

THE FUTURE OF THE EUROPEAN DATA ECONOMY AT STAKE

Lessons from telecom and financial markets

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The development of the European data economy over the next few years will affect the economic success and the fairness of the processing people's data in the entire region. Europe is lagging behind other regions. Now is the last chance to support the development of the European data economy and ensure an outcome that benefits all parties.

The financial and telecom sectors are pioneers in utilising data and in sharing it between organisations. Users of these services divulge their most private data to service providers. By investigating the development of these sectors in the last decade it is possible to find ways to guide the European data market.

This working paper contains insights derived from interviews with major decision makers from peer sectors in recent decades. Their extensive experience of the effects and challenges of different governance model elements of a data-based sector provide possible solutions for the builders of the fair data economy in Europe.

Sitra working paper

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The future of the European data economy at stake

Lessons from telecom and financial markets

This working paper is based on interviews with major societal decision makers and persons of influence in the spring of 2020. The working paper has also made use of earlier work for Sitra's IHAN fair data economy project.

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Sitra Working Papers provide multidisciplinary information on various matters affecting the change of society. Working papers are part of Sitra's future-related work, conducted using forecasting, studying, project and education methods.

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What is a data economy?

A data economy is that part of the economy whose business model is based on the utilisation and use of data in different ways.

In general, a data economy refers to economic or societal activity where different actors promote the transferability, compatibility and availability of data, utilising them, and creating new applications and services on that basis.

What is a fair data economy?

It is the part of the economy that focuses on the ethical creation of services and products based on data. Fairness means that the rights of individuals are protected, and the needs of all stakeholders are taken into account in the data economy.

In the fair data economy, the utilisation of data is combined with a people-oriented approach and model in which different actors have fair ground rules for sharing data and using it in services.

Foreword

In February 2020, the European Commission published an ambitious data strategy that defined the steps towards a European internal data market. The aim of the strategy is to promote the availability and sharing of data to ensure enterprises, researchers and the public sector can better utilise data to fuel new services and innovations.

The establishment of the common data market will require new kinds of regulation, self-regulation and standards in the EU internal market, as well as cooperation and coordination across sectoral boundaries. However, these elements must not compromise the ability to innovate, nor create unreasonable financial obstacles.

In 2018, Sitra initiated the IHAN project to promote a fair data economy. As part of the IHAN project, we examine what elements are required to create a governance model for the data market. To gain a more full understanding, we analyse how similar governance models have been created in other sectors and for what needs. The main question we considered was how trust between major actors in the sector was built and what was the role of governance models and their different elements. By reflecting on the developments in other sectors, we sought to understand the elements the data economy needs.

Answers were sought by interviewing experts involved in building the European financial and telecom markets over the last 40 years. A governance model has been successfully built for both sectors over the decades that ensures trust, facilitating the movement of data between different actors and countries. Each of the people interviewed had several decades' experience in management in one or more of the sectors covered by the study. Chapters 2, 3 and 4 are based directly on the views of the interviewees and the examples they cited.

This working paper is intended to stimulate discussion on matters requiring closer investigation when developing the European data economy in the years to come. We want to challenge societal actors and companies to a common debate on the construction of a management model that is fair to all.

My warmest thanks to all those who participated in the interviews for the important contribution they have made to mapping this complex entity.

Antti Kivelä
Director, Sitra

Challenges and key factors of the financial and telecom sectors and recommendations for the data economy

* The expressed view is supported by the major share of interviewees.

Challenges experienced in building the financial and telecom sectors	
Operation of the markets	Impacts of regulation
1. The markets in EU countries are diversified *	5. Legislation reduces competition and supports large corporations
2. The markets are global – the need for a local solution is uncertain	6. The regulator tries to predict the future and/or chooses the wrong technology or business model
3. Market actors' decisions too risky for society	7. Regulation compromises the quality of services, increases prices and/or reduces the range of services available
4. When major companies determine the rules of engagement, it does not necessarily generate cooperation	8. Actors based outside the EU gain a competitive advantage from lighter regulation in their home markets
	9. No balance can be found between enabling innovation and eliminating risk
	10. "Accumulating" regulation prevents the formation of the EU's internal market
	11. Self-regulation and standards create obstacles to entering the sector
	12. Companies' competence and attitude regarding regulation is poor
Challenges of building the European fair data economy	
13. Data-based business needs vast quantities of raw material — how will Europe build these assets when it is lagging behind?	
14. Companies do not voluntarily share data	
15. The key companies of digital infrastructure are based outside Europe	
16. The standard terms and conditions of services and their operating models are not advantageous for consumers	
17. Consumers' interest in how their data is processed remains unknown	

Key factors for building the trust in the financial and telecom markets

The companies' methods of building trust	The legislator's ways to build trust
1. Customers trust large, well-known companies *	3. Regulation has been necessary (but its downsides must be minimised) *
2. Customers are offered the best and most attractive services *	4. Regulation must not be at a too high or too low level
	5. An open licence model can create trust and competition in the sector
Self-regulation and standards as tools for building trust	Supervision of regulation
6. Self-regulation supports the development of the sector – at least when used with public regulation (80/20) *	9. The supervisor plays a critical role *
7. Common standards and registers enable the exchange of information *	10. Dialogue between the public authorities and companies in the sector is necessary *
8. Uniform agreement models and open comparison of services increase transparency	11. A supervisory body close to the market can understand it
	12. Stakeholders must be involved in the supervision of regulation
	13. An independent, low-threshold channel for processing consumer complaints is required
	14. Actors that break the rules must face a sufficient deterrent

Recommendations to the builders of European data economy

Accumulation and use of data assets	Utilisation of the operation of markets
1. The data owned by the public sector in Europe must be utilised	6. The world's best services – Killer Apps – must be created in Europe *
2. The governance model must concentrate on important data	7. All actors must benefit from the sharing of information – compulsion is not feasible *
3. Companies must be obligated to share data	
4. A management service for usage of data must be created for the public	
5. The use and value of data must be made transparent	
Legislative actions	Self-regulation and standards
8. The legislator must ensure compatibility by specifying data content and interfaces	10. A "Fair data economy" certification would create trust *
9. The EU's General Data Protection Regulation must be extensively reformed	11. The procedures of the fair data economy are specified as a compulsory part of sustainability reporting, good governance models or other similar requirements
Implementation of the supervision	
12. An independent and active party must be created to look after the customers' interests	
13. Supervision must be digitalised and automated	

1. The future data economy must learn from the telecom and financial markets

The European data markets and companies in the sector have fallen behind their competitors, and the gap continues to widen. In implementing the governance model for a fair data economy, Europe is staking the financial gains of hundreds of billions of euros, while on the other hand upholding European values. In recent decades, Europe has created success stories in the telecom and financial markets. The data economy must have the patience to learn from these successes.

1.1 The data economy has the potential for enormous benefits for European citizens, companies and countries

The European data economy market is still at the starting blocks. Europe has so far been unable to create data economy success stories, with a few exceptions. In a very lightly regulated and undeveloped sector, US companies have fared better in the global competition of the data economy. Operating models are based on closed solutions by actors in the sector, and GAFA (Google, Amazon, Facebook and Apple) have practically achieved a monopoly in the West. Similarly, the China's markets are dominated by Baidu, Alibaba and Tencent. Building a data economy market in Europe would support the competitiveness of existing European companies, create new companies and jobs, and ensure the fair use of people's data.

Data enables increasingly user-oriented, inexpensive and environmentally friendly services. In a data-driven society, different devices, machines, factories and processes are constantly producing more data. This data will be remotely utilised and combined with other information, enabling new technological innovations like artificial intelligence and automation. Data makes the planning and analysis of decision making, forecasting and innovation skills attain a new level that creates significant societal benefits.

The data economy brings enormous possibilities for different sectors, from healthcare, the environment, food safety, the climate and the efficient use of natural resources to energy, smart traffic systems and smart cities. Activity that increases the availability and utilisation of data need to be promoted in Europe.

Legislation in the domestic markets of the current market leaders and the thinking behind it differs from the EU's. The business models are based largely on service providers having considerable leeway to utilise data, while individuals waive their rights to data. The principles of the EU require that the rights of consumers and users to their own data and their re-use must be increased (the MyData model). The EU's General Data Protection Regulation (GDPR) creates a good basis to strengthen the rights of individuals, but currently, the practical tools for exercising and strengthening the rights still require work. International actors currently obtain massive amounts of data on European consumers without any remuneration. Nor do consumers have any possibility to affect the further use of the data they have relinquished.

It is precisely now that Europe has the opportunity to come up with solutions to create an internal market for European data-based services. But the window of opportunity for getting results is closing. The international market leaders are becoming beyond reach.

1.2 The successes of telecom and financial markets can be replicated in the data market

The financial and telecom markets both date back hundreds of years. Initially, they were built around client' needs in the areas of exchange and communications.

The financial sector is an integral part of people's everyday life and is bound up with the biggest life decisions. Confidence in the accuracy and stability of that data is necessary for the functioning of modern societies. Information related to people's finances is private.

Since the late 19th century, the purpose of the telecommunications market has been the exchange of information between people. With the invention of the mobile phone, in the late 1980s, the importance of the market skyrocketed. Most people in Europe are customers of telecom sector companies, and they rely on their teleoperator's management of their private exchange of information and its associated identification data.

Between the 1970s and '80s, the operation of the market was not transparent, financial actors were dominant, and the exchange of information between actors was cumbersome. However, both sectors have experienced an enormous quantum leap in the last 20 to 40 years. The data market is now in a situation that is in many ways similar. The decision makers in the market must now identify functional models from peer sectors which can be used to support and guide the growth of this market for perhaps the next 20 to 30 years.

In both peer markets, the users submit their data for management by the service providers in the sector. The business in these sectors is based on the management and use of this vast amount of data. Data is compatible between actors, and global data exchange models exist between them.

Both sectors are heavily regulated, and the actors have jointly created basic standards for the sectors. In addition to the voluntary control and regulation by companies in the peer sectors and by the sectors themselves, public bodies have enacted laws and issued regula-

tions and other control mechanisms. The sectors encompass national, EU and international legislation, self-regulation and jointly agreed standards.

These procedures ensure the national and international compatibility of services, but they also protect consumers' interests and set limits to various services — for example, regarding information provided, terms and conditions of contracts and costs charged to consumers. Companies have been able to rely on the fact that when they make investments, the solutions constructed are compatible with those of other actors.

The construction of mobile telephone networks in Europe and development of their related services are examples of the successful deployment of market regulation and management models, as well as of cooperation in the sector. Initially, most European countries had a state-owned national company that administered the exchange of long distance and international calls and, later on, the first generation of mobile phone networks (Nordic Mobile Telephone). From this initial state monopoly situation, countries wanted to start liberalising operations through judicious regulation – instead of having a totally unregulated market economy.

Judicious regulation has fostered competition in the market and avoided the creation of a monopoly or duopoly. In some European countries, regulation has succeeded exceptionally well, with good service quality and low consumer prices. It has also been possible to avoid excessive charges for licences and excessive investment by actors in overlapping mobile phone networks.

*“In the future, data will be everything. Everyone should realise that.” **

* These direct quotes are from the interviews.

1.3 Report implementation

The governance models used in the peer sector are extensive and include elements associated with the sector's particular characteristics. Studying the details of the current state of governance models will probably not provide answers regarding the critical points of the sector's development or the application of the model to the data market. More strategic information derived from long-term experience is required.

In producing this report, sixteen (16) experts were interviewed who had been involved in building the telecom and financial markets for Finland and other parts of Europe. The topics explored in the interviews included the challenges experienced in building trust amidst the development of the telecom and financial markets, as well as the governance models and their elements that they had found to be operable. The interviewees were also asked to look ahead, identify the obstacles to building a fair data economy for Europe and recommend how they could be overcome.

The individuals interviewed have decades of experience in top management positions in a peer sector or in positions associated with its regulation. They hold or have held decisive and influential positions in their respective sectors.

Details of the report's implementation model and a more detailed overview of the interviewees are given in Annex 1 and Annex 2.

The interviewees – summary

Several people who had held management positions in major Nordic banks and telecom operators.

Several people who had held management positions in major Nordic telecom operators

Several people who had held management positions in a major global manufacturer of mobile phones and networks

Several people who had held management positions in central banks (the ECB and the Bank of Finland)

People who had held management positions at the Ministry of Communications, as well as with bodies dealing with data security and consumer disputes in the financial sector

People holding numerous official positions in the financial sector, telecommunications sector, other industries, the third sector and start-ups

“The telecom sector had a monopoly based initial situation from which a market-oriented entity has been developed using intelligent regulation.”

2. Challenges in the development of a data-based industry

The interviewees identified several challenges to the development of an industry as the consequence of both market dynamics and the effects of regulation created to control the industry. The interviewees had first-hand experience of such adverse effects on both counts. The governance model of a fair data economy must overcome, control or exclude the problems presented.

2.1 Challenges experienced in the financial and telecom markets

The interviews revealed that the challenges and risks associated with the development of a data-based market like the telecom and financial sectors can be divided into two categories: the functioning of the markets and the impact of regulation.

The use of legislation may have several negative impacts and/or fail to bring about the desired effects. Negative impacts can be prevented by correctly planning the goals, content and subjects of regulation. However, most interviewees took the view that these negative impacts could not be avoided completely. An attempt should nevertheless be made to minimise the negative impacts. EU-created regulation to ensure the rights and fair treatment of citizens can also be a global competition advantage.

Challenge 1: *

The markets in EU countries are diversified

Efforts to create common markets in Europe have continued for a long time – even decades – in different sectors, and significant progress has been achieved. However, the interviewees found that the differences from the business perspective between European countries are still too great. This lack of uniformity is a major impediment for the European economy. It hampers both the creation of new services and competition with actors that have large domestic markets.

Differences in national legislation, culture and markets prevent companies in the EU region from creating services directly for a market of some 450 million.

The companies must build their services and have them approved for each country following a different process, observing different rules and/or with different public authorities.

Differences between EU countries also make it more difficult to create a uniform governance model. States' current regulations and procedures differ greatly from one another, and their interpretation of EU law and models of deploying regulation also vary considerably.

Examples of outcomes:

- There are no uniform insurance agreement products in use in Europe. A European company selling home insurance policies must create the terms and conditions of its insurance product separately for each EU country. Efforts to create a uniform market have continued for decades (as far back as the late 70s) without success.
- The registration of real estate properties varies in EU countries. There are countries in Europe that do not have land registers, in which case housing transactions are based on notarial documentation. The content and role of real estate registers may also vary from one country to the next.
- The creation of uniform EU-level markets has succeeded in the field of consumer protection legislation. Examples of this endeavour are the procedures in cases where a debit card is lost, stolen or misused, as well as associated consumer deductibles.

* The expressed view is supported by the major share of interviewees.

Challenge 2:**The markets are global – the need for a local solution is uncertain**

For digital services, the markets are typically concentrated around individual major global actors – for example, operating systems (Apple and Microsoft), social media (Facebook and Instagram) or an internet search service (Google). European solutions compete in the global market against these and other market leaders. It is uncertain whether there is any demand and profitable business potential for the European region's own digital services.

When a company's service usage grows globally to become the largest in its sector, the service provider's variable costs for providing the service to new users will gradually decrease to zero, and the development costs per user will fall to a level below those of all its competitors. A regional actor cannot have competitive cost levels and development resources.

Significant reasons for the concentration of markets in major global actors also include the network effects, or ecosystems, affecting the digital services' market. The success of each company depends on the success of other companies and the entire ecosystem they form. The benefits reaped by all actors in an ecosystem often grow as the number of users and actors involved it grows. The expansion of an ecosystem persuades more actors to join it, and they in turn create new services and thus further increase the value the ecosystem produces for its customers.

Examples of outcomes:

- In just over ten years, the mobile phone application stores Apple App Store and Google Play Store have come to be a totally new business and have created ecosystems generating considerable financial activities (according to Apple, its App Store ecosystem created sales and invoicing of USD 519-billion in 2019).
- In France, the Minitel service was an advanced and popular online service that provided internet-like features between the 1980s and 2000s. It was a closed system. Use of the service faded as the internet became the leading solution for combined data networks.

Challenge 3:**Market actors' decisions too risky for society**

A distinctive characteristic of the financial market is that although it may be most advantageous for an individual company to take extremely big risks while pursuing a maximal return, such risks might not be particularly advantageous for society as a whole. The individual actor may not necessarily see or be aware of the external impacts of systemic risks.

A too extensive market risk appetite has traditionally been controlled by regulation. The regulation framework must also encompass the potential for systemic risk. The supervision of individual actors alone is no longer sufficient (micro supervision). Instead, the stability of the whole system must be monitored (macro supervision). However, regulation has not always kept pace with the sector's innovation activities.

Examples of outcomes:

- It is also characteristic of the financial sector that the actions and risk taking of an individual actor may have external repercussions on society as a whole. The 2007 financial crisis was an extreme example of the impact on society of excessive risk taken by actors in the sector and the materialisation of systemic risk.

"There is concern in the EU regarding the data economy that all major companies are US-based. This is completely understandable, because the European market is totally fragmented."

**Challenge 4:
When major companies determine the rules of engagement, it does not necessarily generate cooperation**

The financial and telecom markets have needed major companies for innovation and the development of the sectors. The capabilities of major companies in their territories exceed even those of individual countries. However, in developing common rules of engagement for the sector and in cooperation, the sector's major actors can define the rules purely on the basis of their own goals and dominate the sector, unless this is restricted by the public sector.

Major actors can also drop out of the sector's joint development projects and build equivalent services on their own terms and conditions. Major actors also have the resources and capacity to create ecosystems that they control themselves. International actors also benefit from their ability to test products, services or operating models in less regulated market areas. This allows these companies to quickly gain practical knowledge of what works at the customer interface and what does not.

The sector requires cooperation for voluntary extensive cooperation between actors to progress.

**Challenge 5:
Legislation reduces competition and supports large corporations**

Regulation may reduce free competition in the market. It may create obstacles to entering the sector or reduce competition between existing actors. Enabling competition must be the basic premise when drafting regulation. The sector must have such operating prerequisites that regulation does not excessively impede the sector's activities. Regulation must also not break the mechanism that allows the company to benefit from its success in the market.

The peer sectors have detailed and extensive regulation. Regulation across sectoral boundaries also places obligations on organisations in the sector. The EU's General Data Protection Regulation is an example of such a regulation. Major companies have the resources to respond to these requirements to the letter. By contrast, the competence and resources of small and growing companies are not necessarily sufficient to understand and comply with the requirements. Legislation may limit the possibilities of SMEs to develop new services and be an obstacle to entering the sector.

In planning a new regulation, one must assess how much it will be permitted to compromise the efficient functioning of the market. Self-assessment of an organisation's operations is often carried out in the financial sector. As part of this assessment, possible risks are mapped, the organisation's situation is evaluated, and risks are classified. When drawing up a regulation, the aim should also be to assess its impact on the market and its development, on companies and concerning the equal treatment of actors. Publishing the advance assessment of a regulation's impacts would increase the openness of the prospective regulation.

Examples of outcomes:

- A customer has frequented the same private barbershop for many years. The barber asks the customer if he would like any additional haircare products. When he gets a positive answer, the barber recommends a certain product on the basis of the customer's previous purchase. The small entrepreneur would probably not know that since the application of the GDPR began, such collection of information is impossible without the customer's consent.
- FinTech (Financial Technology) is one of the most promising and fastest growing sectors. Expectations are placed on FinTech companies to increase competition in the financial sector, because the sector has experienced relatively few new success stories. However, the growth of FinTech companies has in many cases been slower than expected. Companies that do not have at their disposal significant investment-style financing and its associated support find it difficult to cope with the regulation of the sector and the required standard of operations.
- According to a survey by ETLA Economic Research, the GDPR has reduced the profitability of European data-intensive SMEs most. The regulation did not affect major US or European companies.

**Challenge 6:
The regulator tries to predict the future
and/or chooses the wrong technology or
business model**

When a new technology or service concept appears on the market, its final significance and lifespan is as yet unknown (e.g. Geoffrey Moore's chasm or Gartner's technology maturity model). The actual customer demand for the service and operability of the technology in relation to expectations will only become clear to the customers and companies over time.

Legislators cannot assess the lifespan of services in advance, either. The regulator should therefore not be at the forefront of technological development. Regulation may reduce the agility of the market if it comes too early. The regulator may concentrate on controlling technology, which is irrelevant in the long run. This wastes the resources of the public sector and private companies, and may slow down the development of the sector.

Alternatively, the public authorities may face the challenge of comprehending the significance of a new product category or service concept sufficiently early. The existing legislation and oversight concentrate on controlling the existing well-defined products, and there is no supervisory body designated for new technical products.

From the perspective of companies, regulators constantly lag behind the development of the market (the estimate most often given in the interviews was 1–2 years). It is not in the interest of market actors to teach the authorities, because they want to maintain their operational leeway. This is especially true of new service providers that test the limits of operating models.

Examples of outcomes:

- The EU sought to regulate the development of interactive television during its early stages. The idea was to especially control the compatibility of EPGs (Electronic Programme Guides) to preclude monopolies. Mobile phones have replaced televisions as the most important terminals for digital services, and the television no longer plays a significant role as an internet terminal.
- During the development stage of the telecom market, regulation obligated operators to share the capacity of SIM cards with other actors. This functionality is no longer important.
- In Finland, the regulation of the financial market and the activities of supervisors was already well developed when payday loans entered the market as a new product. No regulation was in place for payday loans to prevent their adverse social effects. Nor was there any supervisory body that would have actively taken control of this business field and started to create a regulatory framework for it. The sector identified the need to regulate payday loans much earlier than the supervisory authority.
- Subliminal advertising (subliminal stimuli) in television is forbidden in the EU. The capabilities of modern digital services to guide consumers forward and to have them make different choices are very advanced. These guiding models have not been regulated.

“Competition was the most significant driver of development in the sector. Progress was made when there was genuine competition. One company opens the game and forces others to act. The consumers also demand more.”

**Challenge 7:
Regulation compromises the quality of services, increases prices and/or reduces the range of services available**

The wrong kind of regulation can create the wrong types of incentives for actors, restrictions, or an operating environment that leads to an increase of service prices or reduces the quality of services provided to customers. Restrictions may also compromise the features of services provided or prevent the provision of certain services.

Examples of outcomes:

- When regulation regarding 3G frequency band licences was implemented in certain countries, obtaining the maximum price from the companies purchasing a licence was high on the agenda. Frequency licences were sold by auction. The financial resources spent by the actors on frequency licences significantly reduced and/or slowed down their future investment in mobile phone networks. In turn, this led to the provision of poorer services to the public, companies and society as a whole.
- Map services, such as GoogleMaps, used on mobile phones collect plenty of personal data about their users. If new EU-level regulation means that European consumers no longer have access to the world's leading services widely appreciated by consumers, will this increase people's well-being?

**Challenge 8:
Actors based outside the EU gain a competitive advantage from lighter regulation in their home markets**

Regulatory activities in the EU are more extensive than in other economic areas. This regulation allows for services that benefit all parties, and are fair and uniform in Europe. For example, the GDPR has excellent goals, and it supports the sustainable development of digital services. This makes the EU a world forerunner in the regulation of fair data usage. In the US, the principles of

the GDPR have been taken into account when planning the Cloud Act regulation.

On the other hand, actors based outside the EU gain a competitive advantage from less heavy regulation in their home markets. The companies can innovate and develop new services in agile way without the impediments and additional costs created by regulation. With the help of their large home markets, services can become market leaders in their respective fields before facing any extensive regulation. The question is therefore whether Europe can manage to compete in digitalisation, or whether the companies enjoying the first mover advantage and based in other countries have taken over these markets permanently.

Thanks to their resources, companies that have conquered their large home markets also have shortcuts available to operate in the European market by “bypassing” the regulation or by being “in a grey area”.

Furthermore, the less complicated operating and legislative environment of companies based outside the EU may bring them cost advantages compared to European companies that devote more resources to regulation-related activities.

Examples of outcomes:

- The regulation of the European telecom market also includes text messaging. The WhatsApp messaging solution entered the market by “bypassing” this regulation. The company did not think its operations would be subject to regulation. During the early stages of the service's development, the company had no revenues or business model. The public authorities in Finland also took the view that they were not responsible for regulating WhatsApp. Would it have been possible to create a service similar to WhatsApp in Europe, or would regulation have prevented it?
- Examples of global market leader services in other sectors where the existing sector regulation was “bypassed” are Airbnb and Uber. These actors have had a significant impact on major regulated sectors and companies operating in them.

**Challenge 9:
No balance can be found between enabling
innovation and eliminating risk**

Planning new regulation also involves seeking a balance between enabling innovation and eliminating risks.

Regulation is typically built slowly and carefully, while innovation activities are very quick and have the intrinsic characteristic that there will be more failures than successes.

Many innovations are typically made in unregulated areas. However, citizens may suffer as a consequence. The markets often develop so that new innovations first violate established practices and/or create more extensive disruptions in the sectors, but matters that are beneficial to society will also emerge from them eventually. Yet public trust suffers when risks materialise.

In Europe, the significance of regulation is much more prominent than in the US, the success story of the digital economy. It is possible that the European operating environment does not support innovation and significant productivity improvement. The slowing effect of regulation is at its strongest in the event of major quantum leaps that extensively breach current models of operation.

Examples of outcomes:

- The operations of telecom operators are bound by messaging secrecy. If this secrecy were abolished, it would allow for the collection and utilisation of vast data assets, and new innovations would probably be created on that basis. Such a change would be unwelcome, but it shows the interdependency between regulation and innovation. In Google's internet email service Gmail, automatic algorithms were previously able to read the users' email messages as a default, and subject them on that basis to targeted advertising or use the analysed data to develop services. In 2017, the company announced that it had stopped using targeted advertising based on the user's email.
- The entire internet and the economy enabled by it has grown freely, with few limitations. The sector has intentionally been given much more freedom than conventional activities to enable growth and innovation. The ramifications of starting regulation of a certain area of the internet economy (data economy) are unknown, and it is not certain that the limitations will succeed.

Challenge 10:
“Accumulating” regulation prevents the formation of the EU’s internal market

The European Union guides the legislation of its member states. To do this, it uses four tools: Regulation, Directive, Decision and Recommendation. The Regulations enter into force as they are in the member states, but regulation of a directive type gives member states some freedom to implement their own legislation. In some cases, the national legislator further tightens the EU-level regulation, either for the whole country or for a certain sector. A supervisory body can also create legislation for areas where, from the companies’ perspective, the use of common standards as a support for EU Directives would suffice. The level of limitations imposed by such national regulation can be influenced by the public authority/ ministry responsible for the supervision of the sector concerned in the country.

Much regulation is also created and supervised on a sector-specific basis in “silos”. Companies may have to submit applications, collect data and respond to information requests from several sources.

Multilevel regulation is a problem for local companies, but especially for the creation of the European internal market. Multilevel regulation creates a threshold for companies to expand to other European markets from their home country. The interviews indicated that many companies that have tried to expand to other European markets have been surprised to find that the Directives are not observed or are interpreted very differently in different countries. Many EU countries have well-established practices, and harmonisation is not progressing.

Examples of outcomes:

- The application of the GDPR began in 2018. It is the common goal of the European Parliament, Council of the European Union and the Commission to the European Parliament to unify data protection legislation between all member states of the EU. However, there are significant differences between the countries in the interpretation and supervision of the Regulation and the supervisory authorities, as well as further internal specifications in the countries, for example, on a sector-specific or region-specific basis. In Finland, the Data Protection Ombudsman’s office is the authority that supervises observance of the Regulation, receives reports of misconduct and acts as a party for dialogue. By contrast, Germany has a single national data protection authority plus a data protection authority in each of the 16 federal states.
- The capital requirements of the banking sector are based on the common rule book of the banking union, but there are variations in them among European countries due to the requirements imposed by the local authorities. In Finland and the Netherlands these requirements are higher than average. Sufficient capital requirements create a buffer and reduce the level of risk, but they also mean that European actors are in a different position in the market.

**Challenge 11:
Self-regulation and standards create obstacles to entering the sector**

The self-regulation internally guided by the sector may lead to the consolidation of the position of the current (major) actors. The models of operation and standards created by the sector may set the requirements for activities and the required minimum resources to a level that is very difficult for new actors to achieve.

Models based on self-regulation do not necessarily encourage major companies in the sector to build cooperation with new actors. The sector's well-established companies lack incentives to efficiently conduct negotiations with a new actor for joining common models of operation and data networks. It is possible that self-regulation is not sufficient, but that binding legislation will be required in this regard.

Examples of outcomes:

- In the telecom sector, major actors actively participate in the development of new technologies and the associated standardisation work. They invest considerable financial resources in product development. For this purpose, they gain the intellectual property rights necessary to use the technology. Major manufacturers accumulate numerous patents, and their use is agreed between manufacturers by cross-licensing. This model works in supporting the cooperation of major companies to develop standards but may lead to a situation where new actors cannot enter the sector. These actors have no possibility for cross-licensing, because they lack their own patents, and this leads to significant licensing costs compared to the well-established actors in the sector.
- The legislation concerning mobile phone networks obligates the licence holder to lease its network capacity to its competitors. This supports the entry of new actors to the sector.

**Challenge 12:
Companies' competence and attitude regarding regulation is poor**

In particular, the SME's competence and attitude regarding regulation is poor. Companies lack the ability, time and/or understanding to study and comprehend regulation. Instead, companies take major risks in their activities.

Handling regulation is also a matter of costs. The more complex the regulation, the costlier it is for the companies to become familiar with it. Complex regulation favours major companies.

Examples of outcomes:

- Several interviewees had experience of at least individual FinTech companies, in which the awareness of legislation, as well as the processes and operating models, was not of the standard required by legislation. Many FinTech companies therefore cooperate with major banks to solve the difficulties of observing extensive regulation.

"The future competitiveness and benefit are made up of something intangible. For the economic growth of society, data is a raw material. This also needs to be learnt in Europe."

2.2 Present and future challenges of building a European fair data economy

The decision makers who were interviewed also had experience of data markets, thanks to their management positions and positions of trust in the telecom and financial markets and other sectors. Such experience shows that the growth of a European fair data economy faces the challenges set out below.

Challenge 13:

Data-based business needs vast quantities of raw material — how will Europe build these assets when it is lagging behind?

The global digital service market leaders are US and Chinese companies. Their services have hundreds of millions or even billions of users. These vast user numbers mean that the companies are constantly accumulating more information. This information is the most important raw material of the data economy.

With individual exceptions, European data economy companies are in the early stages of their lifespans. How can European companies create vast data assets that facilitate competition with the current market leaders? This is a major and even insurmountable challenge for European companies.

In the current situation, Europe largely relies on the services of international platform companies. Europe is a raw material producer for the data economy. The added value of the data is created elsewhere, and its benefits are also enjoyed elsewhere. There is thus a significant flow of assets from Europe to other regions. This is a significant challenge for national economies in Europe as a whole.

Challenge 14:

Companies do not voluntarily share data

The challenge for the development of a European fair data economy and ecosystems in the sector is the reluctance of companies to voluntarily share data with other actors. This is especially true of well-established companies, which defend their positions by hanging on to their data. If there is insufficient trust between actors in the sector, each actor will hang on to its data, because it suspects that other actors will refrain from a reciprocal sharing of their own data.

There are very few examples of significant jointly built data-based ecosystems in the sector. In the target situation, the ecosystem must be sufficiently open for a new actor to gain easy access.

Challenge 15:

The key digital infrastructure companies are based outside Europe

The infrastructure of the digital economy is typically defined as including the internet's backbone networks, broadband networks, mobile phone networks, operating systems, data centres, and the most popular platforms and mobile phone and network applications. The world's major credit card companies also play a significant role in the digital economy. Most of these areas are currently dominated by US and Chinese companies in their respective markets. In the data markets, this digital infrastructure provides a competitive edge compared to Europe.

The only European global market leader companies in digital infrastructure are the network solution providers Ericsson and Nokia. The success of these actors is an asset for Europe.

"In this game, the winner takes all, and a de facto monopoly is established."

Challenge 16:**The standard terms and conditions of services and their operating models are not advantageous for consumers**

An operating model regarding data that is unfair to users has become the established basic model of services in the market. The consumer has to accept an extensive set of terms and conditions to access the application. In practice, it is difficult for the ordinary consumer to read through and understand these terms and conditions. Most mobile phone applications require that the user grants the software access to all or much of the private information stored on their mobile phone.

Having surrendered such information to the company, it is very difficult or impossible for the consumer to monitor or control the processing of this data afterwards. The use of the service free of charge is the only indirect compensation for the data ceded.

In surrendering their information to international data economy companies, consumers expose themselves to targeted advertising or contacts. Relinquishing the information is not always transparent – for example, in making internet searches or using internet-based foreign communication software.

Examples:

- Mobile phone applications require users to grant extensive access to their data. The applications may read data from the phone's microphone, cameras, picture archive, location services, calendar, contacts, movement sensors, speech recognition service and social media accounts. The user must give permission to read this data, but the request is often made at an upper level, meaning that by giving their consent, the user shares all data in the area until further notice. In many applications, the terms and conditions of use require data sharing; otherwise the use is denied.

Challenge 17:**Consumers' interest in how their data is processed remains unknown**

Consumers' attitude towards and interest in the fair use of their data and in monitoring the matter remain uncertain. Ease of use and minimal friction in using services are often the most important selection criteria for services. People want a useful service at any cost, and there is little awareness of the impact of surrendering data.

Consumers' attitudes do not currently bode well for the approach the EU has chosen. However, there are also indications that consumers' interest in and what they require of companies regarding the fair use of data are increasing.

Examples:

- An experiment was conducted in the area of sustainable development, where consumers were able to monitor and influence their consumption of electricity. However, the outcome was that the consumers did not use the solution. Lack of time was the main reason. Governance models cannot be built while ignoring consumers' use of time.

"It has been forgotten in every sector that the consumers have the right to make independent decisions. This is the only way for the markets to operate for the benefit of consumers."

3. Key factors for building trust in the financial and telecom markets

The legislative power used by the public authorities is a clear tool for steering markets. However, the practical experience gained in the financial and telecom sectors indicates that regulation must be supported by other elements such as the utilisation of markets dynamics, self-regulation, standards and supervision. The public authorities' regulation must also be implemented correctly to overcome the challenges of the sector's development. The interviews highlight widely accepted themes and principles identified by individual decision makers from the deep expertise perspectives of their jobs.

3.1 The companies' methods of building trust

Factor 1: *

Customers trust large, well-known companies

Consumer and companies' confidence in service providers is often based on a belief in the actor's responsibility. Customers rely on a large and well-known company behaving correctly.

Customers' trust in the company is built up over years or decades as they have themselves gained experience of the company's operations and culture and heard of it from others. Customers trust their bank, where they may have had an account all their lives. In trust between companies, the reputation and consistently correct activity of the other party also build trust.

From the perspective of business economics, a well-known brand also forces the company to engage in high-quality activities. It has taken the company years to earn a good reputation, but this can be lost in an instant when behavioural failures are revealed. A lost reputation must be rebuilt, and that takes a long time.

According to some views, the unimpeachable morals of major companies in the sector are ultimately the only things leading to responsible operations in the long run. There are differences in the cultures and risk appetites of the companies operating in the peer sectors.

The permanence and relatively small number of well-established actors in the telecom and financial markets have increased trust between actors. This trust has enabled the cooperation of the sector in developing standards and compatible operating models.

Examples:

- The internet is part of our everyday life and is often the basis of business and services intended for consumers. However, activities taking place on the internet are not heavily regulated. Many dishonest actors try to use the internet to con companies and consumers into giving them money and/or information, or to cause them other harm. In this environment, familiar brands help consumers trust them; the logo of a familiar company in the sector (e.g. PayPal) confirms to consumers that their purchase transaction will be safely processed.

Factor 2: ***Customers are offered the best and most attractive services**

Customers start actively using attractive services that are the best in the market. These factors can replace trust as the threshold condition for consumers' actions.

Competition between companies is the most important factor for the development of the sector. When one actor has launched a new service or an additional feature of an existing one in the telecom or financial market, other actors have been forced to respond in kind. Competition built in the market economy increases productivity and the benefit obtained by customers (consumers, companies and the public sector) from the services.

A planned economy is not a functional model for developing new services. All activities must stem from creating value for customers, and this is the way to create success stories.

"In mass markets, trust is only based on the brand."

Examples:

- When mobile telephone calls were introduced in the late 1980s, they were a VIP service, and for customers "price was no object". Mobile phones provided features that were previously unavailable. These functionalities had significant benefits, particularly to customers in management or decision-making positions. Mobile phones have since become a mass market in which the services are available to all.
- Before the mobile call service was created, fixed-line networks were the communication platform. During the early days of the telephone market, customers' trust in the service providers was maximal, because the service provider's employee (exchange operator) could listen to every call without a trace. There was no alternative equal functionality for the service, and it was only available locally from a single operator.

3.2 The legislator's ways of building trust

Factor 3: *

Regulation has been necessary (but its downsides must be minimised)

The legislation governing telecom and financial markets obligates companies, public sector organisations and/or citizens to act in compliance with a certain model and excludes other operating models. Successful regulation increases price competition in the sector and forces services to operate with each other and to a certain extent comply with the specified quality standard, as has been seen, for instance, with roaming charges in the EU.

Regulation may increase the sector actors' mutual trust.

Regulation is also often the only tool that forces companies to act in accordance with the same (responsible) model and thus places every company on the same starting line. There have been cases in the financial sector where actors have found a loophole in the law and sought to utilise it (for example, in payday loan companies). If compliance with restrictions is not compulsory, it places companies operating responsibly in an awkward position.

At the end of the day, regulation may be useful for large companies in the sector, because it creates thresholds for the entry of new companies. This has been the case in the financial sector. The current major actors use resources in the actions required by regulation and want to reduce the costs arising from them. In the end, major companies nevertheless have supreme ability and resources to implement the necessary actions required by regulation.

Not all regulation succeeds in the best possible way and may even bring negative net consequences. In the long run, regulation has nevertheless given Europe strength thanks to uniform markets, and has therefore been worth the bother.

Counter-argument

Some decision makers considered regulation to be insignificant in the building of trust in the sector and harmful in terms of the bigger picture. According to this view, regulation does not increase consumers' trust, because they lack sufficient knowledge of and interest in the operation and regulation of services. In that case, regulation never enables activities; it merely limits them. At its worst, companies may experience regulation as unnecessary orders and an obligation to be licensed for operations, impeding development and innovation.

Which areas of society must be regulated, and what the objectives of regulation are must be carefully considered. In the financial market, regulation is necessary due to systemic risks and the need to protect people's assets. In other sectors, the basic need for regulation is probably not as great.

Examples:

- The European Economic Area operates a deposit guarantee system that has brought uniformity to the principles of the guarantee and especially its value. The deposit guarantee creates in customers a certain basic trust in the service providers, even if they are new domestic actors or actors entering the public's domestic market from other EU countries. People have transferred their assets to the accounts and/or products of new challenger banks from other EU countries.
- The Single Euro Payments Area (SEPA) system is a project of the European Commission and European banks that facilitates euro-denominated payments in the uniform euro payments area. The system can be considered a successful regulation-based development project.

**Factor 4:
Regulation must not be at too high or low a level**

Put simply, new regulation can be planned to operate at a high level so that it sets the principles, main policies and limitations with which the actors subject to this regulation must comply. The purpose of such minimalistic regulation is to disturb the market as little as possible. The sector's actors have leeway to solve the principles set by the legislator as they see fit.

However, high-level regulation does not ensure compatibility between actors at the practical level. The telecom and financial markets have practical experience of the fact that only detailed regulation forces actors to change their operations and/or cooperate.

Unlike the sector-specific regulation of the financial and telecom markets, the EU's General Data Protection Regulation is an example of vertical regulation independent of sectors. The upside of such regulation is that all sectors are treated equally, and companies in another sector do not have an unfair competitive edge regarding products created in a "grey area" between markets. More general regulation competence and solution models will be available. A contrasting example is that the Revised Payment Services Directive (PSD2) only obligates the banks to share their data and releases other actors from these obligations.

The challenge of horizontal regulation is the difference of sectors and successfully covering them all. For example, the financial market's operating models and other regulation are completely different from those of the telecom and energy markets.

From the perspective of observing the regulation and its supervision, detailed regulation can be too easy to bypass. A too high level of regulation leaves much, or even too much, freedom of discretion to the supervisor.

"We should have transparency in the information so the consumer can really subject companies to competitive tendering. Giving the consumer's own consumption data to other companies for them to submit an offer would be a good starting point."

**Factor 5:
An open licence model can create trust and competition in the sector**

The creation and further development of telecom market regulation has been a great success. The key factor behind the model's success has been the openness of the ecosystem and the sector. In each country, the chosen mobile network operators own the mobile phone network and hold a licence to engage in the operator business. The European states have applied the methods of their choice to issuing licences to these actors, of which each market has more than one. Licences carry obligations, and their non-observance can even result in the actor losing its licence.

The licensing model creates consumers' trust in the market actors. The consumer can choose the services of any operator and rely on the services meeting the necessary requirements and following the same rules set by the public authorities.

The licensing model allows commercial actors to compete in the market, and the consumer trusts the actors, while the requirements set by the government are met at any rate. The licensing terms and conditions can also be used to obligate the actors to provide services in areas where the operations would not be profitable, in sparsely populated areas, for example. This requirement is part of the overall licence acquired, and the public authority thus ensures equal services for every citizen.

At the same time, the licence constitutes an obstacle to entering the sector. On the other hand, to ensure the functioning of the market and responsibility of operations, every service provider must implement the required actions and observe the rules set.

Examples:

- In principle, the Communications Market Act means that anyone can enter the mobile phone market in Finland by purchasing a licence. However, the licence carries obligations, such as building a network. Alternatively, the company has the option to establish, and acquire a licence to operate as, a virtual operator. Such a company operates as a tenant in an existing network operator's network. The ecosystem is open rather than tied to a certain company.

3.3 Self-regulation and standards as tools for building trust

Factor 6: *

Self-regulation supports the development of the sector – at least when used with public regulation (80/20)

The creation of legislation is a careful and not especially agile process. Regulation should create a framework containing the principles within which the sector can progress in its operations. Regulation must be drawn up sufficiently wisely to prevent it from becoming instantly outdated. A legal amendment must not be the endpoint of development and innovation in the sector.

Minimised regulation only includes compulsory rules to ensure the rights and safety of consumers, such as those governing the safety of products and access to one's own data. In this case, the goal of regulation is to ensure legal protection. In such a model, public regulation would cover about 20% of the entire set of rules and standards governing the sector. A larger relative share creates a risk of over-regulation, which hampers business activities. In turn, self-regulation by the sector should account for 80% of the total regulation. The sector will itself define the further specifications and areas of application on the basis of legislation.

In such regulation, the basis can remain unaltered even though the sector keeps developing. Regulation, self-regulation by the sector and standards constitute the core of the governance model.

However, the public authorities must have the power to steer and further specify the self-regulation mechanism. If an actor or companies working with the self-regulation of the sector cannot progress with the work, the public authority is the last instance that will ensure progress in the matter.

Counterarguments

Self-regulation alone is insufficient to encourage major actors to cooperate and drive correct changes. Over the years, there have been situations in the telecom market where regulation was not used to force operators to cooperate in a certain area. In these situations, it was not in the interest of the actors to expand the functions of their services outside the company or to cooperate with other actors. Self-regulation did not work. Competing groups can also be created in the sector that do not agree on a common standard.

Self-regulation can lead to a lack of sufficient regulation. The banking sector has experience of situations where a bank, fund or other actor takes risks that are too big for the entire economy. This creates a moral hazard.

When regulation is implemented by the public authorities, the result is likely to be fairer to new actors. Internal regulation of the sector can to a degree favour existing actors and create obstacles to entering the sector for new actors.

Examples:

- The Finnish Financial Ombudsman Bureau (FINE), is an advisory agency for insurance, banking and investment sector customers, and a dispute settlement body that serves as an alternative to courts of justice. FINE deals as a clerical procedure with disputes with well-established decision praxis that are legally unambiguous. It ensures the existence of a certain operating model and guarantees the quality of services. FINE also support regulation for its part. For consumers, FINE is the first instance for receiving advice and submitting complaints. FINE's activities are public, which for its part entails pressures for companies to act correctly and thus look after their reputation. Furthermore, FINE supports the services of different actors and their comparability by publishing information about its activities.

“The ideal model would probably be one in which regulation included compulsory matters and the sector then produced a standard.”

Factor 7: ***Common standards and registers enable the exchange of information**

Standards have been an essential part of peer sectors' governance model. Regulation and rules created by self-regulation may constitute the basis of activities, but the financial and telecom sectors have created standards as required – led by the companies. Shared methods of transferring information in standard formats and common sources of information force all parties to act using the same rules of engagement and enhance the compatibility of services between actors.

The creation of a joint clearing system for the financial sector in the 1970s was an example of joint development work by the sector companies. That effort created the basis for the digitalisation of the sector that took place later. Electronic identification of customers is a more recent example of a jointly developed standard.

The sector's shared information repositories can also have the effect of ensuring compatibility and common operating models. Registers can be used to finally verify the correctness of matters. In addition to sector-specific registers, such general and verifiable information is contained, for instance, in share, asset, real estate and voting rights registers.

Many important standards were created as *de facto* standards. When a standard is good and sufficiently operable, it can achieve such a large market share that it becomes the controlling standard for the sector in practice.

The rules of engagement and logic of operations, known throughout the sector and jointly agreed, make the sector safe for all. Thanks to common rules of engagement, actors in the financial and telecom markets have been able to trust other actors in the sector. Some views suggest standards play an important and primary role in the mobility of information. According to this perspective, the legal regulatory framework is only required after the standard is created – if at all.

Examples:

- The Society for Worldwide Interbank Financial Telecommunications (SWIFT) is a global community of financial sector actors that provides its owners with reliable and safe financial transactions. SWIFT was established by some 240 banks in 1973. When SWIFT was established, it replaced the previous manual solutions based on telegrams and fax messages, and created quick and reliable international payment traffic based on data networks. The SWIFT community currently has approximately 11,000 members.
- The development of GSM mobile telephone standards by major European telecom operators is an example of standardisation work. The common databases with a common format associated with mobile phone networks create the basis for compatibility and force every party to operate in the same manner. Such critical global databases include registers of network subscribers, subscribers roaming in the network and the identification of stolen and counterfeit devices.

“Very detailed and rigid regulation – the world will leave that behind.”

Factor 8:
Uniform agreement models and open comparison of services increase transparency

The financial and telecom markets deploy uniform terms and conditions for services and products based on legislation and/or self-regulation by the sector. In Finland, the financial market's cooperation body collects the consumers' complaints of companies in the sector. The details of the number of complaints and their processing are public information.

The creation of common default products makes it easier and safer for consumers to compare products and prices. The creation of uniform terms and conditions for products and services assures consumers of the fairness of the terms and conditions of the service to be procured. The collection of feedback and assessments of sector companies using a uniform model adds to the transparency of each company's operations. Refined information would also allow consumers to assess which services best suit them on the basis of their behaviour and needs. Uniform feedback also provides companies with important information on the standard of their services and changes in it compared with other actors in the sector.

No common digital comparison tools for products and services are available in Europe. Some companies or comparison services in certain fields of business (such as restaurants) report the results of customer feedback, but the credibility and uniformity of these services is not of a very high standard. Different services also exist for comparing the prices of products and services (for example for insurance and energy).

3.4 The regulation supervision model affects trust in the sector

Factor 9: *
The supervisor plays a critical role

Experience in the financial and telecom markets indicates that the deterrent effect created by supervision keeps the actors on track. The supervisory body must be independent and have the power to carry out unscheduled inspections.

However, any uncertainty created by the supervisory body and/or its arbitrary actions must be avoided. Who supervises the supervisor?

Examples:

- The goal of the World Anti-Doping Agency (WADA) is a world in which all athletes compete free from doping. WADA defends the ethics of sport and guarantees athletes judicial protection. WADA also aims to improve the uniformity of anti-doping work throughout the world. WADA's main duties include an international independent testing programme, an independent programme for investigating doping control and an independent monitoring programme for major international sports events. WADA is a supranational actor that has the right to conduct unscheduled inspections of its monitoring subjects.

“Rules of engagement and safety logic known by all make the sector safe for everybody.”

Factor 10: ***Dialogue between the public authorities and companies in the sector is necessary**

Dialogue between the public authorities and the sector was generally seen as one of the key factors in building trust in peer sectors and in the sector's development. The interviews indicated that open dialogue and solving the problems together were the key elements of functional cooperation. Involving the sector's organisations and a representative group of companies in the work for planning and further specifying the regulation has been a well-functioning model, resulting in actors in the sector becoming committed to the rules created.

The success of discussions between actors requires that the supervisory body understand the sector and its actors. Companies must also have an understanding of the regulation. No trust is built between parties without the other party's expertise and understanding of the market.

The most operable model in planning new regulation has been to start building the regulatory model with the regulator and the actors. In this model, the regulator has identified the need for regulation and/or problem, but has not specified a ready solution in advance and/or dictated it for the sector. The problem is solved by the public authority and companies together.

Examples:

- A national income register was introduced in Finland in 2019. The income register is a national electronic database containing the salary, wage, pension and other benefit details of every individual. Before that, the parties producing income information reported it to several different places, and parties wishing to use this information also had to seek it from different places. In the interviews, the development of the income register was considered an example of successful dialogue with the sector. In 2020, a plan will be drawn up to realise and introduce a positive income register. The public authorities and major actors in the sector are participating in this planning work.
- Different electronic identification systems are in use in Finland. The state offers an identification solution, but they are not a market leader outside the public sector. Major banks have their own identification systems that are compatible with each other. The public authorities and companies usually provide a facility for strong identification on their websites using a certification card or mobile certificate, or using the ten or so major banks' own verification services. Some interviewees considered the creation of the electronic identification system to be an example of planning regulation with insufficient dialogue.
- Regarding the supervision of major European banks, the supervision of the ECB tells companies in the sector the next year's focal points of regulation development in advance. This is part of the predictability of the supervisor's actions, included in the ECB's operating model. The actions of the ECB also support more efficient unification of regulation interpretations in whole Europe. Major banks with which systemic risks of the financial market are associated, as well as smaller banks through them, will in a certain year concentrate on the development of the same topic of regulation

Factor 11:**A supervisory body close to the market can understand it**

It is important for the functional oversight of regulation that there is a national supervisory body familiar with the market's particular characteristics. This is required to enable the necessary dialogue. The more distant the official supervisory body is from the market, the narrower its role will be and the less substantial the information it has at its disposal.

In practice, the telecom markets in the EU countries are very national in nature, even if the underlying infrastructure is global. The creation and supervision of legislation on the telecom market has also been on a national level. State authorities have quite extensive powers. Actors in the telecom market have wished to continue this national supervisory model.

Dialogue between the authorities and market actors has been an active and two-way traffic within a country. This dialogue enhances both the commitment of the sector and the efficiency of supervision. If supervision were moved to the EU level, the current pragmatic operation model would be lost. Some decision makers feel that an EU-level supervisory body is a challenge even now.

In the financial sector, the cumulative nature of national and EU-level legislation requirements can, if only mechanically calculated, mislead a supervisory body that has a poor knowledge of the market. In addition to mechanical interpretation, activities should also be assessed as a whole, and the supervisory authority should have some leeway to use common sense. If oversight were entirely performed by an EU-level supervisory organ, such interpretation would be very difficult.

Challenging EU-level regulations is a major effort and a prolonged process. Influencing any challenges posed by regulation is difficult for national actors and/or SMEs. Companies feel that it is possible to influence the problem areas of national regulation.

In a normal situation, the national authority must have the primary opportunity to use discretion and act. Clear terms should be defined for the steering role of a EU-level authority – for example, the size of corporate mergers and activities in several European countries. However, the need for an EU-level supervisory authority will increase with the harmonisation of EU legislation.

All in all, the ability of an official supervisory body to monitor the market is in any case limited, and this must simply be accepted.

Examples:

- The duties of EU-level oversight of the financial sector include supervision of both the banking union and the banking sector, the creation of uniformity between national supervisory mechanisms and the development of reporting. This work is being globally undertaken in the financial sector by the Financial Stability Board (FSF) and the International Monetary Fund (IMF).
- The employees of FINE, who participate in the solving of problem situations and complaints in the field of financial advice, as well as in the preparation of legislation, are familiar with how the products and companies in their area of responsibility operate. When the supervisory body has a good understanding of business, this facilitates dialogue and ensures the success of regulation.

Factor 12:**Stakeholders must be involved in the supervision of regulation**

The financial sector has a positive experience of the extensive involvement of key actors in society and those influencing public opinion in the supervision and further specification work regarding regulation. Such parties include trade unions, the Ministry of Justice and employer organisations. The aim is to have as many important societal actors as possible who are committed to jointly agreed rules. The actors that influence public opinion have been in part associated with the sector and in part general actors in society.

The financial sector also has positive experience of the participation of parties looking after customers' interests in supervisory work. Some organisations representing customers may initially have somewhat critical views of companies' operational models. However, dialogue between actors has meant progress for the sector and helped both parties understand each other's situation and challenges. Joint regulatory work has also made the actors committed to the decisions taken. The parties involved in joint regulatory work are also bridge builders in their own stakeholder groups and help create an open discursive culture.

**Factor 13:
An independent, low-threshold channel
for processing consumer complaints is
required**

The ombudsman model used in many countries is one way to process people's complaints, investigate them, and issue recommendations or decisions. Complaints may concern a public actor or company. The ombudsman's decisions may be binding or merely take the form of recommendations.

The strength of the ombudsman model is that its handling of issues is independent. The model also provides consumers with an easy-to-use and free channel to pursue their dissatisfaction with a service or product of an individual company.

The independent party processing consumer complaints can also be other than an ombudsman. The Finnish financial sector has created an agreement-based financial sector organisation for dealing with disputes and advising consumers.

Examples:

- The ombudsman model is widely used in England. If the consumer cannot settle a dispute with a company, they can turn to an independent ombudsman. This ombudsman will process the dispute free of charge and impartially on the basis of evidence provided by the parties. If the consumer accepts the ombudsman's decision, it becomes binding on the company. England has separate ombudsman services, for instance in the energy and financial sectors.

**Factor 14:
Actors that break the rules must face a
sufficient deterrent**

To ensure that the rules are observed, the actors must face considerable sanctions for breaking them. Possible effective factors that the supervisor has the power to decide can include major financial sanctions or the possibility to revoke the licence to operate in the market. Furthermore, activities that are incompatible with the rules of engagement would in the telecom and financial markets lead to a situation where the services provided by a company to its customers would become inoperable in many areas.

For an individual company, the risk of losing the licence to operate in the market is a major deterrent. In practice, losing this licence must require a serious breach of the rules. The exclusion of a transgressor company could be effected by the regulator or a joint body of the sector. The publicity entailed by such a decision adds to the deterrent effect on companies and ensures their compliance with the rules. The process must include a model for correcting the company's problems – either before or after the decision.

The EU's General Data Protection Regulation includes significant financial sanctions, up to four per cent of the company's revenue. Breaches of competition law also carry major sanctions when misconduct has been proven. Such large financial sanctions constitute a genuine deterrent for companies and steer the operations of global corporate giants.

4. Recommendations for the builders of the European data economy

The key factors in building trust in telecom and financial markets can be applied to the data economy. To support them, actions directly targeted at the situation of the European data economy are required. Actions are required to accumulate European data assets and encourage their use, support market dynamics, for legislative work, self-regulation and to build supervision. These recommendations should be taken into account when developing a fair data economy for Europe.

4.1 Accumulation and use of data assets

Recommendation 1: The data owned by the public sector in Europe must be utilised

European public sector actors own plenty of high-quality data compared to other countries. Among other things, the data owned by states covers healthcare, transport and mobility, as well as education. European countries have the world's best official registers.

This raw material constitutes the strength of the European data market, and it must be able to create more value. Opening the public sector data for use by companies as extensively as possible would allow companies to create ideas and build new and innovative data-based services. Opening the data for use by companies and citizens may be one of the most important actions the public authorities can take to support the market.

Data should be made available to European companies in a uniform format, following a common model and defined interfaces. This would allow European companies to develop services from scratch in the entire European market area. The developers would know and be certain that data would be available according to the same principles in every country of the region.

The privacy of different types of data must be taken into account when opening the public sector data. Health data, for example, is an area where the risks of misuse and unauthorised sharing of data are greater. Innovations in the data economy should perhaps be aimed at less risky areas.

Recommendation 2: The governance model must concentrate on important data

The governance model of the European data economy should concentrate on data that is genuinely important and useful. Social media data is really not that important for the development of the data market. Regulation aimed at this area may be a waste of time and money that only imposes additional restrictions on companies. Instead, Europe should concentrate all its efforts on areas that are important for the success of the region's data market.

Most citizens are also of the opinion that they do not mind if the company providing the social media service analyses their data. Consumers already voluntarily share this data with anyone, for example in the form of updates, photographs or the locations of their jogging routes.

**Recommendation 3:
Companies must be obligated to share data**

Both digital service actors and “conventional” sectors accumulate vast quantities of data on when their services and products are used. This data remains to a large extent in the possession of each actor. Other companies, consumers and the entire data market cannot benefit from it.

The “freeing” of existing data will be necessary for the emergence of the European data market. The combination and sharing of an extensive quantity of data would create new opportunities for the market. It would also create new businesses and benefits for society as a whole. Data also has important uses in the public sector – for example, data related to wellbeing and transportation.

Sharing data through companies’ voluntary actions or the sector’s common rules does not seem to progress sufficiently quickly. It may be that the sharing of data and building up of the entire data assets of Europe can only be ensured by legislation.

Individual consumers currently have few possibilities to influence such things as access to their own data and sharing it with their preferred parties. If the regulator obligated the device manufacturers of each line of business (for instance car manufacturers) to collect certain specific data and enable consumers to transfer them, it would create raw material for the data market and provide consumers with more rights regarding their usage data.

In an operating model such as the telecom market, an operator would be required to manage citizens’ usage data, or the producer of the product could act as such an operator. In the telecom market, the sector-specific licensing model has been a way to share compatible data. Nevertheless, the government has retained the supervisory role, and the sector has itself built more detailed standards and models of self-regulation.

“If there is a willingness in Europe to create a data market, it must start from creating value for the customer.”

Risks associated with the recommendation

Forcing companies to share data is also a question of principle. Companies investing in the data market have collected data and created added value by refining it. These investments have helped companies to improve their competitiveness. The compulsory sharing of data assets does not support the principles of the market economy and entrepreneurship, at least when the company compelled to share data is not a dominant actor in the market. A possible solution would be, when planning legislation, to distinguish between raw data and the refining of data by companies.

Examples:

- Modern cars constantly collect data on their environment and operation. Currently, this data are only reserved for use by the manufacturer – for example to develop the company’s products and plan maintenance services. However, when shared, the data collected by the car could benefit other users of the (same) road. Information, say, about a patch of black ice on the road or an elk seen moving on the roadside could also be useful to other road users. The uniform sharing of the data collected by cars through defined interfaces would also support the development of autonomous vehicles.
- Many smart devices collect their users’ wellbeing-related data. Such data is typically in the possession of each device manufacturer, and the company will not divulge data to consumers in an easily transferable format. By combining such data now in different technical locations, society could save on healthcare costs or at least reduce the rate at which they increase as the population ages.
- Major grocery chains collect vast amounts of data about customers’ shopping behaviour. Other companies cannot access this data, even with the customer’s consent.

**Recommendation 4:
A management service for usage of data
must be created for the public**

The purpose of the management service is to provide citizens with a place where they can manage all their own data and monitor their use. The service must allow people to specify and manage her consent for allowing other parties to use their data.

The management service will increase the amount of data at the disposal of data economy actors when consumers can easily and extensively transfer their data to different companies of their choice. The management service will constantly increase the amount of available data as the actors utilising the data reciprocally share their data with the service. Such useful data may include data on an individual's energy consumption, supplied to another service provider to allow it to submit a quotation.

Transparency and transferability of data would assist consumers to subject service providers to competitive tendering more extensively.

Risks associated with the recommendation

Consumers' extensive use of the data management service will not be self-evident. The sufficiency of consumers' interest, awareness and activity for the extensive use of the service remains unknown.

For reasons of privacy, consumers will probably have little interest in compiling all their existing data and their consumption behaviour in a database held by an individual company or public authority. In turn, the companies have no interest in creating an open service. For example, in the early 2000s, operators launched a service based on the Wireless Application Protocol (WAP) for browsing the Internet with mobile phones. This was a closed service, only allowing websites specified by the operator to be browsed. The services allowing open use of the Internet quickly overtook the WAP service.

“Enormous quantities of data are currently in the possession of the private sector. This data could have many public uses. Why is it not used to benefit society?”

Examples:

- MyInfo is a service provided by the government of Singapore to citizens and other residents of the country for the management of their personal data. The service allows users to manage their own data and give consent for their use. Users can view their data usage in the service. Among other things, the service contains the person's personal details, income and social security, family details, real estate properties and education.

**Recommendation 5:
The use and value of data must be made
transparent**

The transparency of storage, use and sharing of consumers' data must rise to a new level in Europe. When transparency is created in these areas, consumers must have the possibility to prevent the actions they want. Trust in the sector is created by the consumer being able to see where data is located and how it is used.

These principles are compliant with the goals of the General Data Protection Regulation, but transparency is yet to materialise in practice. The consumer obtains different services but does not see the big picture on the basis of the terms and conditions of services and general-level permission requests. In addition to digital services, other conventional services such as televisions or cars also collect usage data. There is no transparency in this data collection for consumers.

Specifying the financial value of citizens' data would be one tool for improving transparency. Commercial principles would increase this transparency.

It should be remembered when determining the value of data that a certain datapoint or group of datapoints about an individual consumer (e.g. mobile phone location data) may in practice be worthless – both to the person concerned and to the different service producers. The benefits of the data economy are also created when there is data on millions of people.

4.2 Utilisation of the operation of markets

Recommendation 6: *

The world's best services – Killer Apps – must be created in Europe

Building the European data economy and functional ecosystems for it is impossible without Killer Apps. The European data economy will only be built on the basis of producing value for customers and on the basis of the ideas of European companies. Companies must make the creation of business with the help of data their starting point.

Companies must provide the customer with interesting services that solve their problems. Finding the solution and the producing the service is done using data, but the starting point of developing the service is to improve the customer's situation. The current market leaders and success stories of the data economy were first created as a service. The business model based on data management or a data platform was only created later.

The European data market cannot be created using a centrally managed model that is created by the state and concentrates on the collection of data. Benefits, ease of use and convenience of services determine customers' choices. The user must experience as little friction as possible when using a service.

Services provided by the current market leaders often create a lot of value for their users, but the services are provided free of charge (apart from for handing over all related data). The search service provided by Google is an example. This provides a reference level for the development of European services.

Examples:

- Facebook was not created as a platform solution for the data economy – originally, the service could be considered a service facilitating university students' dating. For a long time, Facebook was a service with plenty of customers but no earning logic.
- WhatsApp was established in 2009. The service grew rapidly and lacked a working earning logic. Market estimates are that the service had 200 million users and 50 employees in 2013. At the end of 2013, the company had 400 million active users. According to the February 2020 update of the company's blog, the service currently has more than 2 billion active users. WhatsApp has also grown into an important business tool. When Facebook acquired the company in 2014 for USD 19 billion, its use was free apart from a charge of one dollar in the first year.
- The intention of Google was initially to produce the best search engine service in the world. Many ideas and services associated with the utilisation of data were only created later.

"The idea that Europe will produce its own data market is unrealistic."

Recommendation 7: ***All actors must benefit from the sharing of information – compulsion is not feasible**

When the legislator plans the regulation of data sharing, its primary objectives may be related to social benefits such as the individual's rights and security. Regulation may also attempt to increase competition in the sector. This can happen by restricting the operations of major companies or by seeking to reduce the benefits produced by their capabilities.

Such objectives can be seen for instance in the general and sector-specific legislation associated with the sharing of data – for example, in the GDPR and the PSD2. From companies' perspective, both regulations carry cost impacts and possible impacts reducing competitiveness. Neither regulation works optimally.

The interviews indicated that the impacts and benefits of regulation from the perspective of all the actors should be taken into account when planning governance models for the data economy. When improving the situation of consumers with regulation, the challenges of actors caused by the regulation should not be forgotten, and we should also seek to abolish previous restrictions reciprocally.

Well-established companies in the sector should also gain some benefits from new regulation – otherwise, major actors can actively or passively oppose the change and slow its progress. Customers trust the sector's major actors, so their absence from the new data sharing model may also mean that large numbers of users would abstain from the new data economy services.

Examples:

- The purpose of the PSD2 Payment Services Directive approved by the European Parliament was to improve consumers' rights and promote competition in the banking sector. The Directive allows external actors to access banking data. The expectation was that new services and companies would be created in the sector. However, this has not happened. The incentives of well-established actors in the sector to share data have been weak, and they have had no interest in promoting the achievement of data-sharing objectives. For the banks, the PSD2 provided third parties with free access to the bank's data free of charge and without any other benefits to the party administering the data. Many interviewees felt that the Directive was unsuccessful, the main reason being the lack of incentives. Individual interviewees said that the ideas behind the Directive could basically be considered worthwhile, although the legislation would need further development.
- In the telecom sector, EU-level regulation secures the operating possibilities of virtual operators. Virtual operators lease network capacity from mobile network operators and provide their customers with mobile services. The goal was to increase competition and create new companies in the sector. In practice, almost all virtual operators have been acquired by larger actors or have discontinued their operations as unprofitable.

4.3 Legislative actions

Recommendation 8:

The legislator must ensure compatibility by specifying data content and interfaces

The formation of the data market will require that data be available in a compatible and machine-readable form. The exchange of information will not necessarily progress without regulation. The legislator's policy decision on the sharing of data alone is insufficient; the exchange of information should be based on a defined interface.

If the regulation defines the compatible information, sharing of machine-readable data and the interface (or data transfer standard), it makes the actors share information. When these conditions prevail, it will be possible to build a decentralised operating environment.

The regulator will probably have to create sector-specific specifications of the data to be shared and of the compatibility of their transfer. Such sectors include the financial, telecom, energy and transport sectors, where vast amounts of usage data are constantly generated.

Another possibility is to build legislation that regulates the data economy generically (horizontally). The definition of interfaces will also be necessary in this case. Horizontal legislation emphasises the human approach and role of cooperation. The transfer of data is more the responsibility of individual consumers, which may mean that the accumulated data assets are dramatically smaller due to the smaller number of data transfers.

"The ideology of the EU includes the free movement of goods, and this also applies to data."

Risks associated with the recommendation

The use of regulation may cause operations and development in the sector to be rigid. Leaving the definition of the information to be shared and the standards to be undertaken as the self-regulation and/or voluntary definition work by the sector may therefore be an alternative that supports quicker development.

The actions of a public authority, such as the EU, in steering the market have progressed in some cases from the creation of regulation to the development of solutions. The TARGET Instant Payment Settlement (TIPS) is an example of this. The ECB first created the rules and framework for a European instant payment system, but concerns were raised about the fragmented nature of the solution later. After this, the ECB extended the role of the public authorities by building an instant payment system solution at the end of 2018. Thus far, the European banks have not wished to use the solution. A year after its launch, 17 banks from eight countries had joined the system.

Examples:

- The huge success of the internet protocol exemplifies the strengths of specified interfaces with the creation of an open operating model on top of them. The openness of the internet has strongly driven the development of its associated ecosystem, in which anyone has been able to build his or her own website, for example. However, interfaces, formats and platforms have facilitated compatibility and exchange of information.

**Recommendation 9:
The EU's General Data Protection
Regulation must be extensively reformed**

The EU's General Data Protection Regulation sets precise requirements for companies and organisations regarding the collection, storage and administration of personal data. The requirements are applied both to European organisations that process people's personal data in the EU and to organisations outside the EU that process data concerning people living in the EU.

The GDPR is an example of horizontal regulation across sectoral boundaries. The Regulation has an excellent ideology and goals, and it develops operating models in this area. However, the Regulation has many problematic points, and it should be extensively reformed.

As a Regulation applied across sector boundaries, the GDPR is comprehensive, covering an extensive range of different matters. This makes its application difficult in certain sectors. This has led to a model in which the regulator of a certain sector takes a view on the Regulation for its part, creating more extensive, more detailed and less uniform regulation. This regulation causes problems for actors.

One problem with the GDPR is considered to be the legislative model on which it is based. The GDPR is

complex and does not take into account consumers' actual operating models. A legislative model starting with the behaviour of consumers should be adopted instead of the GDPR. The operating models defined by regulation should be based on such "customer understanding".

Oversight can also be considered another problem with the GDPR. Some European countries still have no supervisory authorities, or they lack sufficient resources. The Europe-level framework of horizontal supervisory bodies has not been built to an operable stage.

The right to transfer the data directly from one controller/system to the next is one of the main features of the GDPR. It allows consumers to subject actors (such as telecom operators, banks or energy companies) to competitive tendering by utilising their consumption data. Consumers save money by being able to buy the most suitable and least expensive services from Europe. In practice, consumers' authorisation to have their data shared by other actors does not work despite of the legislation. Data usually does not even move between public authorities.

Different estimates put the global costs of the GDPR at hundreds of billions of euros already in its first year of application, due solely to the required new roles and competences of personnel.

"The GDPR will be a competitive advantage, but it will require fantastic competence of the creators of the regulation."

4.4 Self-regulation and standards

Recommendation 10: *

A “Fair data economy” certification creates trust

How can the consumer recognise a reliable service provider? The uncertainty associated with a lack of trust can also prevent the service provider from winning customers. A certificate or quality label could help both parties. They would allow consumers to identify safe and fair products, and customers would trust a responsibly operating company’s operations more readily. Certification would support SMEs in their competition with large and well-known actors.

A fair data economy certification would guarantee that the service concerned observed the principles of a fair data economy. The fear of losing the fair data economy “label” would force actors to apply self-regulation.

A network needs to be built for the supervision of the operating model to support the fair data economy authorisation, as well as for advisory services and the support, assessment and maintenance of an official register of “Fair data economy labels”. The network should mainly consist of commercial actors. A public authority could play a possible role as the accreditor of inspectors and as a developer of regulation.

Risks associated with the recommendation

A certificate of the type described will only be useful if it is recognised and creates the right type of brand image for consumers. Without recognisability, it will be insignificant, and there is a risk such recognisability will not be created.

Consumers may make a connection with the brand that differs from what its developers had planned. In planning warnings associated with payday loans, tests were conducted around the world regarding the use of compulsory warnings designed by the authorities in connection with the advertisements (“anti-certification”). However, the tests found that consumers interpreted the official warning label as a sort of official recommendation for that service provider’s services.

Examples:

- In 2003, manufacturers of computers and consumer electronics created the DLNA standard (Digital Living Network Alliance) to improve the compatibility of digital media between mobile phones, computers, televisions and game consoles. The idea behind the creation of the standard was to have a consumer brand that would allow consumers to know when buying a product that they could rely on the product operating with other devices compliant with the certificate. The sector realised that consumers needed a recognisable brand and an easier way to ensure the compatibility of the product to be purchased.

“We must move to a simple model – complexity has run its course.”

**Recommendation 11:
The procedures of the fair data economy are specified as a compulsory part of sustainability reporting, good governance models or other similar requirements**

By making it compulsory for companies to report on the collection, use and management of data, the subject can be placed on management's agenda and significantly improve companies' transparency of data operations. For example, the model can be implemented by adding reporting on data use to the listed companies' reporting and governance requirements.

Such reporting will have a strong stakeholder influence. At the same time, reporting will force management to stop and think about the current situation. When future competitiveness is increasingly based on data, the reported situation will force the company to develop in the area.

Risks associated with the recommendation

If reporting on the fair use of data is made compulsory for every major company, it may create a positive facade for operations. Operations will not change in practice, however, and reporting remains the only practical measure regarding the matter.

Examples:

- Environmental, Social and Governance (ESG) reporting measures companies' responsibility. The markets set requirements and limitations to a company's situation regarding ESG factors.
- In their marketing, payday loan companies have emphasised their responsible approach, observance of consumer regulations and other positive aspects. However, the legislator has found the impacts of their products to be negative, and the activities of the sector have been restricted by regulation on several occasions.

4.5 Implementation of the supervision

**Recommendation 12:
An independent and active party must be created to look after customers' interests**

Other actors will be required for the data economy sector, in addition to companies engaged in business and the legislators. These actors should be independent and actively pursue citizens' interests.

Expanding the duties of current actors is one possible solution. Auditors or actors conducting internal audits are examples of such actors. They have the resources and operating models in place to quickly initiate the activities to ensure major companies' responsibility regarding the data economy.

One soft impact measure could also be an active actor in raising issues related to the fairness of the data economy for public scrutiny, both in general and particularly regarding individual companies. Such an actor would ensure the matter remained on the agenda of the company's management and owners, both through publicity and the Limited Liability Companies Act, for instance at annual general meetings.

The most holistic way to establish such an actor would be to create data operator-type actors. The data operator is responsible for collecting and processing information related to a certain sector on the basis of official regulation. From the public's perspective, that actor must be other than a public authority to ensure that privacy and freedom of choice are maintained.

The data operator would operate on the basis of a licence issued by a public authority. Legislation related to operator activities will accumulate data assets and create trust by ensuring the message secrecy of data. The activities of data operators will be supervised by a public authority that cannot access the data without a court decision.

**Recommendation 13:
Supervision must be digitalised and
automated**

The data economy is based on the extensive utilisation of information technology – for example, on the extensive collection of data and sharing it using intelligent automation and artificial intelligence. The regulator must also observe these principles. Monitoring the laws and/or rules of engagement of the data economy must be built using digitalisation.

Technology facilitates the automatic and extensive monitoring of data usage and observation of rules, including the automatic interpretation of contractual terms and conditions, and their observance. Technology will detect any breaches of the rules of engagement and raise more complete cases for processing by a human supervisor.

In addition to a digital supervisor, a supranational supervisor will also be required, with the right to conduct unscheduled inspections and see the company's data.

“Companies often think about whether a consumer is trustworthy. That analysis must also be reversed – can consumers trust the company?”

5. Conclusions – issues to be resolved when planning the governance model for the European data economy

Decision makers in the financial and telecom markets identified several challenges and proposals to steer the development of the European data market. What are the challenges associated with the creation of a fair data economy for the EU? What sort of governance model would give Europe the best chances of success? What are the main measures concerning the EU's fair data economy? These matters can be concentrated into eight key questions that need to be answered when planning the governance model for the European data market.

Europe's competitiveness requires that data is available for use as a raw material for innovations both by the private and public sectors. For example, the EUR 740-million benefits from the automation of train traffic or EUR 5-billion savings from the eradication of malaria mentioned in the EU's data strategy will only materialise if the data held in private and public registers can be made compatible, reliable and readable by machines and people. This would allow the processing of data like any other tradeable commodity in the economy. They can be productised and priced, and functioning exchange markets can be created for them

The values, competence and legislation complied with when producing these digital structures will define

the rules of engagement and earning logic of the data economy. This will be a major opportunity for Europe also to benefit financially from its centuries-old value base. However, there is no time to waste if we do not want to miss the race.

As with railways or power lines, the construction of digital infrastructure will require investment. This is now a date with destiny for Europe to allocate financing to where the seeds of future competitiveness are found.

The intention was to structure this publication and the eight key questions presented below so that they would steer the thinking in decision making when building the future model. There are already some pioneering companies with existing competence and solutions.

“Is Europe trying its best but still missing the train?”

Key questions:

1. What actions when creating the governance model will have the quickest impact?

This is the eleventh hour for catching up with the current market leaders. They will soon be beyond reach during the lifespan of current technology.

2. How can uniform data markets for Europe be created when the underlying sectors differ so greatly?

The data market is not a sector, but an entity that will cover every sector in future. There are major differences between sectors, and many successful operating models are currently based on the sector's particular characteristics and main actors. This will be a key question as sector-specific and supra-sector data spaces are developed in Europe.

3. How can an operating environment be created in which small and large companies act together, and the strengths of both company types are involved?

Major companies have played a significant role in the formation of peer sectors. Yet the dominance of major companies may leave small companies with no room to survive.

4. How can legislation ensure the competitive edge and benefits of being an innovator in Europe with the aid of fair data use and management?

Catching up with the current market leaders is very challenging in the current competitive data economy field. Europe is a forerunner in the fair and people-oriented management of the data economy, and it must be able to create benefits from being an innovator for the economic area and the companies in it.

5. Is it possible to foresee the adverse effects of legislation, and how should we react when they materialise?

Legislation must have clear goals, and its benefits should outweigh the costs it creates. It is important to be able to monitor the negative impacts of legislation that have materialised.

6. Are the incentives created by the governance model for both parties understood?

Binding legislation without benefits for all parties could hamper the attainment of the goals of legislation.

7. What prevents European companies from creating a successful data economy and digital economy products? How could the competitive situation be made more favourable for European companies?

Global market leaders are created in the data and digital economies. Such companies are usually based on a successful product that is in such demand that it replaces all existing services (cf. GAFSA companies).

8. How can added value be produced for the data owned by the European authorities and companies?

Compared internationally, the data registers of the European authorities are of an excellent standard. Companies collect data for their own databases. It should be possible to exchange data fairly between companies and across sectoral boundaries.

Executive Summary

Europeans are active users of digital services, and the region's public authorities collect the world's highest quality data. However, this data is predominantly used by non-European companies. Europe is a raw material producer for the data economy! The sector's market leaders are global companies with closed solutions that are rooted in the European value base.

The financial and telecom sectors are data-based fields of business. The largest European companies are among the global leaders of their respective sectors. During the last 20 to 40 years, the financial and telecom markets have developed substantially. In both sectors, the strong regulation and standards jointly built by actors in the sector have been at the centre of successful development. It would pay to learn from the development of these sectors when designing governance models for the European data economy. These insights were collated by interviewing major decision makers in the sectors. Their extensive views of the development of the data-based sector provide keys for the architects of a European fair data economy.

The biggest obstacles facing market development in the financial and telecom sectors have been the lack of uniformity and the multiple-tier structure of regulation in the EU markets. Due to differences between countries, companies in the region are unable to develop products and operating models for the entire internal market in one move. In addition to EU-level regulation, country and sector-specific regulation and interpretation takes place in EU countries.

The main factors in building trust in the markets of the financial and telecom sectors have been well-known companies and regulation at the right level, self-regulation and a combination of the two. Consumers have trusted the new services offered by large companies with long track records. Regulation has been necessary for the

sector's development, which has benefited all, but it has been correctly defined and limited. Regulation has been supported by the self-regulation built by the sector, which has created common standards more flexibly than the public authorities would have, and further compatible services and data exchange models.

Lessons from the data-based financial and telecom sectors are probably relevant when building the European data market. Furthermore, factors that are important for establishing trust specifically in the data economy will be the attractiveness of the services offered, the benefits to all parties in sharing the data and easier recognition of fair data economy actors. In designing the governance model for the European data economy, the important questions of today must be answered: What prevents European companies from creating successful data economy products? How can uniform European data markets spanning sectoral boundaries be created? How can added value be produced from the data owned by European authorities and companies? How can an operating environment be created in which small and large companies act together, and the strengths of both company types are involved? How can Europe achieve a competitive edge from a fair data economy?

Data is an essential asset enabling the economic, labour market-related and general development of society. The competitiveness of Europe requires a uniform data market and the availability of data for use as a raw material for innovations, both by the private and public sectors. In the fair data economy to be built for Europe, the utilisation of data will be combined with a humane approach and model in which different actors have fair rules of engagement for sharing data and using them in services. This is now the last chance for changing course and creating the European data economy.

Sammanfattning

De europeiska medborgarna använder aktivt digitala tjänster och myndigheterna i området samlar in världens bästa data. Det är dock utländska företag som utnyttjar den data som samlas in. Inom dataekonomin är Europa ett område som producerar råvaror! Marknadsledare i branschen är globala företag vars lösningar är slutna och inte bygger på en europeisk värdegrund.

Finans- och telesektorn är branscher som bygger på data. De största bolagen i Europa hör globalt till de ledande aktörerna inom branschen. Finans- och telemarknaden har utvecklats dramatiskt under de senaste 20–40 åren. Inom båda branscherna har en stark reglering och de standarder som aktörerna i branschen har byggt upp tillsammans stått i centrum för en lyckad utveckling. Det finns skäl att ta lärdom av utvecklingen inom dessa branscher när man planerar förvaltningsmodeller för den europeiska dataekonomin. Denna publikation ”Framtiden för Europas dataekonomi på spel – Lärdomar från tele- och finansmarknaden” samlar in dessa lärdomar genom att intervjua de viktigaste beslutsfattarna inom branschen. Deras breda syn på utvecklingen av den databaserade branschen ger nycklar till dem som bygger upp en rättvis dataekonomi i Europa.

Inom finans- och telesektorn har de största utmaningarna för utvecklingen av marknaden varit att EU-marknaden är oenhetlig och att regleringen består av olika skikt. På grund av skillnaderna mellan länderna kan företagen i regionen inte på en gång utveckla produkter och verksamhetsmodeller för hela den inre marknaden. Utöver regleringen på EU-nivå har länderna egen lands- och branschspecifik reglering och tolkning.

Huvudfaktorerna för att bygga upp marknadens förtroende inom finans- och telesektorn har varit kända företag samt reglering på rätt nivå, självreglering och sammanslagning av dessa två. Konsumenterna har litat på nya tjänster som erbjuds av stora företag med lång historia. Reglering har varit nödvändig för en utveckling som

gynnar alla inom branschen, men den har varit korrekt definierad och begränsad. Regleringen har stötts av en självreglering som byggts upp av branschen och som har skapat gemensamma standarder som är mer flexibla än en myndighet, och tjänster och modeller för informationsutbyte som fortfarande är kompatibla.

I uppbyggnaden av den europeiska datamarknaden gäller mycket sannolikt lärdomar från den databaserade finans- och telesektorn. Därtill kommer faktorer som är viktiga i uppbyggandet av förtroende för dataekonomin att vara attraktionskraften hos de tjänster som kunderna erbjuds, delningen av information som alla parter har nytta av och underlättande av identifiering av hederliga aktörer inom dataekonomi.

När den europeiska dataekonomins förvaltningsmodell planeras ska man kunna svara på de viktigaste aktuella frågorna: Vad hindrar europeiska företag från att skapa framgångsrika dataekonomiska produkter? Hur skapar man en enhetlig europeisk datamarknad över sektorsgränserna? Hur skapar man ett ökat värde av den information som ägs av europeiska myndigheter och företag? Hur skapar man en verksamhetsmiljö där små och stora företag arbetar tillsammans och får med styrkorna hos båda företagstyperna? Hur kan Europa få konkurrensfördelar av en rättvis dataekonomi?

Data har blivit en väsentlig tillgång för samhällets ekonomi, arbetsmarknad och allmänna utveckling. Europas konkurrenskraft förutsätter en enhetlig marknad för dataekonomi och tillgång till data som råvara för innovationer för såväl den privata som den offentliga sektorn. I en rättvis dataekonomi som byggs upp i Europa kombineras utnyttjandet av data med ett människoorienterat verksamhetssätt och en människoorienterad modell där olika aktörer har rättvisa spelregler för att dela och använda data i tjänsterna. Det är nu hög tid att byta riktning och skapa en europeisk dataekonomi!

Tiivistelmä

Euroopan kansalaiset käyttävät aktiivisesti digitaalisia palveluita ja alueen viranomaiset keräävät maailman laadukkainta dataa. Datan hyödyntäminen tapahtuu kuitenkin ulkomaalaisten yritysten toimesta. Eurooppa on datataloudessa raaka-aineen tuottaja-alue! Alalla toimivat markkinajohtajat ovat globaaleja yrityksiä, joiden ratkaisut ovat suljettuja, eivätkä perustu eurooppalaiseen arvopohjaan.

Finanssi- ja telesektori ovat dataan pohjautuvia toimialoja. Euroopan suurimmat yhtiöt kuuluvat globaalisti alan johtaviin toimijoihin. Finanssi- ja telemarkkinat ovat kehittyneet viimeisten 20-40 vuoden aikana dramaattisesti. Kummallakin alalla vahva sääntely ja alan toimijoiden yhdessä rakentamat standardit ovat olleet onnistuneen kehityskulun keskiössä. Näiden toimialojen kehityksestä on syytä ottaa oppia suunniteltaessa Euroopan datatalouden hallintamalleja. Näitä oppeja on kerätty haastatteleamalla alojen tärkeimpiä päättäjiä. Heidän laaja-alainen näkemyksensä datapohjaisen toimialan kehityskulusta antaa avaimia Euroopan reilun datatalouden rakentajille.

Finanssi- ja telesektorilla suurimpia markkinoiden kehityksen haasteita ovat olleet EU-markkinoiden epäyhtenäisyys ja sääntelyn kerroksellisuus. Alueen yritykset eivät pysty kehittämään maakohtaisten erojen takia kerralla tuotteita ja toimintamalleja koko sisämarkkinalle. EU-tason sääntelyn lisäksi maat tekevät maa- ja toimialakohtaista sääntelyä ja tulkintaa.

Markkinoiden luottamuksen rakentumisen päätekijöitä finanssi- ja telesektorilla ovat olleet tunnetut yritykset sekä oikeatasoinen regulaatio, itsesääntely ja näiden kahden yhdistäminen. Kuluttajat ovat luottaneet suurten, pitkän historian omaavien yritysten tarjoamiin uusiin palveluihin. Regulaatio on ollut välttämätöntä toimialan

kaikkia hyödyttävän kehityksen kannalta, mutta se on ollut oikein määriteltyä ja rajattua. Regulaatiota on tuettu alan rakentamalla itsesääntelyllä, joka on luonut viranomaista joustavammin yhteiset standardit, ja edelleen yhteensopivat palvelut ja tiedonvaihtomallit. Euroopan datamarkkinan rakentumisessa pätevät hyvin todennäköisesti datapohjaisten finanssi- ja telesektorin opit. Sen lisäksi datatalouden luottamuksen rakentumisessa tärkeitä tekijöitä tulevat olemaan asiakkaille tarjottujen palveluiden houkuttelevuus, kaikkien osapuolten hyötyminen tiedon jaosta sekä reilun datatalouden toimijoiden tunnistamisen helpottaminen. Euroopan datatalouden hallintamallia suunniteltaessa tulee pystyä vastaamaan tärkeimpiin nykyhetken kysymyksiin: Mikä estää eurooppalaisia yrityksiä luomasta datatalouden menestyjätuotteita? Miten luodaan toimialat ylittävät Euroopan yhtenäiset datamarkkinat? Miten eurooppalaisten viranomaisten ja yritysten omistamasta tiedosta saadaan luotua lisää arvoa? Miten luodaan toimintaympäristö, jossa pienet ja suuret yritykset toimivat yhdessä, ja kummankin yritystyyppin vahvuudet saadaan mukaan? Miten Euroopassa voidaan saada kilpailuetua reilusta datataloudesta?

Datasta on tullut yhteiskunnan taloudellisen, työmarkkinoiden ja yleisen kehityksen mahdollistava olennainen omaisuuserä. Euroopan kilpailukyky edellyttää yhtenäistä datatalouden markkinaa ja datan saatavuutta innovaatioiden raaka-aineeksi niin yksityisen kuin julkisen sektorin käyttöön. Eurooppaan rakennettavassa reilussa datataloudessa datan hyödyntäminen yhdistyy ihmislähtöiseen toimintatapaan ja malliin, jossa eri toimijoilla on reilut pelisäännöt datan jakamiseen ja käyttämiseen palveluissa. Nyt on viimeinen hetki kääntää suuntaa ja luoda eurooppalainen datatalous!

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Annex 1: Implementation of the interviews

The chapters of the report directly based on interviews present challenges, insights and recommendations identified by the decision makers. A lot of open questions were used in conducting the interviews, with the aim was of understanding the decision makers' views of potential tools for building trust without a predefined group of possible answers and analysed elements.

The chosen method of conducting the interviews succeeded in collecting a large number of possible problems and challenges, as well as tools for use by the public authorities and companies. Not every interviewee had an opinion on every presented solution, or it could not be established in the interview. It was not always possible to ask for an opinion due, for instance, to the length of the list of identified challenges and possible solutions, their constant expansion and the interviews' time constraints.

The interviewees were asked key questions on the development of the telecom and financial markets: How can trust between actors be built? What are the typical challenges associated with the development of the data-intensive sector? Which strengths, weaknesses and lessons are associated with regulation, self-regulation, and the use of standards and other similar governance models? What should Europe do to build its data market?

The challenges presented in the chapter and the related examples were compiled directly on the basis of the interviews, without assessing or taking a view on the presented opinions (for example, the impact of regulation on innovation in the sector). The presented facts were checked as far as possible when they did not concern the interviewee's own opinion (for example, the year a law entered into force, the target area of a standard or the functionality of an existing service). The opinions were recorded as statements presented in the narrative. The points presented in Chapters 2 to 4 do not specifically state that the view given is based on the interviews.

The elements presented in the chapters and their descriptions are typically based on several interviewees' views complementing each other, but in some cases, only on the view of one person based on experience of their area of expertise. The examples related to a particular segment are often based on the views of just one person.

None of the component parts of the working paper was supported by every interviewee. In most cases, this was because the interviewee had no final opinion on the matter, or there was insufficient time for an opinion to be expressed during the interview. The topics on which there was a large variation of opinions, both for and against, have been separately indicated.

The examples mentioned in the interviews were expanded on with fact-based additional descriptions when required. This was done when the interviewee's description required the reader to have a basic knowledge of the subject, and the interviewee did not expand on the contents of the subject in any closer degree. However, the examples given here and their applicability were obtained in the interview.

Basic body of the interviews

Background and goals of the regulation study

Development of the sector(s) with which the person is familiar

- "The story": a view of the development path of a peer sector and the building of trust

The role of regulation, self-regulation and standards in building trust

- Operability and use at the different stages of the sector's development
- Risks and weaknesses
- The person's view of other important factors in building trust

The European data economy market – the person's recommendations

- The key factors in building the European fair data economy on the basis of the person's own experience.

Annex 2: List of people interviewed

Reijo Aarnio

Data Protection Ombudsman, Office of the Data Protection Ombudsman

Reijo Aarnio has been the Data Protection Ombudsman since 1997. The Office of the Data Protection Ombudsman, led by Aarnio, is a national supervisory authority, which supervises compliance with data protection laws. The Office of the Data Protection Ombudsman protects people's rights and freedoms regarding the processing of personal data.

Timo Ali-Vehmas

Nokia Fellow, Head of Ecosystems Research, Chairman, D.Sc. (Tech.), Nokia Technologies, Nokia Foundation

Timo Ali-Vehmas has been the Head of Ecosystems Research at Nokia Technologies since 2015. Research of ecosystems supplements the central role of technological research in the generation and management of innovation, particularly in ICT-based industries during the data economy.

Previously since 2005, Ali-Vehmas was in charge of standardisation at Nokia and all related global industrial cooperation, covering all essential standardisation organisations in mobile data transmission and internet technologies. During his 40-year career at Nokia, Ali-Vehmas has participated in a number of key projects, such as the management of the research and development of the first GSM phone and later the management of R&D for the first production line for 3G phones. He established a radio technology research laboratory at Nokia's research centre. Ali-Vehmas has participated in industrial cooperation bodies and also been a many-year member of the Open Innovation Strategy and Policy Group (OISPG) of DG CONNECT.

Timo Ali-Vehmas graduated as a Doctor of Technology from Aalto University in 2019.

Aleksi Grym

Adviser on digitalisation, Bank of Finland

Aleksi Grym, Lic.Soc.Sc., M.Sc. (Econ.), has been an adviser on digitalisation at the Bank of Finland since 2016. He has previously had a long career in growing software and consulting companies, starting as the managing director of a Finnish advisory and software service provider established in 1999. Between 2011 and 2015, Grym worked as the country manager of an international consulting company in London. Its customers included international financial and technology companies.

Pentti Hakkarainen

Member of Supervisory Board (representative of the ECB), European Central Bank

Pentti Hakkarainen is a member of the ECB Supervisory Board. In addition to this primary position, he is responsible for assignments related to digitalisation, budgeting, supervisory reporting, IT and auditing.

Before the ECB, Hakkarainen worked in the Board of Directors of the Bank of Finland for 15 years, most of which he acted as the Deputy Governor. Previously, he worked for 17 years in the private sector, as the managing director of OKO plc and Postipankki plc, and as the finance manager of Outokumpu.

Hakkarainen is also the chairman of the Boards of Directors of Olvi plc and Finnvera plc, and he has been a member of the Boards of Directors of several organisations in the private and public sectors.

Harri Hollmén

Managing Partner, Novum Corporate Advice

Harri Hollmén has a long work history in top executive positions in financial markets, where information services and information processing systems are challenging to coordinate, generate significant costs and are an absolute necessity in successful operations. Hollmén worked as the managing director of Sonera Plaza (1999–2000), which was developed into an electronic department store, consisting of financial services, information sharing services, a marketplace for various consumables and a grocery store, including home delivery services. He has experience in various investment banking and strategy projects carried out for electronic service companies.

Reijo Karhinen

Vuorineuvos (Finnish honorary title), Professor of Practice, Board professional, University of Eastern Finland

Reijo Karhinen is a business executive who holds the Finnish honorary title of Vuorineuvos. He was the President and CEO of OP Financial Group from 2007 until his retirement in 2018. Following his long career at OP, Karhinen is today an influential societal figure.

Currently, Karhinen is the Chairman of the Board of Directors of the Foundation for Economic Education, the Chairman of the Central Chamber of Commerce's employment, education and competence committee, member of the Board of Directors of Luja-Yhtiöt, member of the strategic steering group of Allied ICT Finland (AIF) and Professor of Practice at University of Eastern Finland. In 2018 and 2019, he worked as a rapporteur appointed by the Prime Minister focusing on the profitability of Finnish agriculture.

Petri Kokko

Managing Director, Branding and Consumer Markets, Google Germany

Petri Kokko has worked for more than ten years at Google as the Managing Director of Google Germany and as the Country Manager of Finland and Sweden. Previously, he worked as the Country Manager of Finland at sports apparel manufacturer Nike and the programme director of Urheilukanava. He has also acted in the Boards of Directors of major corporations.

Kokko was a professional athlete between 1985 and 2000. He is a former professional figure skater and, together with his partner, is a European Championships gold medallist, World Championships silver medallist and a veteran of two Winter Olympics.

Harri Koponen

CEO, Nortal Oy

Harri Koponen is the Chief Commercial Officer of Nortal, an international software company, and the CEO of its Finnish company. Before his current career at Nortal started in 2016, Koponen worked in a number of national and international executive positions. Koponen has been the CEO of SSH, Tele2, Wataniya Telecom and Sonera, and the deputy CEO of TeliaSonera. During his long and multi-faceted career in IT, he has also been the COO of gaming company Rovio and worked in a number of international executive and sales positions at Ericsson.

Currently, Koponen is a member of the Boards of Directors of Soprano Oyj, Telinekataja Oy, Seepsula Oy and Osaka Oy. Living in Helsinki, Koponen has an EMBA degree in economics and an honorary doctorate from Jyväskylä University. He specialises in the management of international sales and marketing, the leadership and motivation of multicultural teams, and change management in challenging conditions. Koponen has four children, and his hobbies include sports in all different forms, hunting and national defence.

Pertti Korhonen

CEO, Traffic Management Finland

Pertti Korhonen is the CEO of Traffic Management Finland. Previously, Korhonen has worked as the CTO and a member of the executive management team of Nokia, and as the CEO of Elektrobit and Outotec. He has also acted in the Boards of Directors of various different companies and organisations, being the Chairman of the Boards of Directors of DNA and Business Finland.

Irene Luukkonen

Board professional

Irene Luukkonen worked as the CEO of the Finnish Financial Ombudsman Bureau (FINE) for nine years starting from 2009 until her retirement. FINE consists of insurance and financial advisory services and the insurance, banking and investment complaints boards. FINE's activities are based on an agreement between the Finnish Financial Supervisory Authority, the Finnish Competition and Consumer Authority and Finance Finland. Previously, Luukkonen worked as an executive at the Office of the Insurance Ombudsman, FINE's predecessor, which was also the parent organisation of the insurance complaints board. She was engaged in global cooperation between financial ombudsmen and in legislative processes, publications and education in the financial sector. Currently, Luukkonen is a member of the Boards of Directors of two insurance companies.

Veli-Matti Mattila*CEO, Elisa Corporation*

Veli-Matti Mattila has been the CEO of Elisa Corporation since 2003. Before transferring to Elisa, Mattila was the CEO of L M Ericsson between 1997 and 2003.

Mattila is a member of the Boards of Directors of the following organisations: Sampo Group, ETLA Economic Research, the Finnish Business and Policy Forum (EVA), Service Sector Employers PALTA, the Mannerheim Foundation, the Helander Foundation and the ShedHelsinki Foundation. Member of the supervisory board: Suomen Messut Osuuskunta.

Anja Peltonen*Head of Consumer Policy, Finnish Competition and Consumer Authority*

Anja Peltonen has worked in various specialist and executive positions with consumer authorities and is responsible for the consumer policy in the area of responsibility of the Finnish Competition and Consumer Authority.

Peltonen is a long-standing influential figure in the fields of consumer law and policy. She has particularly aimed to advance behavioural economics and the consideration of actual consumer behaviour. Peltonen has published books and several articles in her field and is a popular speaker.

Olli Rehn*Governor and Chairman of the Board, Bank of Finland*

Olli Rehn is the Governor and the Chairman of the Board of the Bank of Finland. Governor Rehn is responsible for the monetary policy preparation, domestic economic policy, external communications, international affairs and internal audit. He is a member of the Governing Council of the ECB.

Rehn is a household name in European and international positions. He was the Vice-President of the European Commission from 2011 to 2014. As a member of the European Commission, he was responsible for the EU's expansion in 2004–2010 and finances and the monetary policy in 2010–2014, when he was in charge of the regulatory reform of the Economic and Monetary Union, funding programmes for crisis countries and the preparation of stability mechanisms. Between 2010 and 2014, he represented the European Commission in the

Governing Council of the ECB, in G7/G20 cooperation and at meetings of the International Monetary Fund.

Rehn worked briefly as the EU Enterprise and Information Society Commissioner in 2004 and the Head of Cabinet from 1998 to 2002.

Rehn was the Minister of Economic Affairs and Employment in Juha Sipilä's Government in 2015 and 2016. He was a member and Vice-President of the European Parliament in 2014 and 2015.

Rehn graduated as a Doctor of Philosophy from the University of Oxford in 1996, majoring in international economics.

Risto Tornivaara*Senior Advisor, Finnish Innovation Fund Sitra*

Risto Tornivaara has been a member of the Boards of Directors of financial service providers, such as fintech company Mitigram, B10 Asset Management, Fennia Group and EuroGiro A/S and of the MasterCard Western European Advisory Board. Before joining Sitra, he worked as the CEO of Danske Bank Plc Finland. Danske Bank operates in 16 countries.

Timo Tuominen*Leading specialist, Finance Finland*

Timo Tuominen works as a leading specialist in Finance Finland's infrastructure and security group. Finance Finland represents banks and life, pension and accident insurance companies operating in Finland, as well as mutual funds, financial companies and securities brokers. Tuominen specialises in the development of electronic insurance services.

Laura Vilkkonen*Director-General of Data Department, Ministry of Transport and Communications*

Laura Vilkkonen has worked in the Ministry of Transport and Communications since 2000. During this time, she participated in major reforms of telecom market regulations in 2003, 2005 and 2010. In recent years, she has been responsible for key regulations in telecom markets. Since 2016, Vilkkonen has worked as the Director-General of the Data Department and the Director of the Basic Services Unit of the Ministry of Transport and Communications, specialising in the data economy, cybersecurity, information security and data protection.


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