

16 October 2019

## CHECK AGAINST DELIVERY

Dear Ladies and Gentlemen,

Thank you for the invitation to share my view on technological change and digitalisation in a Danish and international framework.

### ***Slide 2: The Nordics are digital frontrunners***

Denmark is a highly digitalised country. Together with the other Nordic countries and the Netherlands, Denmark is a digital frontrunner with top rankings on digital performance.

And digitalisation is indeed widespread throughout Danish society. Danes are heavy users of digital solutions and both the public sector and the private sector provide a vast amount of digital services such as online banking and e-commerce. These services are not only used by the younger generations, but also by the elderly: four out of five Danes in the age group of 75 to 89 used online banking last year.

### ***Slide 3: The public sector provides a vast amount of digital services***

How did Denmark become this digital frontrunner? The answer is that this position has developed over decades and that the Danish government has taken an active role in supporting the digital transformation of the society.

The decision to create a civil registration system back in 1968 was a key element in this transformation. The national register contains basic personal information on all citizens who have a civil registration number. A similar system for companies was implemented in 1985. These registries allow for unique identification of all citizens and companies and they constitute the basis for all public and many private digital services.

Since 2001 Denmark has had multi-year public strategies for digitalisation. Today, most public services are available on an online portal for public services – borger.dk – ("citizen.dk"), and the tax authority's homepage – skat.dk – ("tax.dk").

To facilitate digital interactions with public authorities each Dane has a personal e-ID to access services securely – NemID – ("easy-ID"), a mandatory bank account for transfers from authorities –

NemKonto – ("easy account"), and a digital mailbox for letters and messages from the public sector – e-boks – ("e-box"). When the infrastructure was in place, many online self-services were made mandatory, and in 2014 it became mandatory for individuals and businesses to use digital post when communicating with public authorities. In fact, 80 per cent of all letters from the government, banks, pension firms, etc. are digital and sent to the citizen's individual digital mailbox.

Handling your tax business has also become digital. In March, all Danes get the result of the tax evaluation, and within a few days almost all Danes have checked out the result. In case you have paid too much tax, the authorities will automatically transfer money back to your personal bank account. Credit institutions and employers report the vast majority of tax information and deal with everything from capital to labour income, leaving you with maximum a few manual tax deductions to fill out online. To illustrate, 85 per cent of the Danes left their tax evaluation untouched in 2017.

Besides tax returns all payments from public authorities such as social security benefits and student grants are transferred to your personal bank account. In this way the transfer of funds from the authorities has become more efficient as the authorities know exactly which accounts to pay to. As a result, the internet is today the primary gateway to the public administration for the majority of the Danes and the key to a highly digital public administration.

#### ***Slide 4: The private sector took digitalisation further***

Today all Danes have a bank account, which is not always the case in other countries. The requirement for all citizens to have a personal account, combined with the banks' incentive to digitalise their banking services has facilitated the implementation of EU legislation on the right to a basic bank account in Denmark. The public authorities and the banks were able to achieve consensus on a basic bank account including a payment card and access to online banking services.

With that groundwork laid by the public sector, the financial sector was well positioned to take digitalisation further - among other things supported by efforts of the central bank.

The payments market is one part of the Danish financial system that has undergone some significant changes in recent years. As part of the central bank's catalyst role, modernisation of the payments infrastructure took place between 2012 and 2014. The modernisation entailed an instant payment clearing system. In this system, payments are settled instantly – that is: funds are made available to the payee within a few seconds. This applies 24/7/365. A common payments infrastructure where all bank accounts can reach each other and a modern payments infrastructure have facilitated payment innovations.

One example is an instant payment-based mobile payment solution that can be used free of charge for the payer and payee when payments are settled between citizens. This business model relies on network effects and reduced opportunity costs for banks rather than transaction fees, as the physical nature of cash entails higher costs for the banks than the electronic alternative. As a result, the solution is widely used for payments between citizens, accounting for almost 200 million transactions last year.

Digitalisation and financial innovation have taken time to develop in Denmark. This, however, need not be the only way to achieve a high degree of digitalisation and financial inclusion. One such example is India. Here a biometric identification project, Aadhaar, has provided financial inclusion for the Indian population, increasing from 35 per cent in 2011 to 80 per cent in 2017. A remarkable result which shows that political will and some degree of coercion can take digitalisation and innovation far.

But even though digitalisation and innovation have laid the ground for smarter domestic payments solutions in many countries, central banks have failed to foster fast and efficient cross-border payments. In a world where domestic payments happen instantly and at no cost for the user, expensive cross-border payments that take days to complete seem remarkably old-fashioned. In my view, the potential launch of Libra is a strong wake-up call, highlighting the deficiencies of the international financial system. Deficiencies, where millions of migrant workers are forced to pay high prices transferring money to their families at home.

***Slide 5: Danes get quicker and quicker to embrace new payment solutions***

In Denmark, citizens have a high degree of trust in public authorities. This might be one reason that issues of privacy have not been a challenge in the digitalisation transformation. In addition, Danes' willingness for change, have contributed to take digitalisation further. This willingness for change is mirrored in Danes' payment habits. Since the 1990s, cash payments have been on a declining path, leaving cash to account for 16 per cent of the value of payment transactions in physical stores in 2017.

Instead, electronic payment solutions have taken over. Solutions that Danes are getting quicker and quicker to embrace. When the instant mobile payment solution MobilePay was launched it took only three years for it to reach more than half of the population. In 1984, when the national payment scheme, Dankort, was launched, it took 15 years for the solution to be adopted by three million users.

***Slide 6: The term "Globalisation" brings to your mind something...***

Another sign of Danes' willingness for change is the attitude towards globalisation. According to European Commission surveys, Danes tend to embrace globalisation to a much higher degree than most other nations. In addition, asked about their attitude towards automation and digitalisation, more than half believe that it will create new jobs or keep jobs in Denmark.

One of the reasons for this could be a combination of a flexible labour market and the Danish welfare system, also known as the "flexicurity" labour market model. This model is characterised by a high degree of flexibility in the employer's right to hire and fire employees and an extensive social safety net in case of unemployment. This is especially the case for low-wage earners with high exposure to unemployment risks. On top of this comes a broad consensus between Danish trade unions and employer organisations. The model strikes a balance between flexibility and security, and that is an advantage when coping with technological change.

I believe this is key to understanding the positive Danish attitude toward globalisation.

### ***Slide 7: One consequence of digital transformation – a case study***

But to reap the full benefits of digital transformation you also have to adjust or downscale less digital infrastructure. An example is the downscaling of the Danish post service company, PostNord. Decreased dependency on physical letters has had a negative impact on PostNord. Since 2000, the amount of letters sent has fallen by about 80 per cent. And the lower turnover of physical letters means that less staff is needed. Several rounds of large-scale redundancies have therefore been conducted in order to scale down PostNord to the new business dimensions.

The Danish government has supported these mass layoffs by providing the funds needed to reduce the number of staff. This included dismissing a large group of civil servants.

As illustrated by the PostNord case, the technological development has a large impact on the way we work: In order to be able to gain the full benefits of digital transformation, you must be willing to adjust. In our experience, these consequences can be somewhat mitigated by a flexible labour market.

### ***Slide 8: A highly digital society demands focus on cyber resilience***

Increased dependency on digital systems means that we are more vulnerable towards cyber threats. Today, it is no longer a question whether there are cyber criminals who have the capacity to penetrate our systems. We know that for a fact. Hence, a highly digital society demands focus on cyber resilience. It is essential that we take measures to best protect us from cyberattacks, detect them when they occur, respond to them appropriately and recover from them as fast as possible. Otherwise the very foundation of our digital financial society could be compromised.

In 2016 the Danish central bank established a financial sector forum for operational resilience to address this challenge. We call it FSOR.

The members of this forum are the most important participants in the financial sector. These include the systemically important banks, data centres that store and manage parts of the sector's data, the companies that own the infrastructure, business organisations and central authorities.

This forum is the main driver of the cyber agenda for the financial sector as a whole. Within this forum we work in three work streams.

The first work stream is the crisis management plan. It ensures coordinated efforts across the financial sector in an event that may have an impact on financial stability, and we test it regularly.

The second work stream – the risk analysis – identifies the most important risks from a systemic point of view. For these risks the forum agrees on mitigating actions. One action taken was to create an intel-led red team test program under the auspices of the Danish central bank. This involves real-life testing to see if you can penetrate the firm's defence system and reach designated critical areas of the business. It takes courage and involves careful planning, but the tests will significantly contribute to improve your ability to protect, discover and react to attacks.

The third work stream is knowledge sharing. In my view, one of the best ways to ensure higher cyber resilience is through knowledge sharing. In that regard, I am very pleased that the Nordic banks have established Nordic Financial Cert with the main purpose of sharing information of threats and incidents. We have to share in order to reach higher levels of robustness.

The cyber threats are here to stay and we must continuously adapt to the changing landscape of technology, threats, and actors – with adequate resources and knowledge.

***Slide 9: New technologies and increased competition should be embraced by financial authorities...***

Digitalisation has had a large impact on money and finance in the past. This will also be the case in the future which will be marked by innovation, new technologies and increased competition across borders. Such a development should be embraced by financial authorities, just as we welcome innovation and competition in other sectors of the economy. At the same time, financial authorities must ensure that the new developments support the needs of society.

To strike that balance, regulation is an important tool. But the right form can be difficult to assert. Different countries have adopted different regulatory approaches as starting conditions and policy choices vary across countries.

The future of money and finance calls for a coordinated approach to regulation internationally. Whether the agents are banks, specialised payment service providers or multinational technology companies, authorities have a responsibility to safeguard against systemic stability problems. If it looks like an elephant, walks like an elephant and snorts like an elephant, then it should be regulated as an elephant. In addition, counteracting misuse of the financial infrastructure for tax evasion or money laundering and terrorist financing is at least as important in the future as it is today.

So to sum up, lessons in Denmark are that digitalisation benefits society and that one can reap the full value if one is willing to adjust. And along with increasing dependency on digitalisation, regulation and monitoring of risks will remain as important in the future as it is today. And this will have to be coordinated across the globe if authorities are to successfully safeguard against systemic stability problems and misuse of the financial infrastructure.

Thank you very much for your time.

# DANMARKS NATIONALBANK

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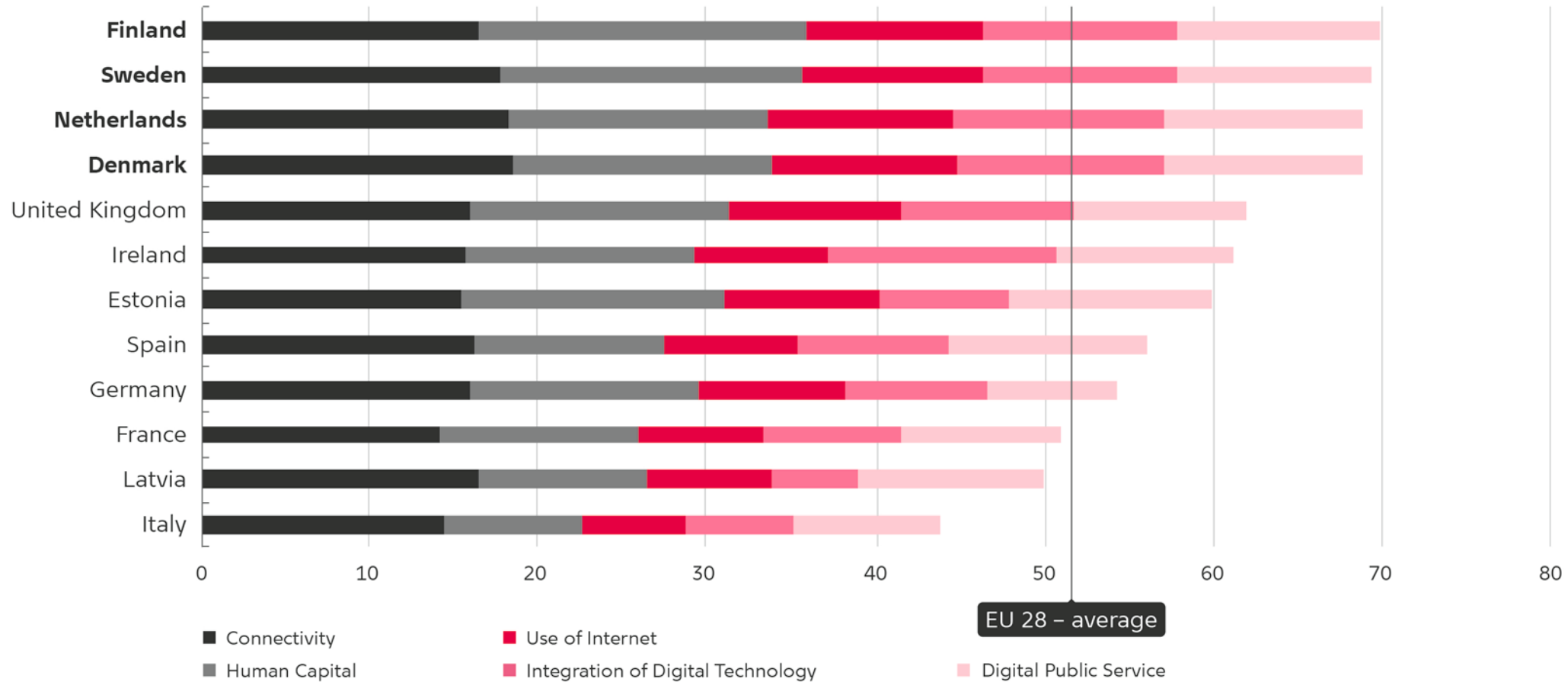
## TECHNOLOGICAL CHANGE AND DIGITALISATION

Governor Lars Rohde, SUERF Conference, 16 October 2019



DANMARKS  
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# Nordic countries are digital frontrunners



Source: Digital Economy and Society Index, 2019, The European Commission.

# The public sector provides a wide range of online services

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## Transfer of funds from the government

- Pension
- Social security benefit
- Student grant

## Tax submission and tax returns

## New home, new address

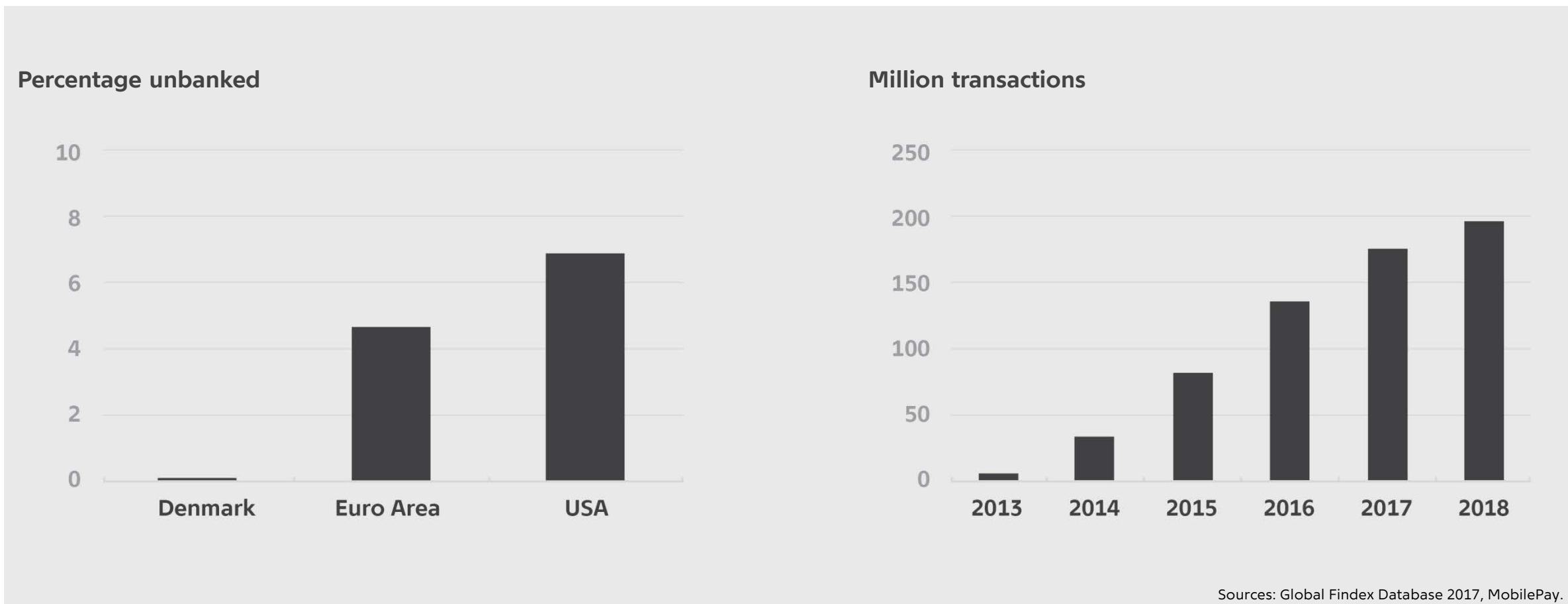


## ... and a lot of other services you may need

- Certificate of criminal record
- Childcare
- Divorce
- ...

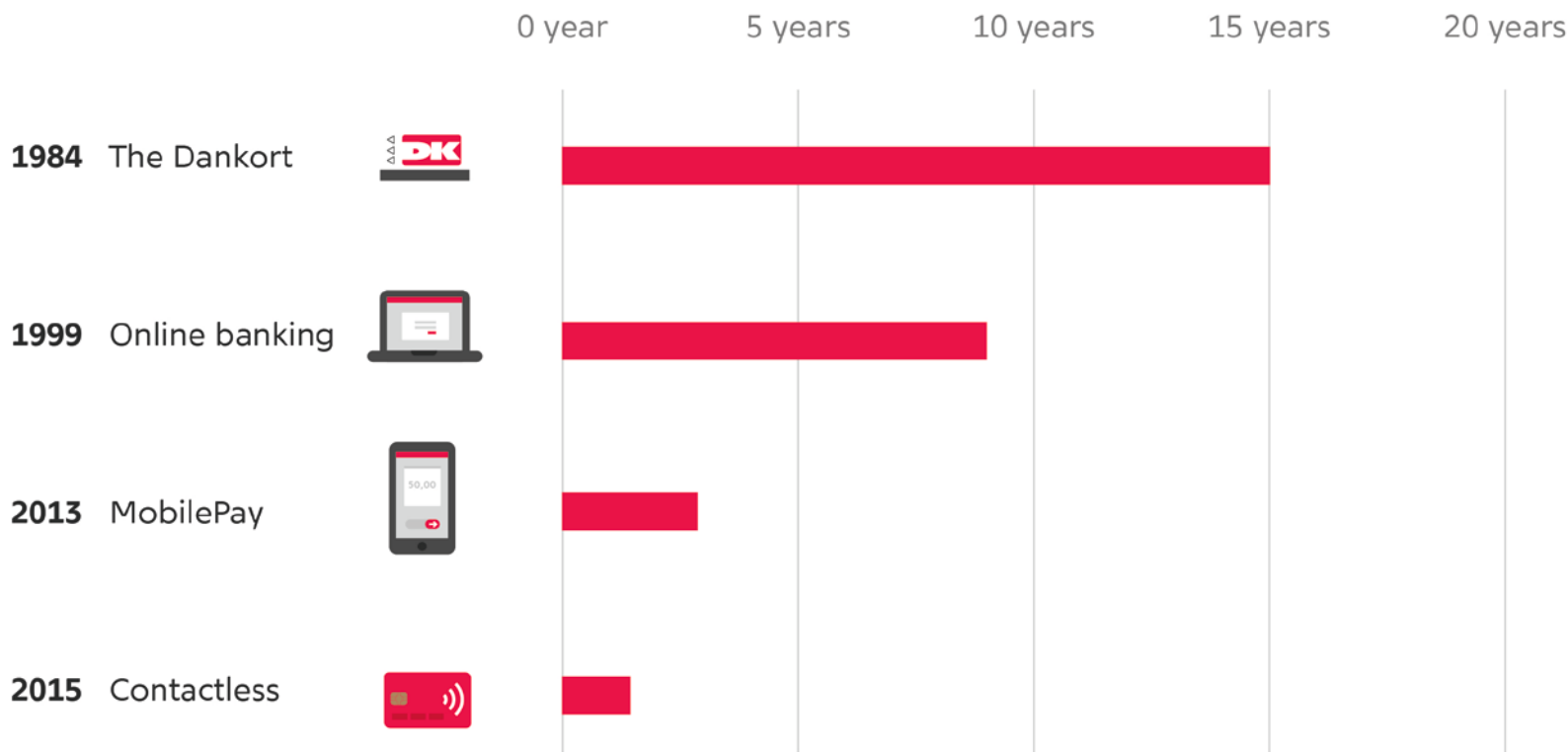


# The private sector took digitalisation further



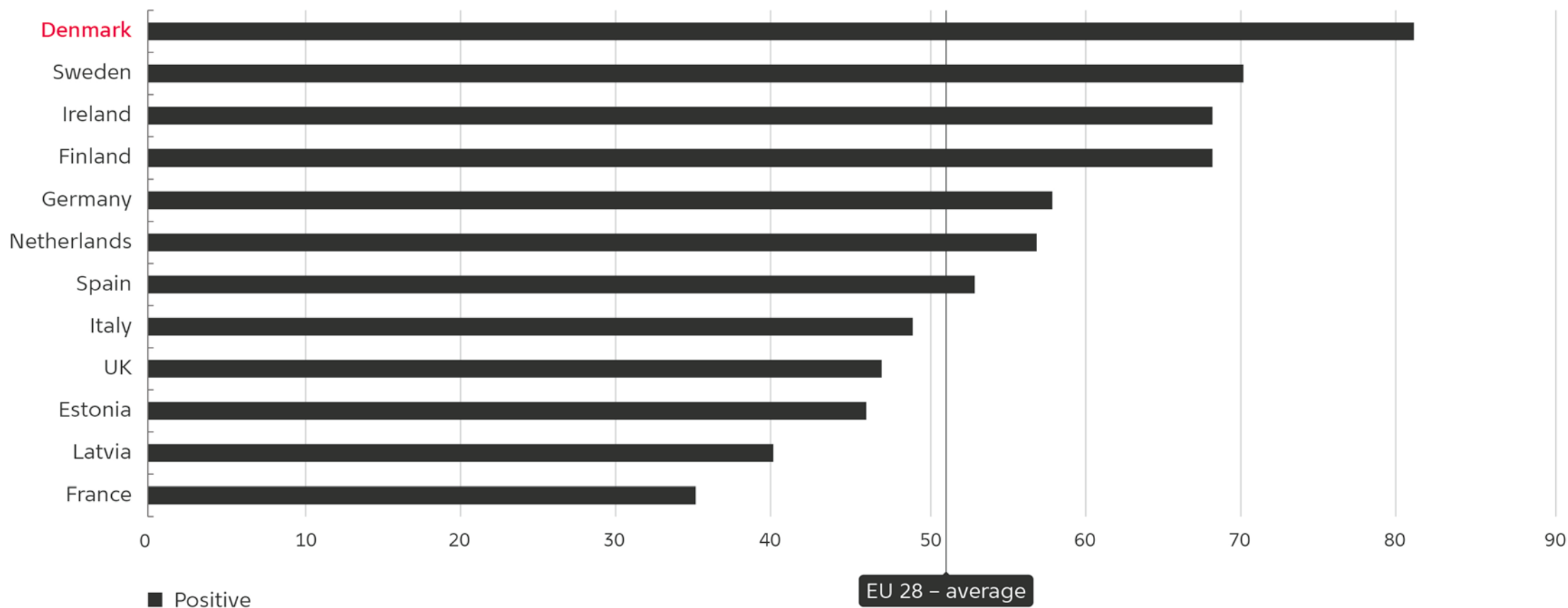
# Danes get quicker and quicker to embrace new payment solutions

How long it has taken new payment instruments to be adopted by 3 million users



Sources: Nets, MobilePay, Statistics Denmark.

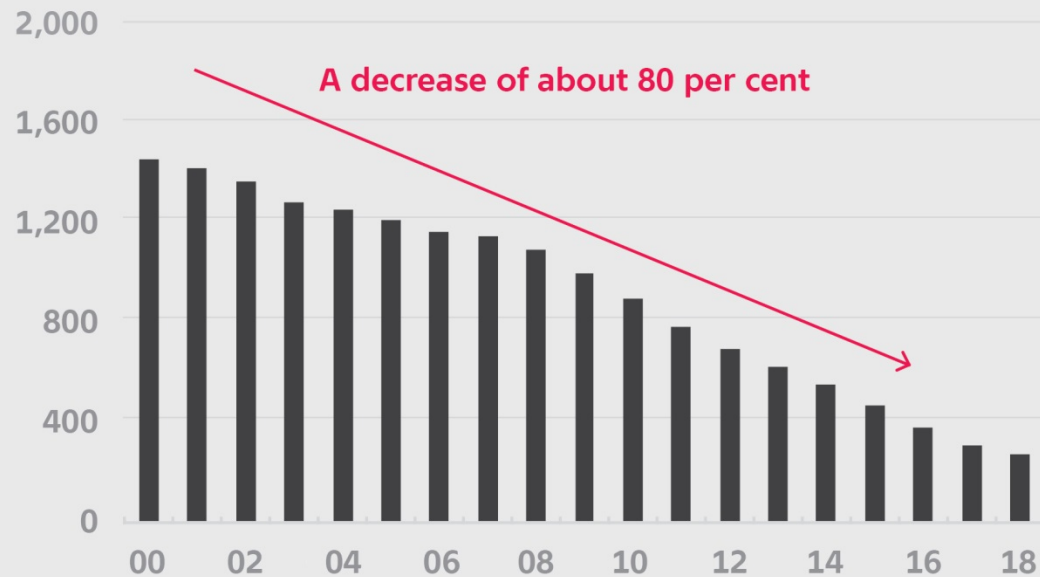
# The term "Globalisation" brings to your mind something...



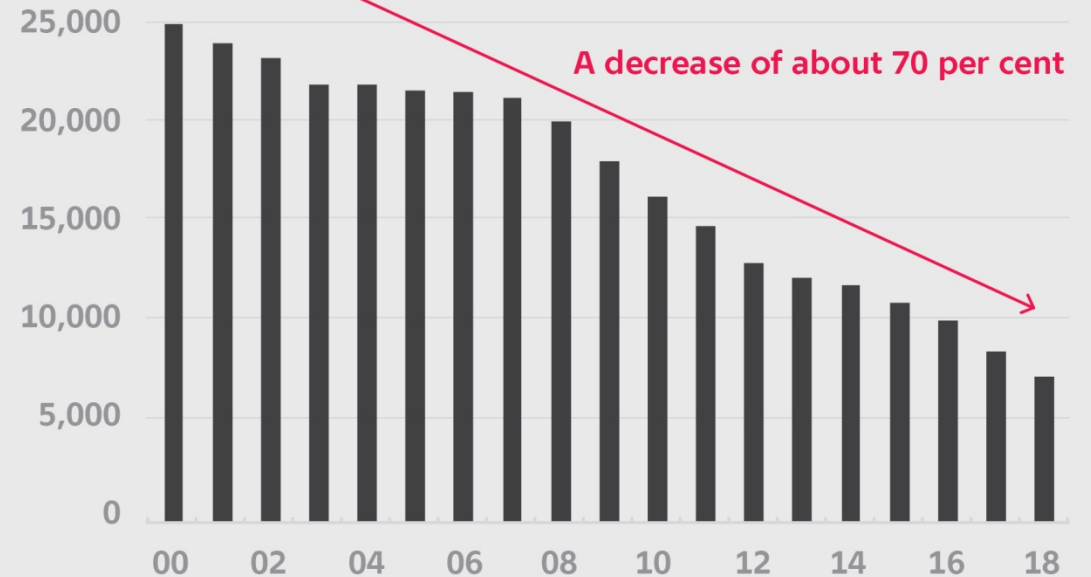
Source: The European Commission, *Standard Eurobarometer* No. 91, Spring 2019.

# One consequence of digital transformation – a case study

Letters in million

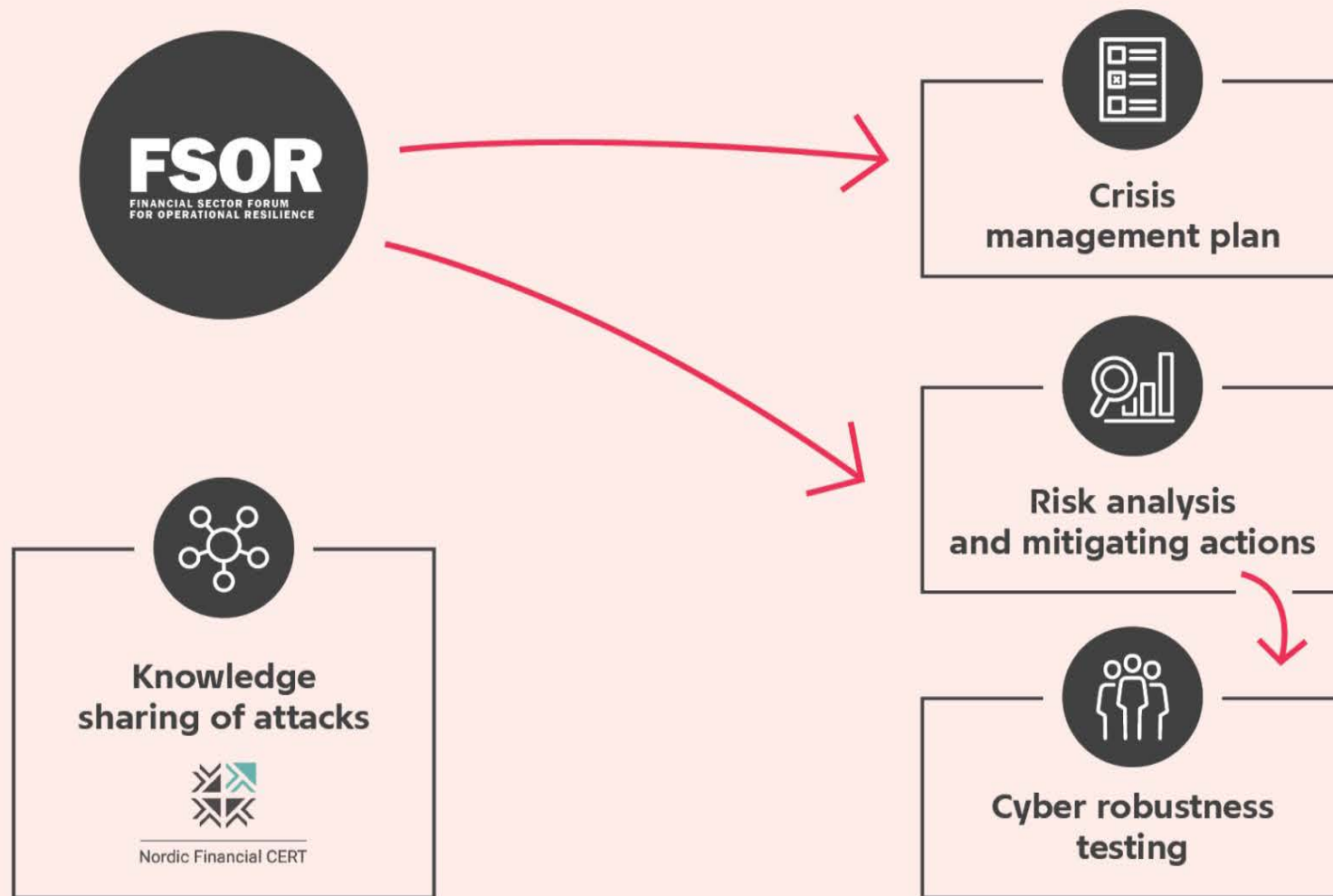


Average number of fulltime staff



Source: PostNord.

# A highly digital society demands focus on cyber resilience



# New technologies and increased competition should be embraced by financial authorities ...



– but it calls for a coordinated approach to regulation internationally