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# An SEK 850 billion opportunity for Sweden

Pontus Averstad, Tomas Nauc ler, and Mikael Robertson

If Sweden can fulfill its digitization potential by taking advantage of six important technological trends, it could generate SEK 850-1,400 billion per year by 2025.

**We believe** a more forward-looking perspective on Sweden's opportunities is relevant, emphasizing two aspects of the process of digitization in particular:

- Quantifying the value that digital technology can create for Sweden and understanding where and how that value can be created
- Identifying the factors that need to be in place to make the most of the opportunities created by digitization and manage the challenges it brings

The annual value that could be unleashed by digitization in Sweden from 2025 on is more than SEK 850 billion. This value can be created even as a number of key technology trends disrupt our society and economy. Based on previous research by McKinsey Global Institute, we have identified the six technology trends that are expected to generate the majority of the economic value for Sweden:

- Automation and advanced data analysis
  - Automation of knowledge work

- Advanced robotics
- Autonomous mobility
- Connectivity, cloud services, and communication
  - Mobile Internet
  - Cloud services
  - Internet of Things

We researched the digital future of Sweden as a country but also made deep dives into five sectors:

- Healthcare
- Public sector
- Transportation
- Manufacturing
- Finance

Together, these sectors could create more than half the value enabled by the six technology trends. For each sector, we describe the benefits created by digitization and the actions that should be taken to make the most of the opportunities that arise.

A key recommendation is to promote increased collaboration in the form of emerging ecosystems: within sectors; between businesses, the public sector and academia; and between established players and business start-ups. The discussion of geographical ecosystems such as technology clusters has been going on for a long time, but their significance is changing with digitization. We

believe ecosystems will play a crucial role in creating and capturing positive digitization outcomes and have therefore chosen to highlight how Sweden can enable the development of successful ecosystems.

The objective is to create a starting point for formulating a shared ambition to capture the full value enabled by digitization. Sweden is in a good position to succeed in this endeavor, but a number of actions need to be taken.

### **An SEK 850–1,400 billion opportunity for Sweden**

If Sweden is able to fulfill its potential for digitization by leveraging six important technological trends, it could generate SEK 850–1,400 billion per year by 2025.

Strong ecosystems must be established to foster the interaction and collaboration required to create the value. While Sweden ranks highly in terms of digital development compared with other countries, there are indicators that others are gaining ground. For Sweden to continue to be on the cutting edge of digitization, the country will need to facilitate a broad discussion on the best actions to take full advantage of technological advances. To enable continued strong development, facts are needed to better understand the disruptive changes ahead of us, to support a broader and more concrete discussion. To contribute to this, we have chosen to highlight a number of technology trends and their potential to create value in Sweden along with the ecosystems that are needed to realize the full economic value. Priorities for ensuring the successful development of these ecosystems have also been identified.

Our research shows that six technological trends, which are already having a major

impact on our lives today, if fully utilized, will drive even greater digital conversion and boost economic value in Sweden over the next decade. These technology trends can be divided into two overarching groups:

- **Automation and advanced data analysis** can generate SEK 475–695 billion annually in Sweden by 2025.
- **Connectivity, cloud services, and communication** can generate SEK 375–705 billion annually in Sweden by 2025 (Exhibit 1).

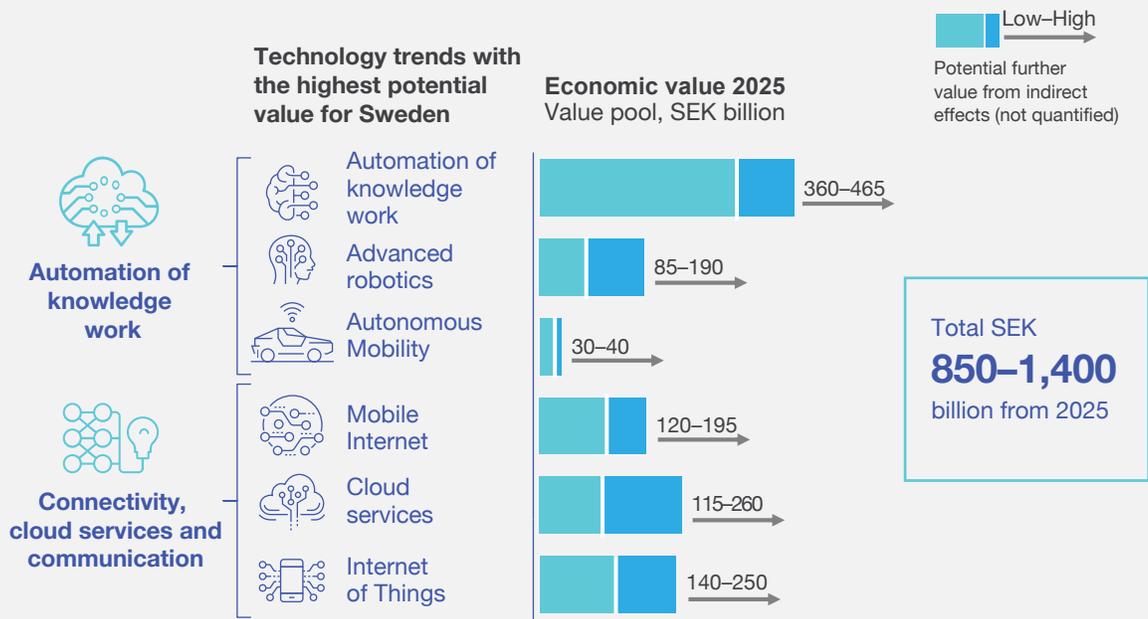
### Automation and advanced data analysis

Automation and advanced data analysis consists of three technology areas that allow for tasks, both physical and analytical, to be

increasingly transferred to computers and machines, with the effect that work is done faster, more efficiently, and more securely:

- *Automation of knowledge work using advanced analytics and computerised decision support systems:* Tools and systems for automating knowledge work can generate a value of SEK 360–465 billion annually in Sweden in the form of productivity gains as tasks are automated and employees are able to allocate their time more efficiently, for example through the use of automated processes for auditing and administration.
- *Automation of physical work using increasingly advanced robotics:* Increased use of advanced robotics, both to supplement and replace manual handling,

**EXHIBIT 1 Digital technology can generate over SEK 850 billion in economic value from 2025**



can create SEK 85–190 in economic value annually by 2025.

- *Automation of transport work using autonomous vehicles:* Autonomous vehicles can create SEK 30–40 billion in economic value annually by 2025, and significantly more in the long term. Near-term, the biggest value lies in reduced fuel consumption, fewer accidents, and more efficient use of vehicles and infrastructure. In the longer term, significant value will be created as cars and commercial vehicles are increasingly shared rather than owned privately, which will increase vehicle utilization and reduce the total vehicle fleet.

## Connectivity, cloud services, and communication

Connectivity, cloud services, and communication consists of technology that allows for connecting people and providing opportunities for new business models and more efficient use of existing resources.

- *Internet of Things (IoT):* IoT is expected to add SEK 120–195 billion annually to the Swedish economy by 2025. Machinery, vehicles, infrastructure, and household appliances can receive instructions and perform various activities based on incoming information, enabling businesses to strengthen their contact with the end customer, plan maintenance remotely, and sell services that are adapted to the customer's use.
- *Cloud services:* In Sweden, cloud services can generate SEK 115–260 billion a year by 2025, primarily in the form of increased value from services and reduced IT costs. Cloud services are also enabling new business models in a growing number of industries.

- *The next generation of mobile Internet:* The mobile Internet is expected to create SEK 140–250 billion in economic value annually for Sweden from 2025. The majority of this value will take the form of improved access to information, which will enable better decisions and create new interfaces between consumers, businesses and organizations.

To meet the full potential and take advantage of the opportunities offered by these technology trends, Sweden will need strong ecosystems to foster interaction and collaboration among a wide range of players who would work to develop innovative digital solutions. Together, the various parties can develop new business models and products, attract talent and capital, and increase productivity by optimizing entire value chains.

## Several promising digital ecosystems in Sweden

To reap the cost, time, and quality rewards of the digital age, strong digital ecosystems are needed.

### Dynamic ecosystems

To build viable ecosystems, several fundamental conditions are required. Both members of the public and businesses must have access to digital infrastructure and connectivity, and laws and regulations must be adapted to support agile ways of working. These ecosystems also need access to skilled talent and capital to enable development and growth. In addition, an exchange in the form of innovation and technology development, as well as interaction between the players, is required for new ideas within the ecosystem to be realized. Sweden already has a digital foundation, including several strong ecosystems, but these ecosystems need to be further strengthened.

### Five selected ecosystems

Five ecosystems have been selected for deep dives in this report:

- Healthcare
- Public sector
- Transportation
- Manufacturing
- Finance

These ecosystems account for a majority of the total value which digitization can create in Sweden by 2025, up to SEK 475–695 billion per year. These ecosystems contribute to more than half of Sweden’s GDP, and their

opportunities and challenges provide revealing illustrations of what is needed to drive digital advancement throughout the entire economy (Exhibit 2).

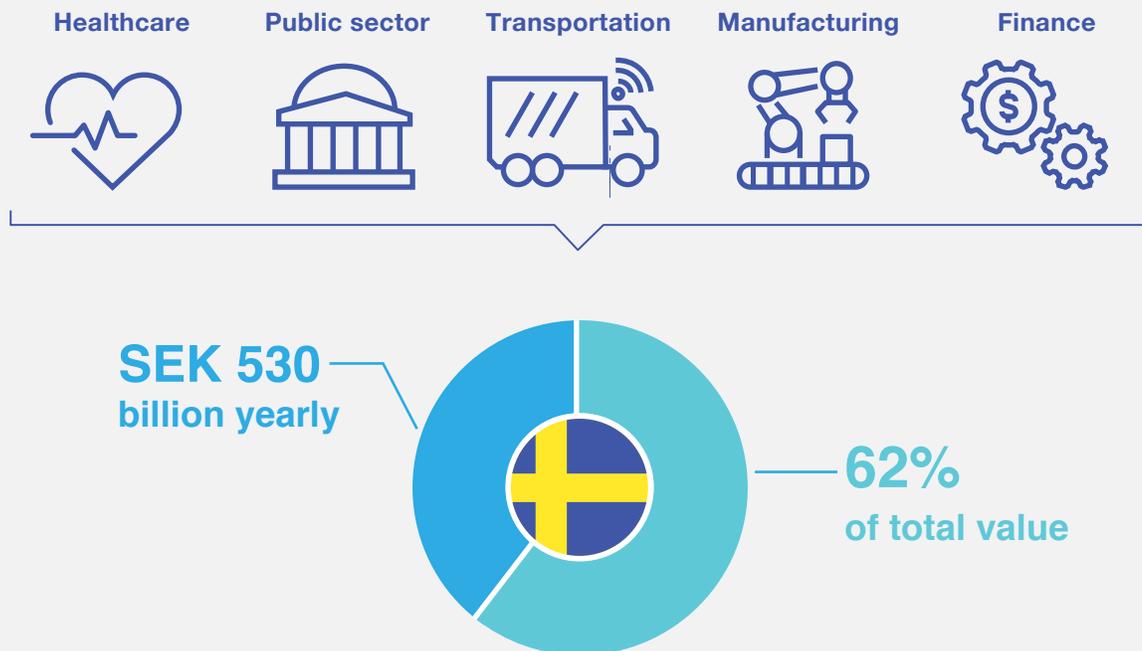
### Healthcare

In healthcare, up to SEK 145–180 billion can be generated annually by 2025. The availability and quality of care can also be improved if digital technology is implemented systematically.

- *Technologies for connectivity, cloud services and communication.* Examples include remote monitoring using sensor technology or remote consultations that facilitate preventive care. These enable patient comanagement and give individual patients the opportunity to choose between

## EXHIBIT 2

### Sweden has a strong starting position, with several promising digital ecosystems



remote or in-person care. Illness can be detected at an early stage and, in the best cases, avoided altogether.

- *Automation technologies.* Examples include integrated medical record systems that make it possible to keep the right information available for the right care provider at the right time. Improved availability of information reduces the risk of medical errors and enables optimized processes that cut the time spent in care and prevent readmissions.
- *Technologies for advanced data analysis.* AI, machine learning, and analysis of very large and unstructured data sets enable the development of support tools for clinical decision making based on a vast amount of medical information from across the whole world.

In ongoing work to digitize the Swedish healthcare system, there is already a strong focus on technical and semantic interoperability as well as on secure identification for both professionals and patients. Several important steps remain to be taken to realize the full potential value of these efforts, some of the most important of which are a common national standard for architecture, interfaces, and IoT, as well as medical-record systems integrated among care providers and a national system for data transfer.

### **Public sector**

In the public sector, up to SEK 75–110 billion can be realized annually by 2025 through extensive digitization, which will improve the efficiency and precision of public-sector

services while making life simpler for both individuals and businesses.

- *Digital interaction.* Videoconferencing remote meetings are creating significant value for local authorities, government agencies, schools and other public-sector institutions. One example of this is municipalities that offer “virtual meetings” between residents and representatives of local authorities.
- *Digitized and automated administration* has significant potential, especially in organizations that conduct individual but standardized assessments in areas such as social insurance, employment services, and the reception of refugees.
- *Sharing and publication of government data* will make information flows between government agencies—which now devote significant resources to collecting and processing data already held by other agencies—faster, smoother and more precise.
- *Digital decision-support systems based on advanced data analysis* have the potential to create the greatest value by improving the quality of services to citizens and establishing more efficient controls. For example, the loss of tax revenue due to tax fraud and errors can be reduced, improving public finances significantly.

There are already good examples of digital platforms in individual government agencies and a few attempts at linking them up. To further advance digitization, however, it is necessary to expand the digital infrastructure

and connectivity by creating national frameworks and cost-effective national platforms for realizing economic potential. An extensive educational effort aimed at raising the level of expertise and attracting skilled workers to new digital roles in the public sector is also required. Finally, the interaction between different players needs to be strengthened. Examples of this include cross-government digitization programs with a long-term mandate to drive development, or coordination of central and local government initiatives.

### Transportation

Digitization in the transport system can generate SEK 75–100 billion annually by 2025, but in the long term significantly more. In an updated system, passenger and freight traffic will be more efficient and cost-effective, freeing up large spaces in urban areas, saving time and fuel, and reducing the number of accidents.

- *Autonomous vehicles and automated logistics.* Self-driving vehicles are the key to realizing the full potential of a digital transport system. These vehicles save time behind the wheel and increase utilization as access to shared vehicles is just a press of a button away. They also reduce the number of accidents by eliminating the human factor, which currently accounts for more than 90 percent of accidents.
- *Automation of information work.* Automation in the transport sector can improve efficiency and customer benefits by freeing up time spent by staff on administrative and legal tasks.
- *Digital infrastructure and connectivity.* IoT, for example, can be used to quickly identify

traffic congestion and other disruptions so that they can be avoided and reduced. This can be achieved by obtaining a clear overall picture of the traffic situation in real time, which will be possible as individuals, vehicles, planning systems, infrastructure, homes, and other units are connected and in communication with each other.

- *New, innovative solutions.* Deliveries by robots and drones, for example, can create new opportunities in e-commerce to meet the needs of a changing and more demanding customer base as goods transport becomes more cost-effective and delivery times more flexible.

Sweden currently has a strong pool of engineering and software expertise in the transport sector as well as targeted research funds, including the world's first large-scale pilot on self-driving cars.

One of the most important next steps for realizing the full economic potential is to place a greater emphasis on transport and automation-related expertise. The environment for innovation and technology development also needs to be improved, for example through financial incentives for pilot projects and policy updates to facilitate test-drive areas in public traffic.

### Manufacturing

In the manufacturing sector, SEK 160–220 billion can be generated annually by 2025 if greater use is made of digital technology. More efficient production processes, increased utilization of the available production capacity, and simpler ways to customize products and services to meet customer requirements will generate value.

- *Advanced robots.* Factories will be able to operate round the clock using fewer employees. Flows will be automated, factories will be increasingly self-regulating, and robots will call in operators when they are needed.
- *Automation of information work.* This will enable tailor-made solutions for the customer in terms of both how and when a product is produced. Technology also makes it possible to digitize and spread knowledge of best manufacturing practices.
- *IoT and advanced data analysis.* Machines, sensors, and other units that are connected and can communicate with each other are already enabling preventive maintenance, which is reducing the costs of maintenance, repairs, and new investments.
- *Automation technologies.* Automation of routine tasks such as the handling of mortgages and business loans, and standardized back-end functions could reduce the need for human interaction and thereby also the cost base.
- *Digital infrastructure and connectivity.* Cloud and mobile banking and payment services allow customers to interact with their banks wherever they are. This reduces the need for paperwork and cash handling and, for financial companies, the need for staff and physical branches. Wireless payment also enables a faster and smoother buying experience.
- *Technologies for advanced data analysis.* Innovations such as robo-advisors can be used to automatically create more customized financial advice using sophisticated algorithms that factor in each individual's unique requirements. Advanced data analysis enables businesses to tailor their customer offers and interactions. Risk reduction through advanced modeling improves the security and efficiency of transactions.

Collaborative arrangements between research institutions and industry to enable relevant innovation already exist today and could be further strengthened. Manufacturers need to place greater emphasis on software development and on continued training for their existing employees. In addition, there is a need to improve collaboration and resource sharing among factories to make better use of the available production capacity and strengthen partnerships between large companies, Small and medium-sized enterprises (SMEs) and innovative technology companies.

## Finance

The digitization of the financial sector in Sweden could generate around SEK 40–60 billion annually by 2025. This value is primarily created through automation of work processes and customer interactions, advanced data analysis for personalized and more relevant customer service and risk reduction, as well as new products and services.

- *New, innovative models and solutions.* New models can create significant value for customers as well as businesses. Examples include partnerships between the automotive industry and insurers for individualized insurance premiums based on driving patterns, or between operators and banks to reduce card fraud through the use of geolocation to match card transactions with the location of the customer's mobile device.

Sweden already has an advanced financial sector that is at the forefront in the development and adoption of technology

innovations. There is currently a high level of compliance with laws and regulations, such as those governing personal and other data, as well as a strong pool of highly qualified technical experts in the Swedish financial sector. The next step should be to ensure that the necessary investments are made to adapt businesses to new laws and regulations, and to promote open dialogue between financial institutions, fintech companies and legislators on agile legislation. To secure access to digital expertise, it is also important to increase the

attractiveness of financial players as employers for software and IT professionals.

In line with our tradition of actively contributing to the development of society, this study is, like our previous reports, an entirely independent work, initiated, funded and produced by McKinsey. We would like to express our gratitude to all those who have contributed to the study, including representatives from the various sectors, and our colleagues in Sweden and internationally. ♦

The full report, in Swedish language, is available for download here: <https://www.mckinsey.com/se/our-insights/digitizing-sweden-opportunities-and-priorities-in-five-ecosystem>

**Pontus Averstad, Tomas Nauc ler,** and **Mikael Robertson** are senior partners in McKinsey's Stockholm office.

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