends in the new services-oriented market? Which marketing efforts will be needed to ensure success and how do they differ from methods and sales arguments used today?

To improve chances of international success, business models must account for regional or market-specific differences that may impact and change companies' competitive strength. Close attention needs to be paid to local price levels, how local presence of global collaboration partners can be ensured, and who their local counterparts might be.

ATTRACT SERVICES PIONEERS

The rapidly accelerating transition to services-oriented business puts great demand on the ability of companies to rethink their value propositions and adopt new skills, while building on established excellence. Giving customers access to smart, connected and self-adaptive product solutions as part of a service – using sensors and AI – requires advanced skills beyond the level of companies' traditional core competences.

As a matter of priority, companies today need to have a contingency plan for addressing skills shortages as they move into a seamlessly connected, high-tech world of business-oriented services. Which competences are needed to map out future business models? What type of skills are needed to develop smart products? Looking forward, who will develop their integrated solutions?

Swedish companies are world leaders in innovation-driven products. The list of global product innovations from Sweden is both long and impressive.

However, when it comes to services innovation, the list is considerably shorter. Although renowned companies such as Tetra Pak, Skype, Spotify and Klarna are expanding their global footprint, they all confirm clear challenges in finding key personnel with specialised skills.

Swedish companies need to find star talent who are equally competitive on the international stage, with knowledge and experience of services-driven innovation and deep understanding of digital technologies and AI. Where are they most likely to be found? Where will they operate? What are the salary expectations and demands on employers of these services innovators? Where will they live? At which rate will the knowledge transformation take place?

SWEDEN

CONNECT SWEDEN TO THE TALENT POOL

According to Business Sweden's calculations, the increased servicification of business means that total employment figures will rise. This growth of employment will take place entirely in the services sector, which poses challenges in terms of adapting the education system to better match the needs of industry and the services sector.

Bearing in mind the demographic challenges that Sweden is faced with an ageing population and a slowing influx of professionals in the labour force, it is crucial that policy measures are taken to increase the number of qualified professionals ready to enter the labour market. For example, this could mean creating pathways for earlier introduction to the labour market than today. The integration of foreign-born nationals becomes ever-more important. It may be necessary to increase labour migration levels and boosting efforts to attract foreign skilled labour to Sweden will be essential.

BUILD FOR THE SERVICES SOCIETY

The services revolution will have a profound impact on the housing market as the growing services sector will attract more people to cities and urban areas. More people means greater demand for accommodation. Housing projects will need to develop at increased speed, despite the impact of digitalisation and possibilities of working from home or at distance. This also puts pressure on making better use of existing housing opportunities.

SET RULES FOR THE SERVICES INDUSTRY'S INTERNATIONAL EXPANSION

The shift toward services-oriented thinking in global business and international trade means that companies need to adapt or even radically rethink their current business models. Swedish rules and regulations need to be adapted to a new playing field, while at the same time being balanced to meet the broader goals of Sweden's society. Swedish companies have the potential to multiply their revenues in the EU's single market. The new comprehensive, bilateral free trade agreements between the EU and countries like Canada and Japan should be used extensively to expand Swedish businesses in the global services economy.

There are high levels of internal competence within the central and local government – not least in the municipal sector – in services-oriented activities related to urban planning, healthcare, environment and recycling. Due to current regulations, these competences cannot be fully put to use in international business. But with certain public sector reforms, these skills could be applied to reinforce Sweden's position in export markets, particularly in the fast-developing services sector.

[1] Statistics Sweden, SCB

[2] Almega, (2018), Sveriges exportsektor växer med ökat tjänsteinnehåll, Almega, (2017), Sveriges exportsektor växer med ökat tjänsteinnehåll, Kommerskollegium, (2010), Servicification of Swedish Manufacturing och Kommerskollegium, (2016), The Servicification of EU Manufacturing

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Kairos Future

Bengt Roström, Senior Adviser

Interviews with business development executives at large Swedish companies

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