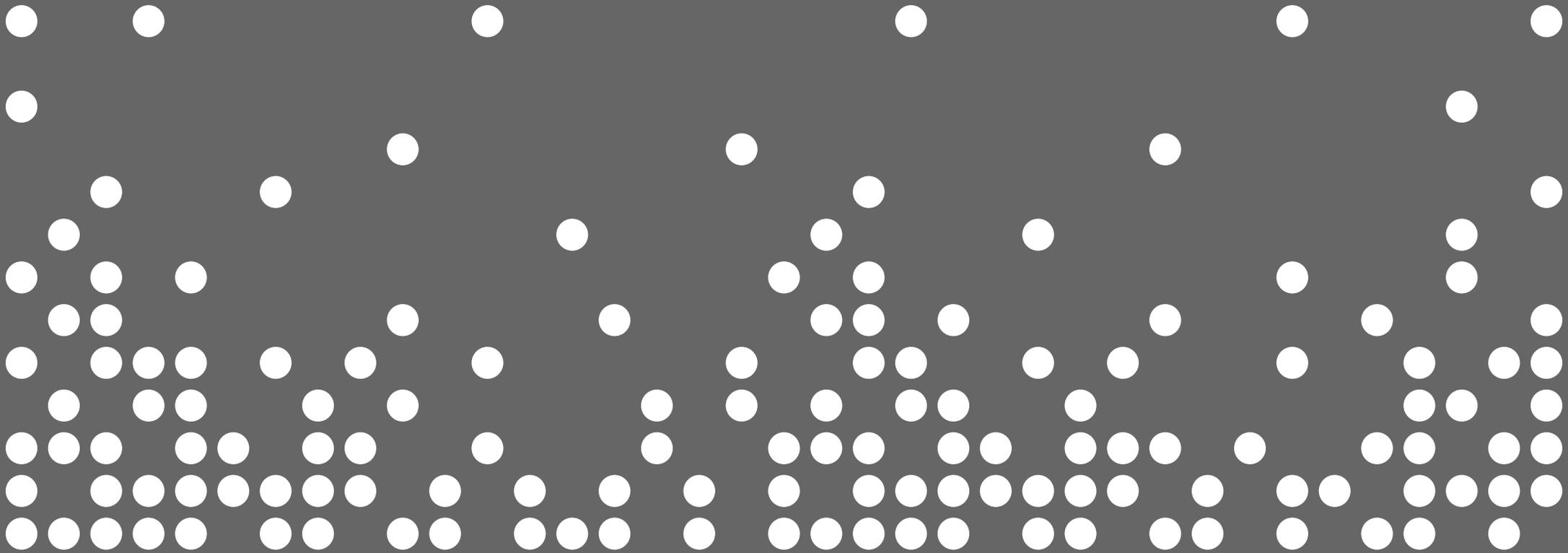


# Digital Pulse

How ready is Sweden for the digital life?

By Felix Szabó





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# Executive Summary



## The opportunity: a digital world that works for everyone

The digital transformation creates many opportunities. Beyond economic gains<sup>1</sup>, the ever deeper integration of the internet and development of new technologies can considerably improve the way we all live and work.

Self-driving cars could make travel safer and more convenient. Mobile apps already monitor health and diagnose diseases more accurately. The internet has lowered the costs of starting new businesses and is helping to share resources more effectively. To unlock the full benefits of the digital transformation, however, digital societies must be inclusive and work for everyone.



*Digitalisation will spread to all professions and jobs in working life, so there is no reason to waste time*



**Ola Asplund, National Innovation Council, Sweden<sup>2</sup>**

## The challenge: public buy-in is key

The public needs to be willing and confident to use new digital technology. If innovations are introduced in the wrong manner, or the gains unevenly distributed, public opposition could become a major barrier. Recent political events have shown that ignoring the pulse running through society can lead to heavy and unforeseen backlash.

The business community developing new technologies, and the governments shaping policy agendas, need to understand how the public responds to digital transformation to unlock its full potential.

**Therefore, this report addresses two crucial questions:**

- **How ready are people for the digital life?**
- **If they are not, what is holding them back?**

As this report shows, the majority of Swedish adults use existing digital technology to communicate or find information, and are convinced of the benefit. They are less interested in new technology, such as robots or driverless cars.

# Executive Summary

The data behind this report



## Which questions did we address?

We investigated two key areas:

### How open are people to using new technology?

We tested how the public responds to a range of 'hot topics' that take centre stage when media, politicians and businesses debate the opportunities of the digital transformation. After gauging the overall benefit of the internet, we tested three particular areas:

- (New) everyday technology
- Robotics
- Sharing economy

For each of these areas, we presented people with examples of how they could personally benefit and asked whether they would be open or interested in using the new technology.

You will learn what we found in part one of this report.

### What are some of the potential challenges?

Many factors play into people's relationship with technology. Some of those, like cultural norms, are difficult to test comprehensively across countries. In this research, we focused on four key areas that politicians, policymakers and businesses in each country need to consider.

- Do people generally see technological change as positive?
- How willing are people to accept change?
- Do people have the basic skills to actively use technology?
- What threats or problems do people worry about?

You will learn what we found in part two of this report.

### Which countries did we include?

Readie, together with ComRes, surveyed 9,000 adults from economies representing the North-West, South, Central and East European regions. The countries included were Bulgaria, Estonia, France, Germany, Italy, Poland, Spain, Sweden and the UK.

To be representative of all adults aged 18+, the data was weighted by age, gender and region in each country.



# Executive Summary

## Key findings

### How open are Swedish adults to using new technology?



Swedes say finding information quickly, being able to communicate with each other and simplifying life admin are the biggest benefits of the internet.



Swedish adults are generally in favour of change. They are also less likely to believe that the world is changing too quickly compared to the European average (58 per cent vs 68 per cent).



Age, education and gender influences Swedish adults' attitude towards digital technology. Younger adults are more open to new technology. Adults aged 18 to 54 are significantly more likely to be interested in driverless cars than those aged 55+ (39 per cent vs 26 per cent).



Swedish adults with a university degree are more interested in new technologies, such as implants to monitor health, than those without (45 per cent vs 38 per cent).



Swedes in the highest income bracket of our survey are most likely to feel that the positives of the internet outweigh the negatives (91 per cent vs 81 per cent of the general Swedish population). Both the least and most wealthy share openness to digital applications, such as receiving brain surgery from robots.



A minority of Swedes that already use the internet more heavily also favour new innovations such as going cashless (59 per cent of ride sharing users support abandoning cash vs 35 per cent of the general Swedish population).

# Executive Summary

## Key findings

### What are some of the potential challenges?



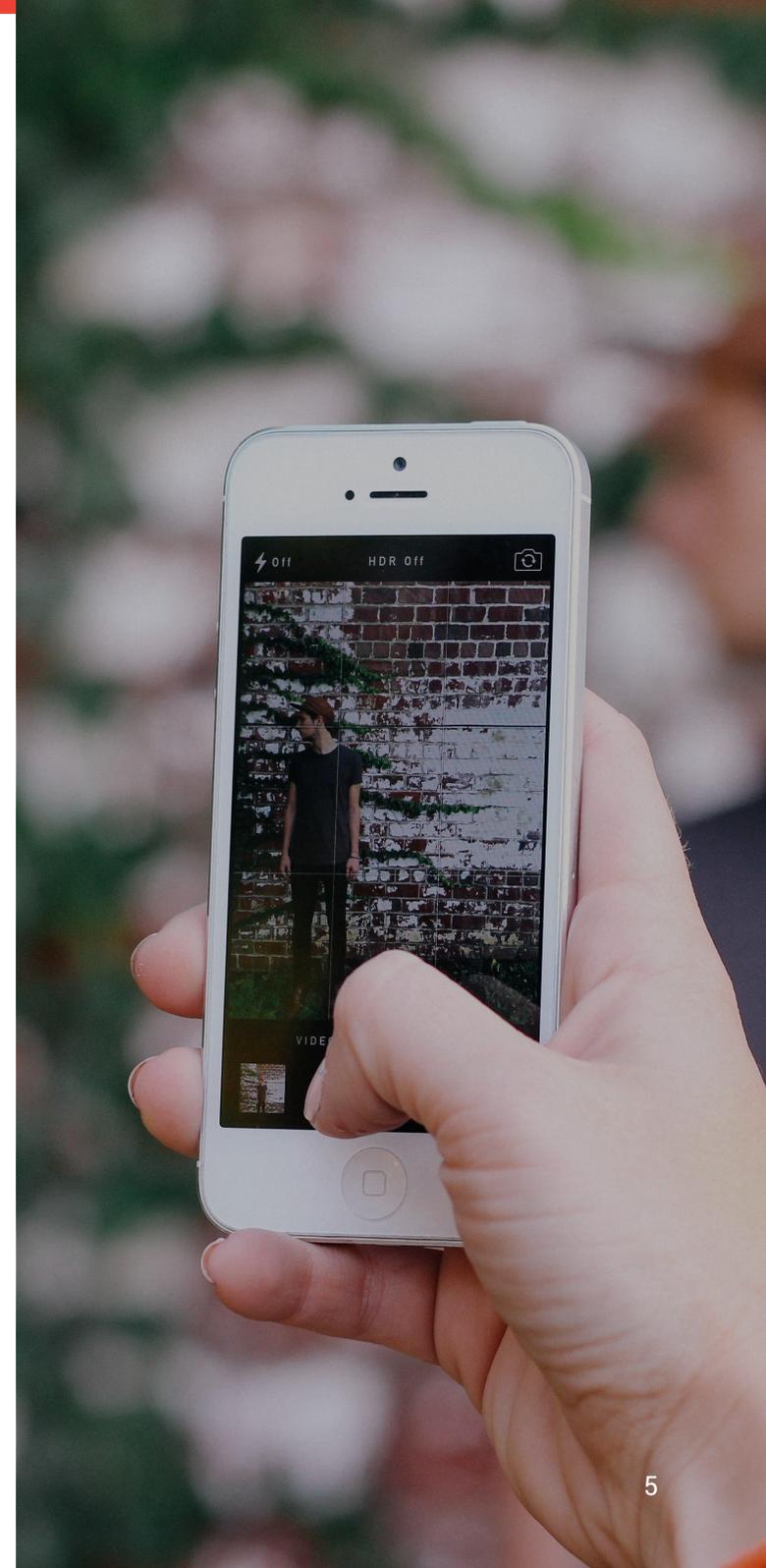
Confidence in basic digital skills is high but more technical abilities remain relatively concentrated. Swedish adults are confident to send an email (96 per cent) and use social media (77 per cent). They are less proficient when it comes to more advanced tasks such as creating a website (24 per cent) or writing computer code (14 per cent). Furthermore, men and those aged between 35 and 54 are still most likely to feel confident in these advanced technical skills.



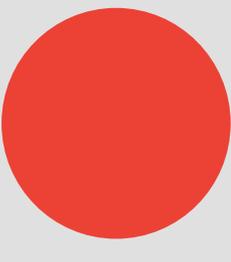
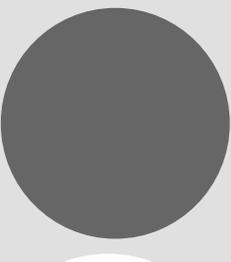
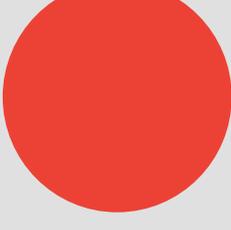
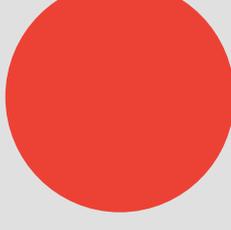
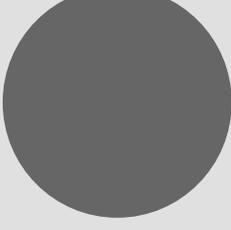
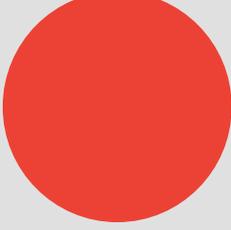
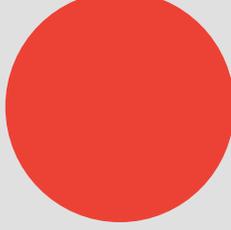
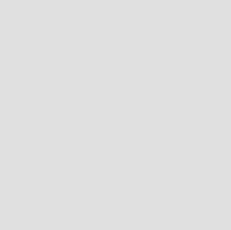
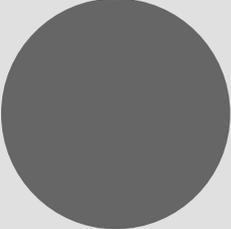
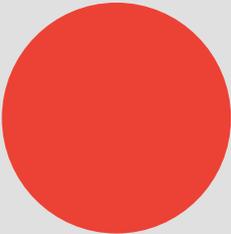
Swedish adults are worried about cybercrime and think the government should prioritise protection from it over other digital concerns. Swedes are more worried than other Europeans about the prevalence of online aggression (49 per cent vs 30 per cent).



Swedish adults are slightly less willing to try new technology, such as driverless cars, than most other Europeans (34 per cent vs 38 per cent). They express significantly less interest in using robots or sharing personal assets such as homes and cars.



**1. How open are Swedish adults to using new technology?**

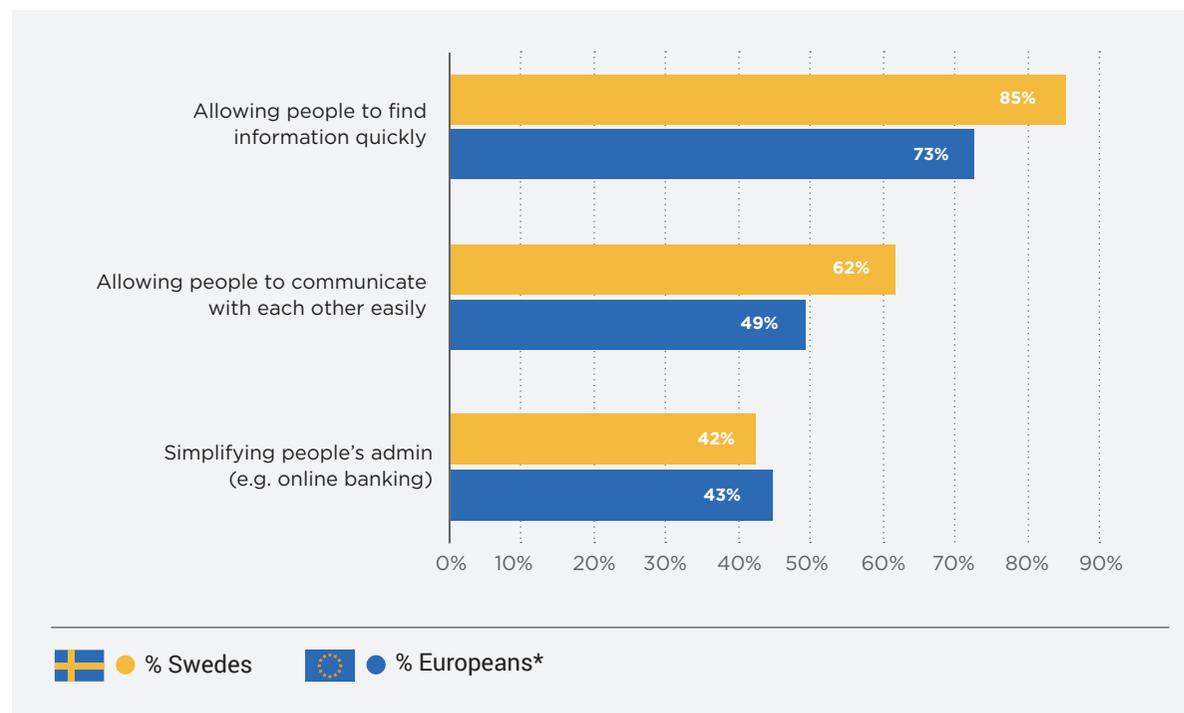


# Swedes see benefit from established technology but less from newer ones

Sweden has a reputation for having embraced digitalisation. Our study also shows that, Swedes believe that the internet is overall beneficial and that it will continue to bring benefits in the future.

Our study found that Swedish adults see being able to find information quickly, communicating with each other more easily, and simplifying life admin, for example online banking, as the biggest benefits of the internet.

## The biggest benefits from digitalisation

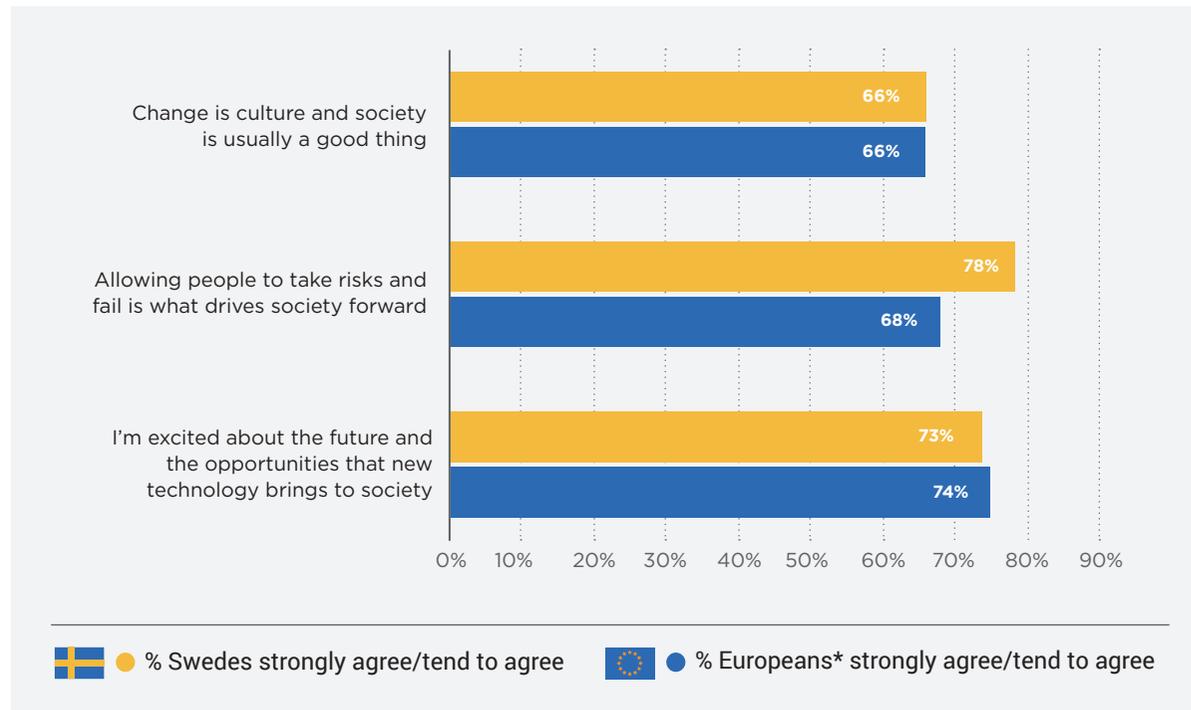


# Change itself is not the problem – the majority is excited about it

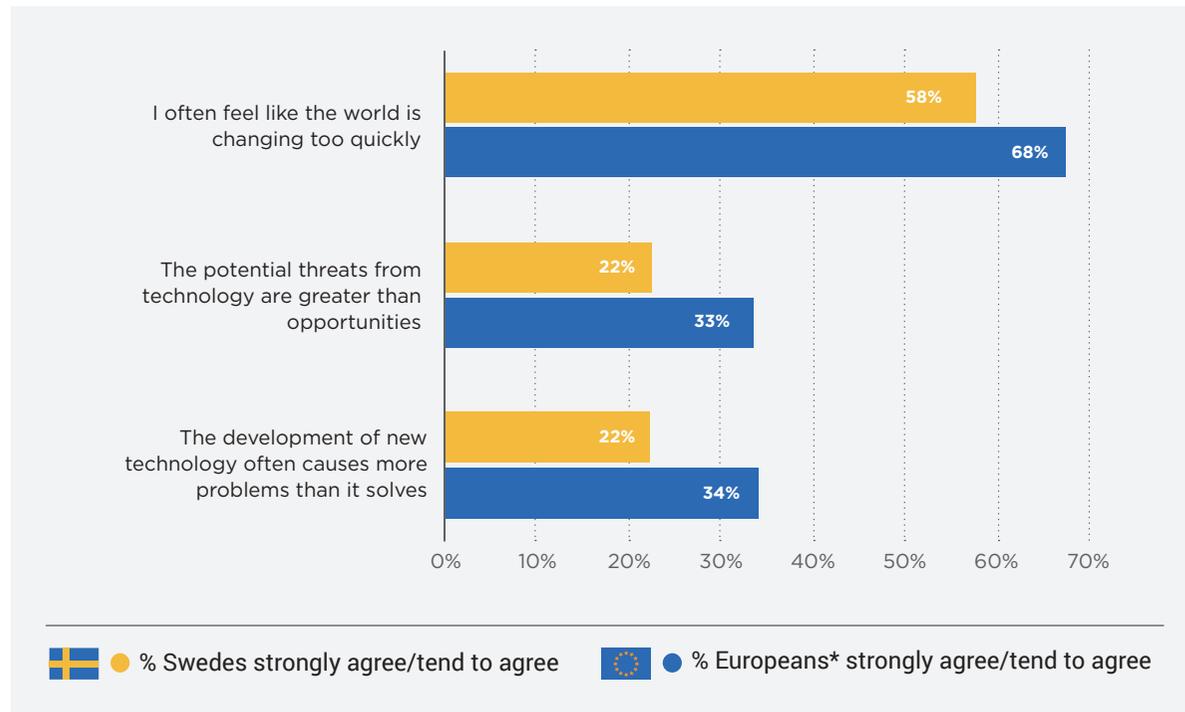
Swedes are overall more comfortable with change in society than the average European adult. They are more likely to be in favour of allowing individuals to take risk and less likely to see society as changing too fast. Fewer Swedish adults are concerned about the problems created by new technology. This suggests that the lack of interest in the new technology we surveyed is not a consequence of a general aversion to change.

Yet, as the remaining pages of this part will show, the Swedish public is more sceptical when it comes to technological innovations.

## Attitudes to change



## Worries about change



Q: To what extent do you agree or disagree with each of the following? Strongly agree / Tend to agree / Tend to disagree / Strongly disagree / Don't know

\*Average of the nine European countries tested in this research

# How keen the public is to use new technologies varies greatly between European countries

## 2017 Readie Ranking

### How open is the public to using new technology?

Rank	Country	Mean rank
1	 Bulgaria	8.5
2	 Spain	8.4
3	 Italy	7.1
4	 Poland	6.5
5	 UK	5.3
6	 Sweden	5.0
7	 France	3.3
8	 Estonia	3.2
9	 Germany	2.7

This ranking measures public openness to using new technologies in the nine EU countries tested. For each question, we ranked the nine countries according to the responses. The top country received a score of 9, the lowest a score of 1. We then computed for each country the mean rank over all questions.

The ranking shows how open the public in different European countries is to using a variety of different technologies.

We tested three 'hot topic' areas that are increasingly central to the debate about digital transformation in politics and business:

- (New) everyday technology
- Robotics
- Sharing economy

Compared to the European average, Swedish adults appear more sceptical about new technologies and engaging with sharing economy applications.

The following pages compare Swedish results to the European average\* and results from Bulgaria and Germany, which are at either end of our ranking.

\*Average of the nine European countries tested in this research

## (New) everyday technology

Digitalisation is creating new ways to travel, make purchases, or track health. This also provides new opportunities for businesses and society.

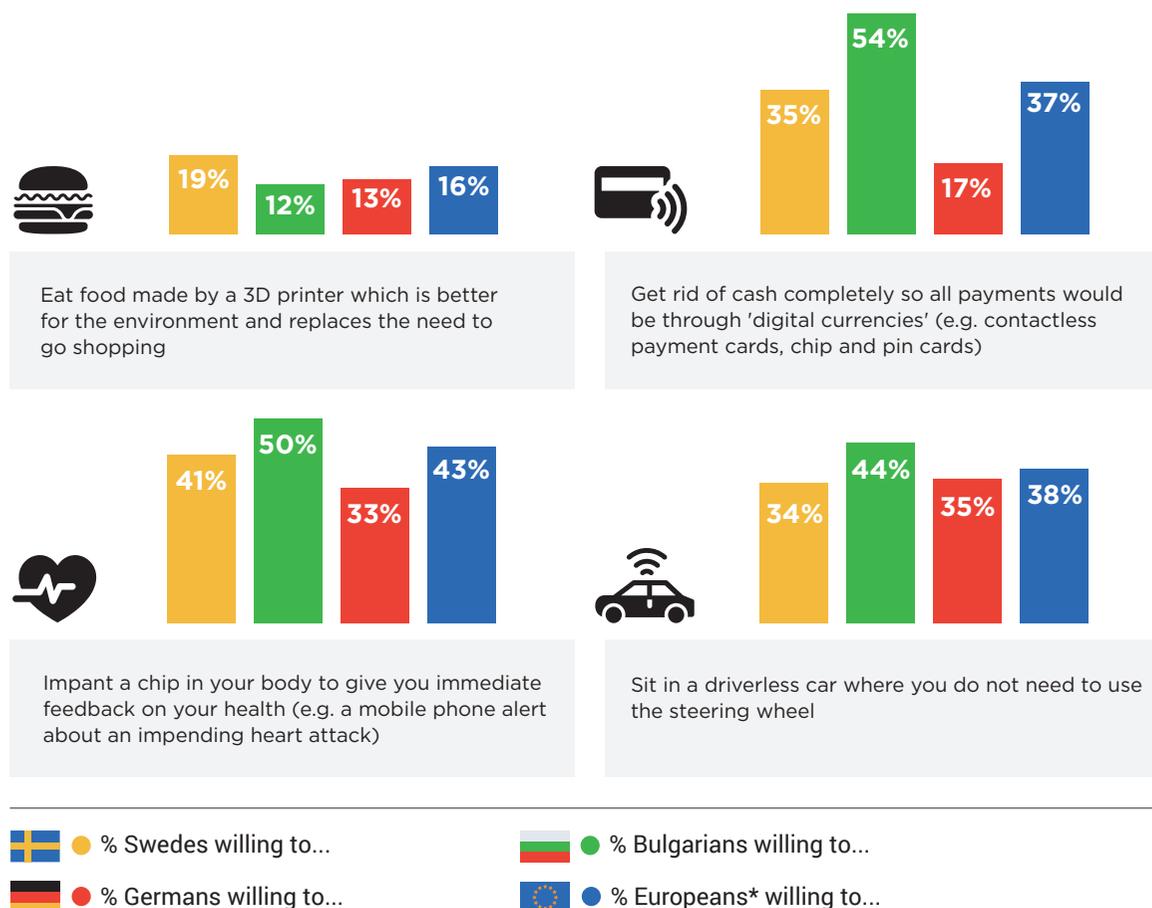
Volvo is among the companies prototyping driverless cars in Europe, which are predicted to reduce road accidents by up to 90 per cent<sup>3</sup>. Paying digitally, with contactless cards or smartphone applications, is already popular across Europe.

“ I think, in practice, Sweden will pretty much be a cashless society within about five years

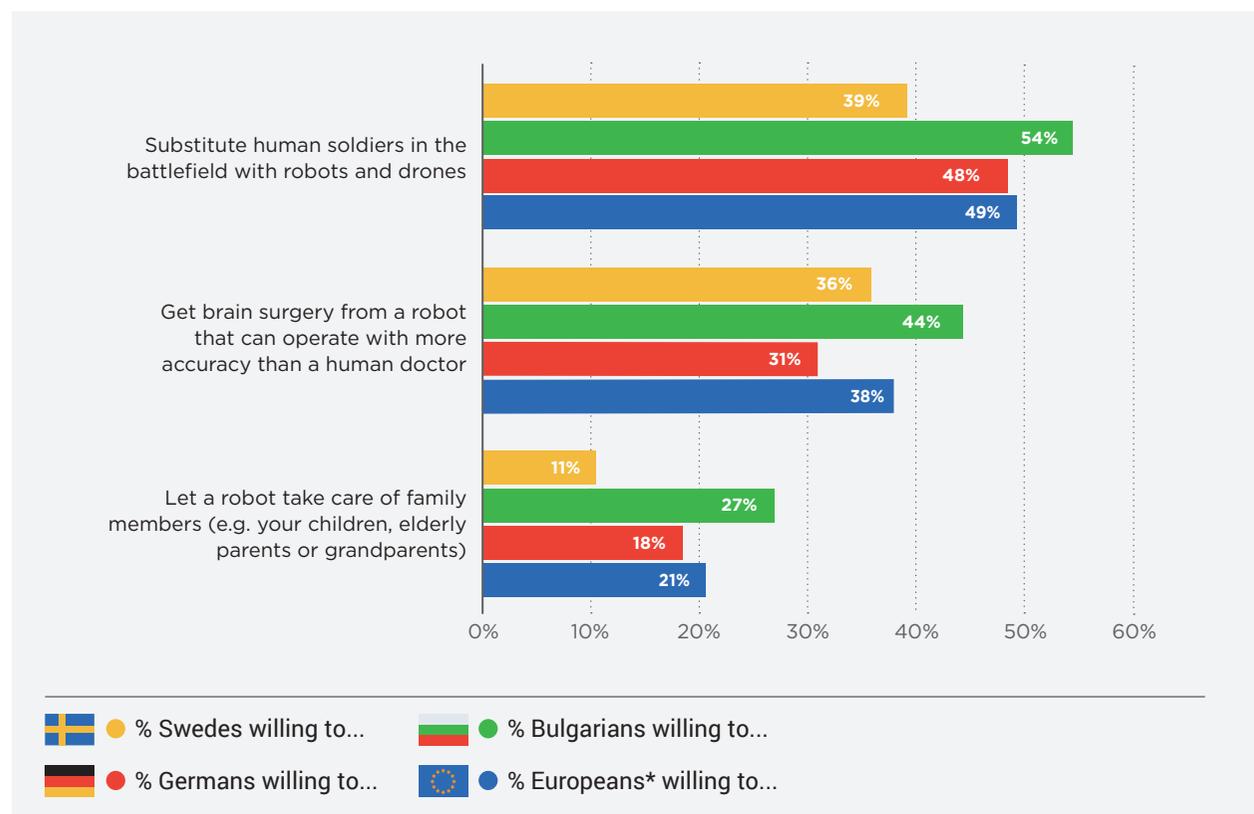
Niklas Arvidsson, KTH Royal institute of Technology, Sweden<sup>5</sup> ”

In Sweden, over 80 per cent of all payments are already made digitally<sup>4</sup>. However, our study shows that only about one third of Swedish adults are happy to go completely cashless (35 per cent). There is still opposition to the political ambition to abandon cash altogether, even if the Swedish public make cashless transactions most of the time. There are still concerns about data privacy and about young people spending money too freely<sup>5</sup>. Our research shows that the majority of Europeans – and many Swedish adults – are not comfortable using what is already technologically possible.

## Swedish adults are less interested in most new technology



## Few Swedes are ready to live with robots



## Robotics

Dystopian scenarios about robots taking the jobs and destroying humanity are manifold. But what makes fewer headlines are the exciting developments in robotics that are providing social benefits to communities worldwide.

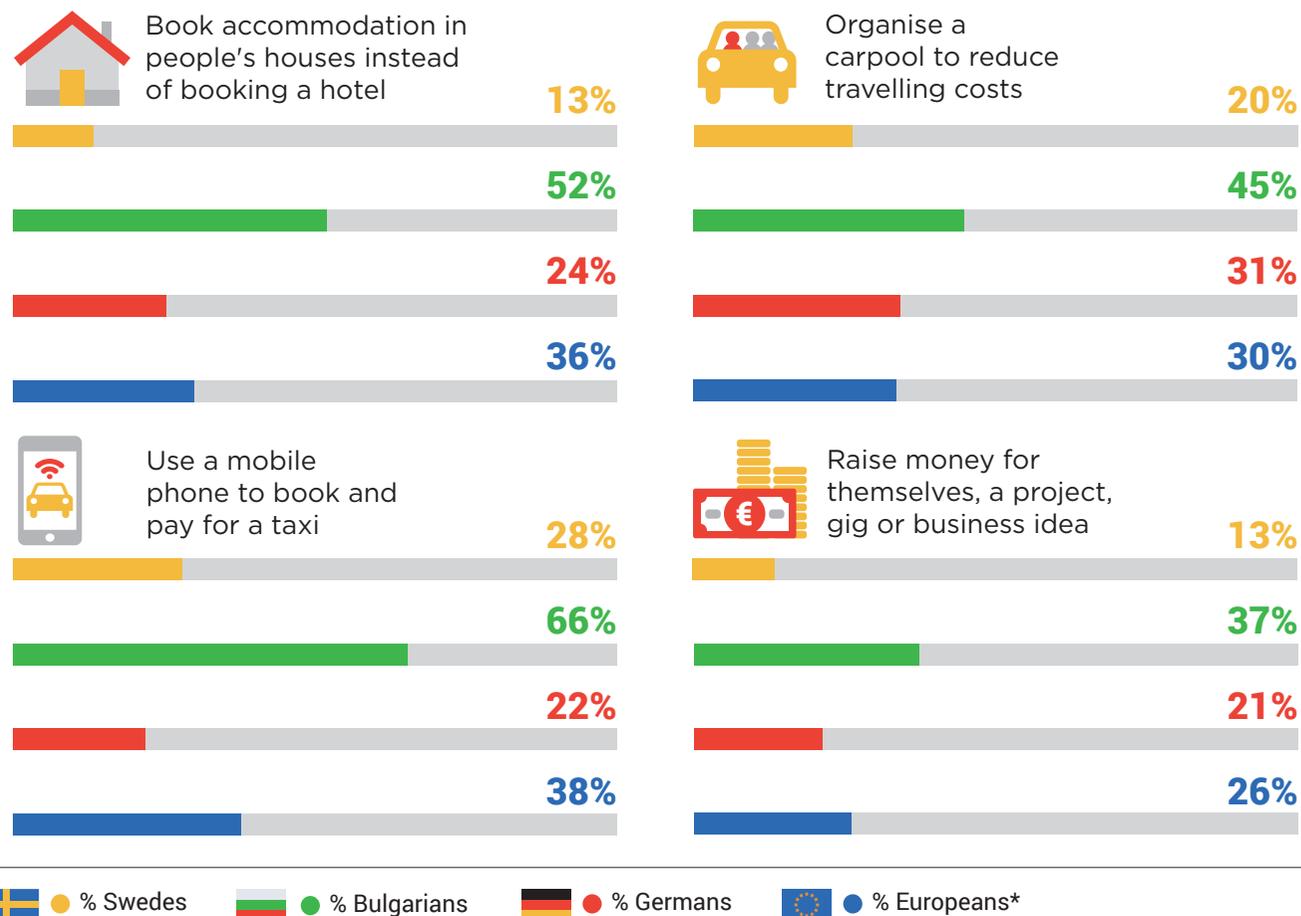
Promising pilots taking place across Europe include the Giraff telepresence robot, which allows the elderly to live independently for longer by monitoring wellness and connecting directly to healthcare professionals<sup>6</sup>. Nao, a humanoid robot measuring just 60 centimetres high, is used in schools to better support autistic children<sup>7</sup>. In September 2016, University of Oxford surgeons achieved the world's first eye operation using a robot that performs high precision procedures better than the human hand<sup>8</sup>.

These robots already exist, but we found that the majority of the Swedish public is not ready to live with them. The number of Swedish adults willing to let a robot take care of an elderly relative was the lowest in any European country we tested (11 per cent).

## Sharing economy

Swedish adults are significantly less interested in participating in the sharing economy than other Europeans surveyed. Whether it is organising transport, funding a project, or sharing their homes and journeys with strangers, most other Europeans are more open. This effect is even more pronounced when compared with Bulgaria, the top country in our ranking.

### Who has ever participated in the sharing economy?

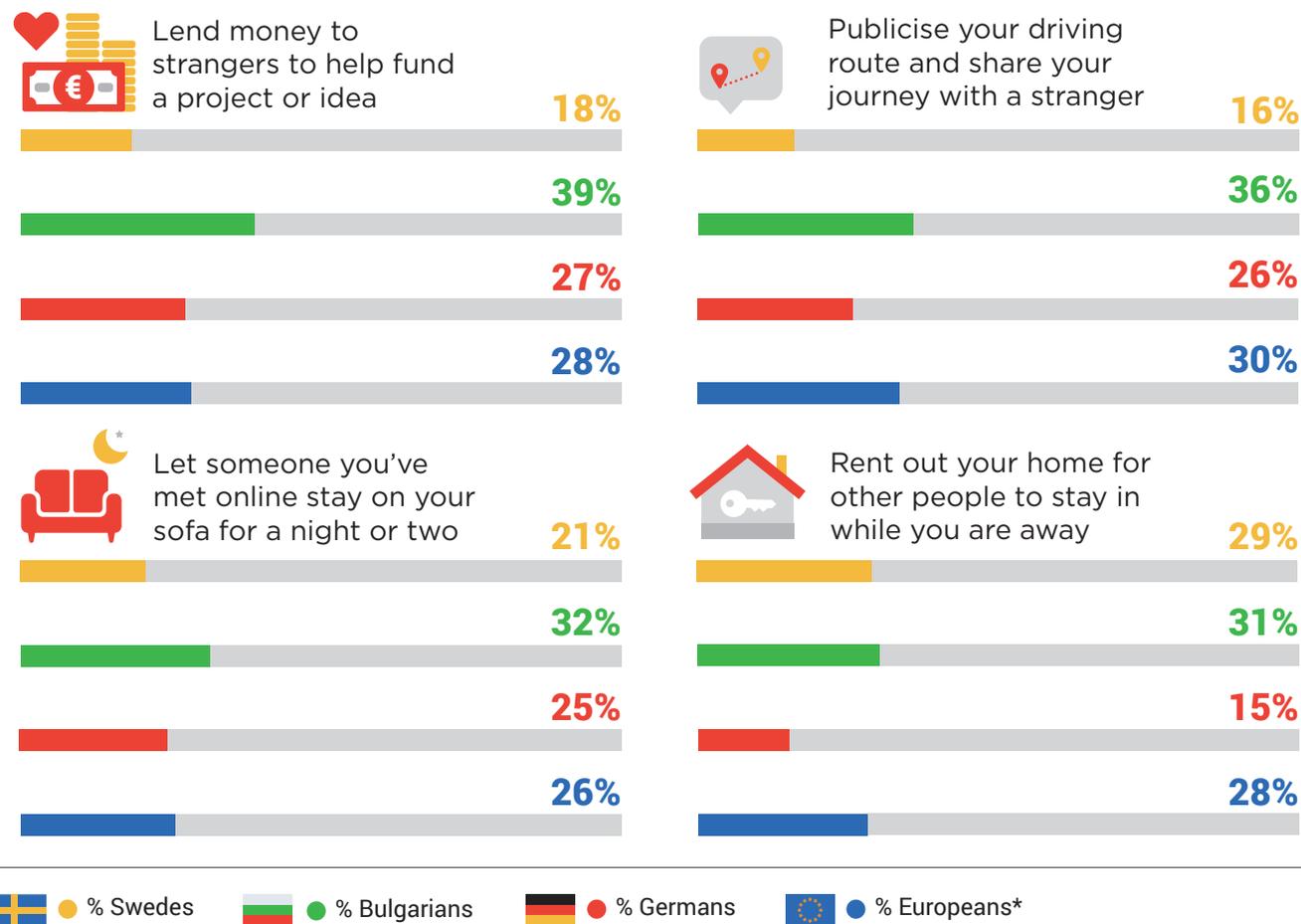


have ever used the internet to...

## Sharing economy

Swedes are also less interested in sharing economy applications even compared to Germans, who were generally the most sceptical country in our research.

### Are Swedes willing to share their ride, house, or cash with others?



very happy/would consider

Q: How happy or otherwise would you be to do each of the following using the internet? Would be very happy to / Would consider it / Would prefer not to / Would definitely not do / Don't know

\*Average of the nine European countries tested in this research

# Demographic factors

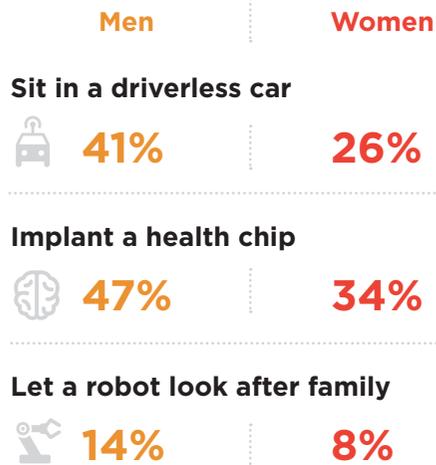
In Sweden, men, people under 35, and people with a university degree tend to be most open to new technologies. They are also the more avid users of services on the internet. These factors largely follow the pattern we saw across other European countries.



## Gender

Men are, on average, more interested in exploring new technology than women, with the effect very strong in some cases.

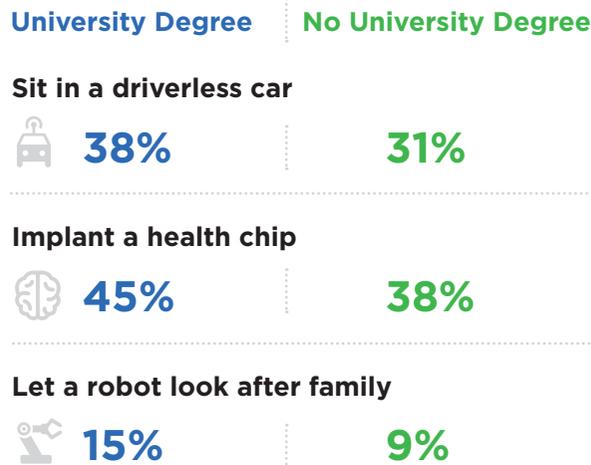
% SWEDES WILLING TO



## Education

Swedish people with a university degree are more interested in new technology.

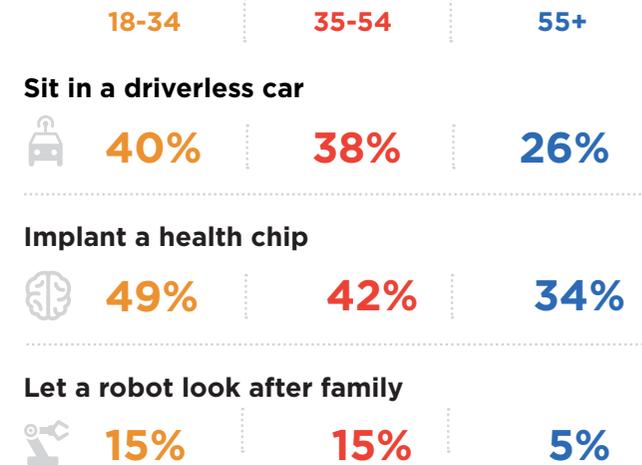
% SWEDES WILLING TO



## Age

The openness to new technology diminishes in higher age groups. The over 55s are significantly less willing to engage.

% SWEDES WILLING TO

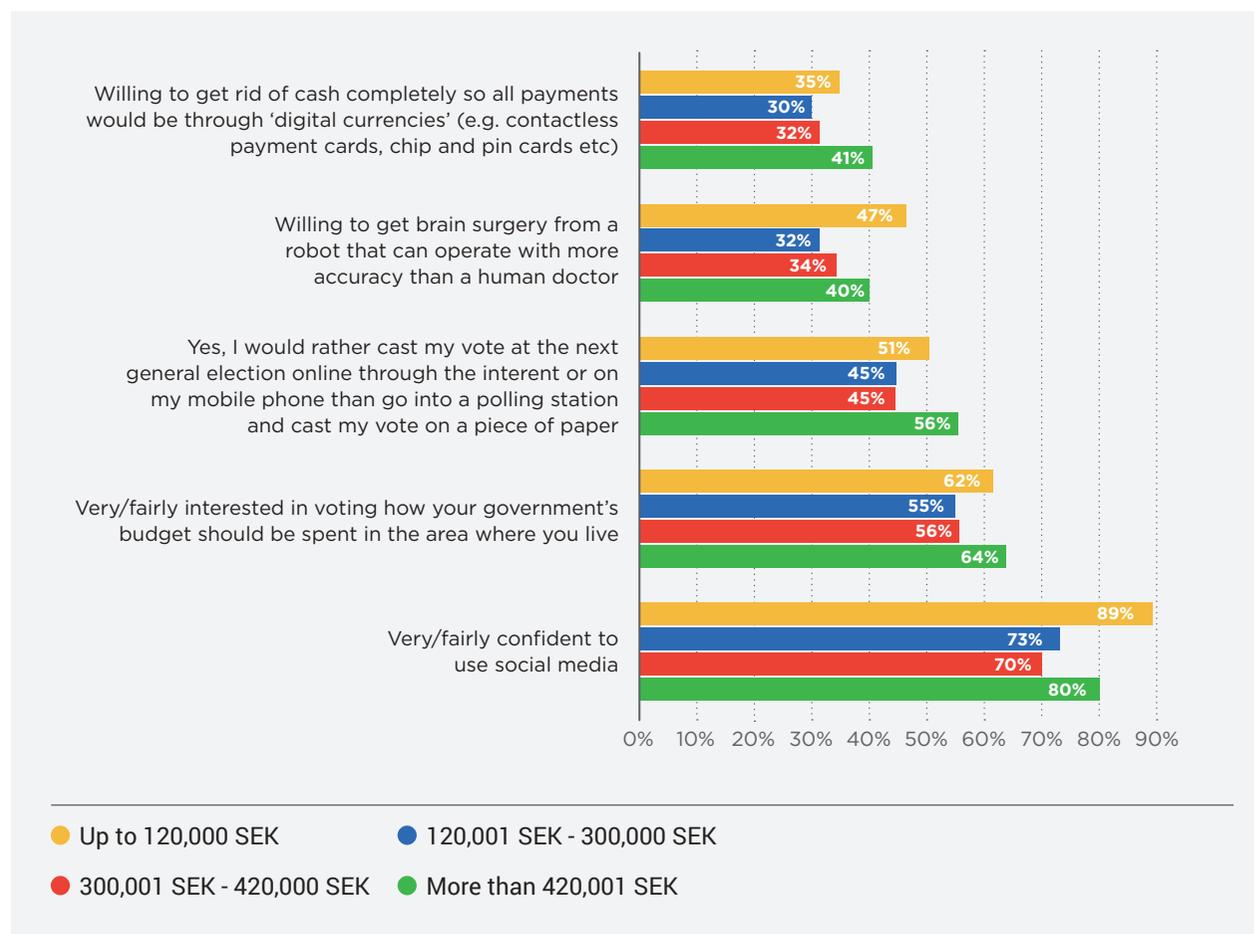


## Income

Household income levels reveal a number of interesting trends in Sweden. The most and least wealthy have different priorities for digital technology but do share some characteristics.

Interestingly, compared to the Swedish average, both extremes of the income scale are more interested in going cashless, voting in general elections through a website or mobile app, and participating in local government budget decisions. Both groups also report high confidence using social media.

### High and low earners share an interest in certain technologies



Q: Would you be willing to do each of the following, or not? Yes / No / Don't know

Q: How interested, if at all, would you be in doing each of the following on the internet? Very interested / Fairly Interested / Not very interested / Not at all interested / Don't know

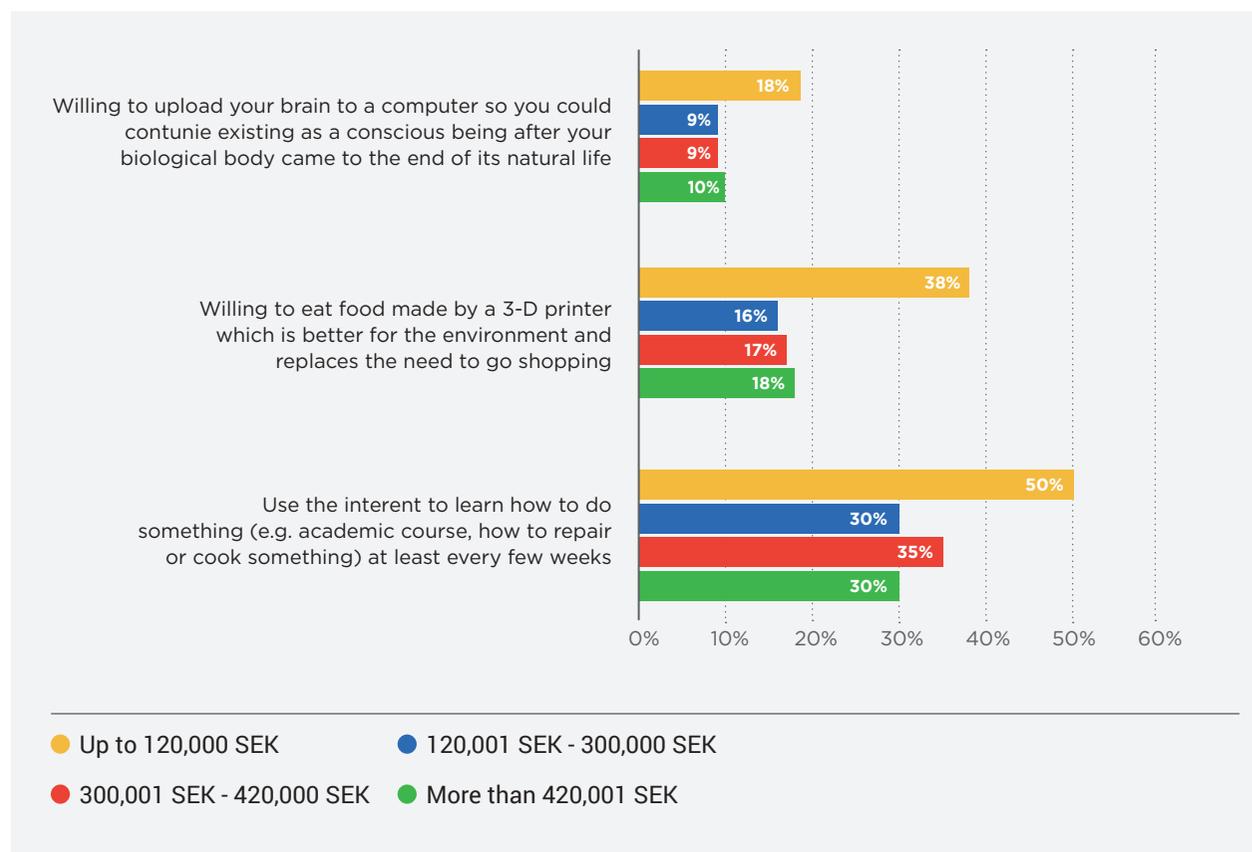
Q: If you were asked to do each of the following today, how confident or otherwise would you be in your ability to do each one? Very confident / Fairly confident / Not very confident / Not at all / Don't know

## Income

While it might be expected that a better financial position translates to a higher willingness to engage with new technology, it is actually the lowest income bracket that are the most willing, despite reporting an overall less positive attitude about the future. A number of factors may contribute to this disparity, such as hope that digital technology will improve future living standards.

The lowest income bracket also use the internet more heavily than other groups to seek and learn information. A possible contributing factor is that students may fall into the lower income bracket and are likely to be more curious.

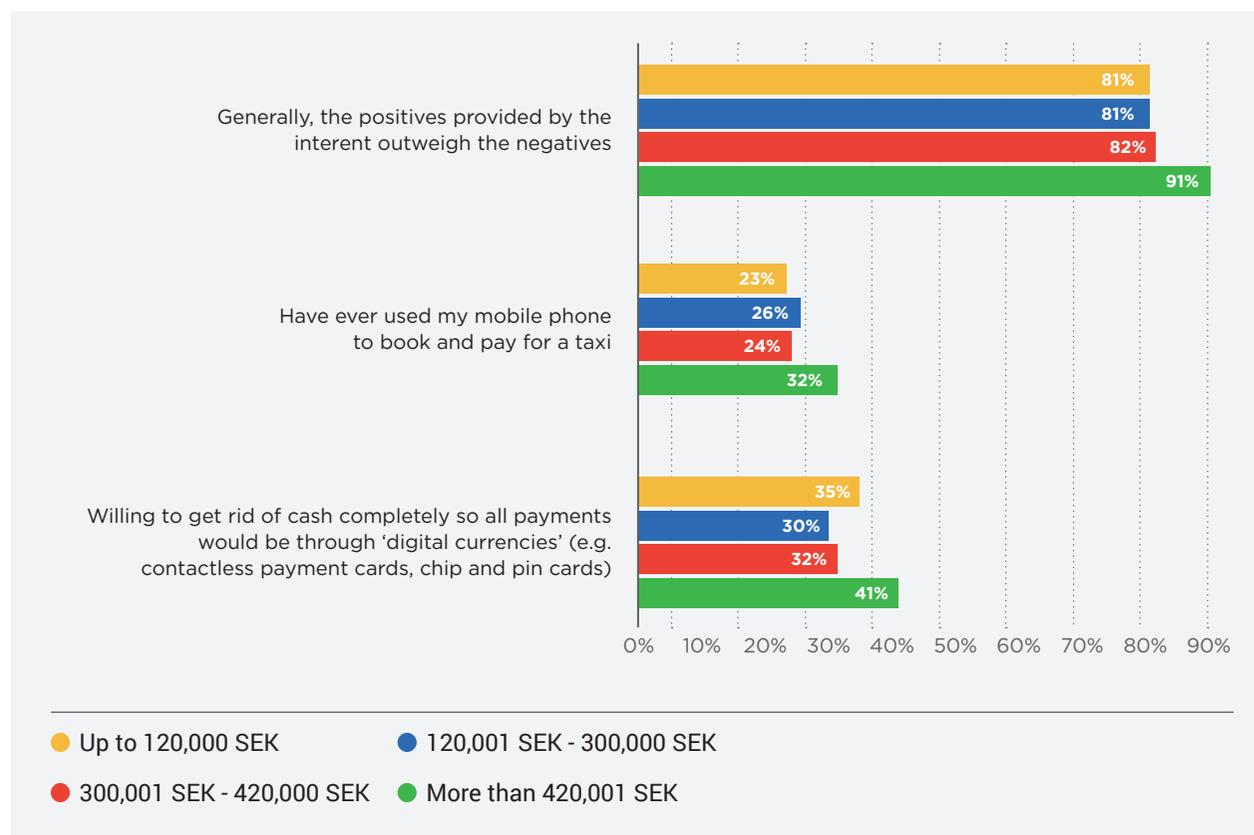
## The lowest income group sees potential to improve their life



## Income

Those adults in households with the highest income bracket are most likely to think positives of the internet outweigh the negatives (91 per cent). They are also more likely to have used a mobile phone to book and pay for a taxi (32 per cent) compared to other income groups.

### The wealthiest are the most comfortable with digitalisation overall



# Deep dive on digital pioneers

## Digital pioneers

Our research identified a group of Swedish digital risk takers – a group that are more likely to embrace the newest technology in the future.

Individuals in Sweden who use ridesharing and food delivery platforms are also the most interested to eat 3D printed food or let a robot take care of family members. This indicates that these most open-minded Swedes are likely to be the same users who will drive (and possibly even pioneer) radical technologies in the near future.

Greater understanding of what is motivating this group's mindset might help policymakers reinvigorate the wider Swedish population.

## Users of innovative technologies are more interested in experimenting further

% willing to



**Substitute human soldiers in the battlefield with robots and drones**

39% 55% 40%



**Eat food made by a 3D printer which is better for the environment and replaces the need to go shopping**

19% 38% 30%



**Get rid of cash completely so all payments would be through 'digital currencies' (e.g. contactless payment cards, chip and pin cards)**

35% 59% 53%



**Upload your brain to a computer so you could continue existing as a conscious being after your biological body came to the end of its natural life**

10% 21% 14%



**Let a robot take care of family members (e.g. your children, elderly parents or grandparents)**

11% 23% 19%

- % Swedes (general)
- % Swedes (have ever used ride sharing apps)
- % Swedes (have ever used food delivery apps)



## Digital politics

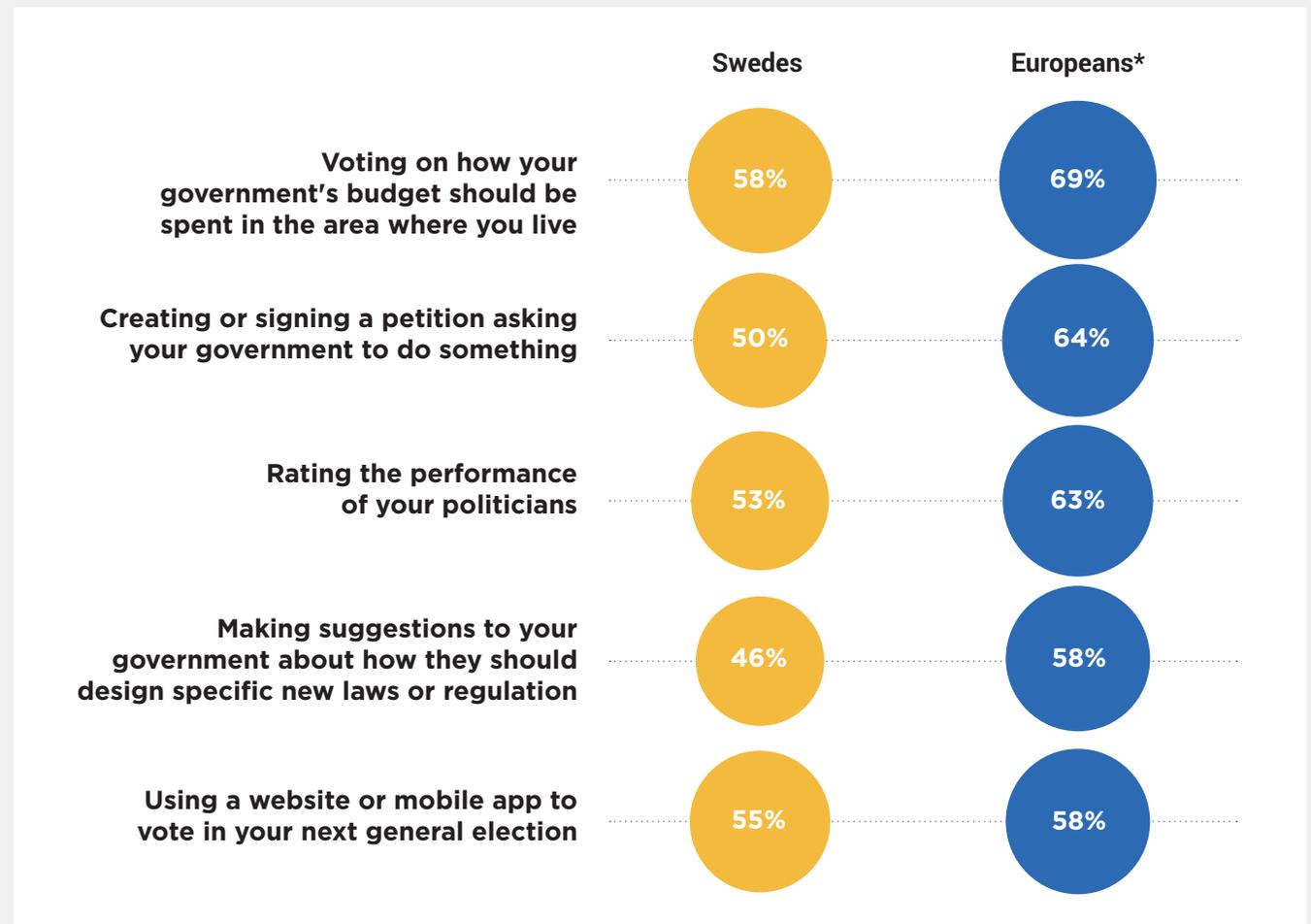
The internet has enabled online political engagement, for example through better ways to disseminate and collect information to and from citizens, crowdsource decisions and involve people directly in their government. Our research found that the majority of adults in Europe are interested in taking advantage of these, albeit with strong variations.

The interest is particularly high in former Eastern Bloc countries like Bulgaria and Poland, where trust in government has been historically lower. Similarly, citizens from nations strongly affected by economic crisis, such as Spain or Italy, have high interest in using digital tools for political engagement. These questions were not included in the Readie ranking, but the results still highlight an interesting difference between European countries.

By contrast, citizens in countries with well-functioning welfare states like Sweden show the least interest in digital democracy. Swedes specifically are less interested than other Europeans in participating in politics online, be that by voting or getting involved in drafting legislation or budgeting. This points to a lack of interest in digital methods, or to a high level of trust in the established forms of government<sup>9</sup>.

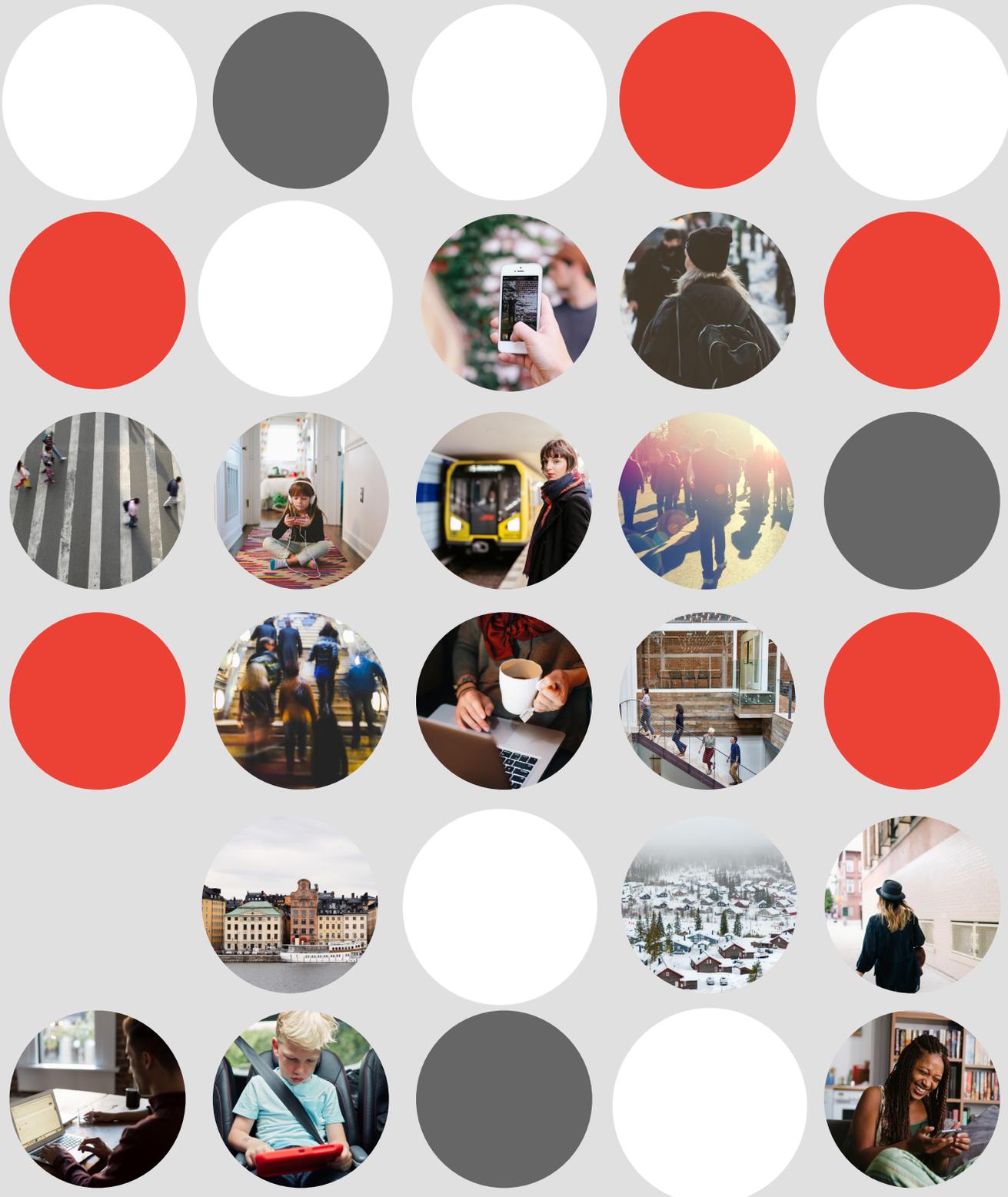
## Swedes are less interested in digitalising their politics

% adults very/fairly interested



Q: How interested, if at all, would you be in doing each of the following on the internet? Very interested / Fairly interested / Not very interested / Not at all interested / Don't know \*Average of the nine European countries tested in this research (This question was not included in the Readie Ranking 2017)

# 2. What are some of the potential challenges?



# What explains the disparity between generally positive attitude and lack of interest in concrete technologies?

**The fact that Swedish adults are both open to change in general and convinced that digital technologies provide benefits is in contrast to the low numbers who are interested in using new technologies.**

The following pages will provide some possible explanations for this paradoxical result. Based on our research, we suggest that a lack of advanced skills is connected to a slower uptake in new technology. We also surveyed what Swedish adults are most worried about with regard to the internet. We also want to suggest two additional explanations for the lack of interest which we found.

Firstly, it might be explained by the generally high standard of living<sup>10</sup> enjoyed by Sweden's citizens, making them more complacent and less motivated to engage with new technology designed to make life more comfortable. Citizens of less wealthy countries

may struggle with political or economic impediments and are therefore keener to use technology to actively influence their personal financial situation.

More specifically, the low interest in these new applications could be a result the early adoption of the internet in Sweden. In the 1990s a government scheme was introduced for employers to offer employees new computers at reduced costs<sup>11</sup>, and broadband was already widely available in the early 2000s<sup>12</sup>. Online habits that are entrenched in traditional uses might be holding people back from embracing the opportunities of newer technology.

# Swedish adults have digital skills – but not necessarily the right ones

## Everyone needs digital skills

Everyone needs digital skills in a world that is increasingly digital; everyone needs a basic level of digital literacy to have the confidence to try new technology<sup>13</sup>. This equips everyone with the ability to not simply be passive consumers of technology, but active agents or ‘digital makers’, who can improve their lives and those around them<sup>14</sup>.

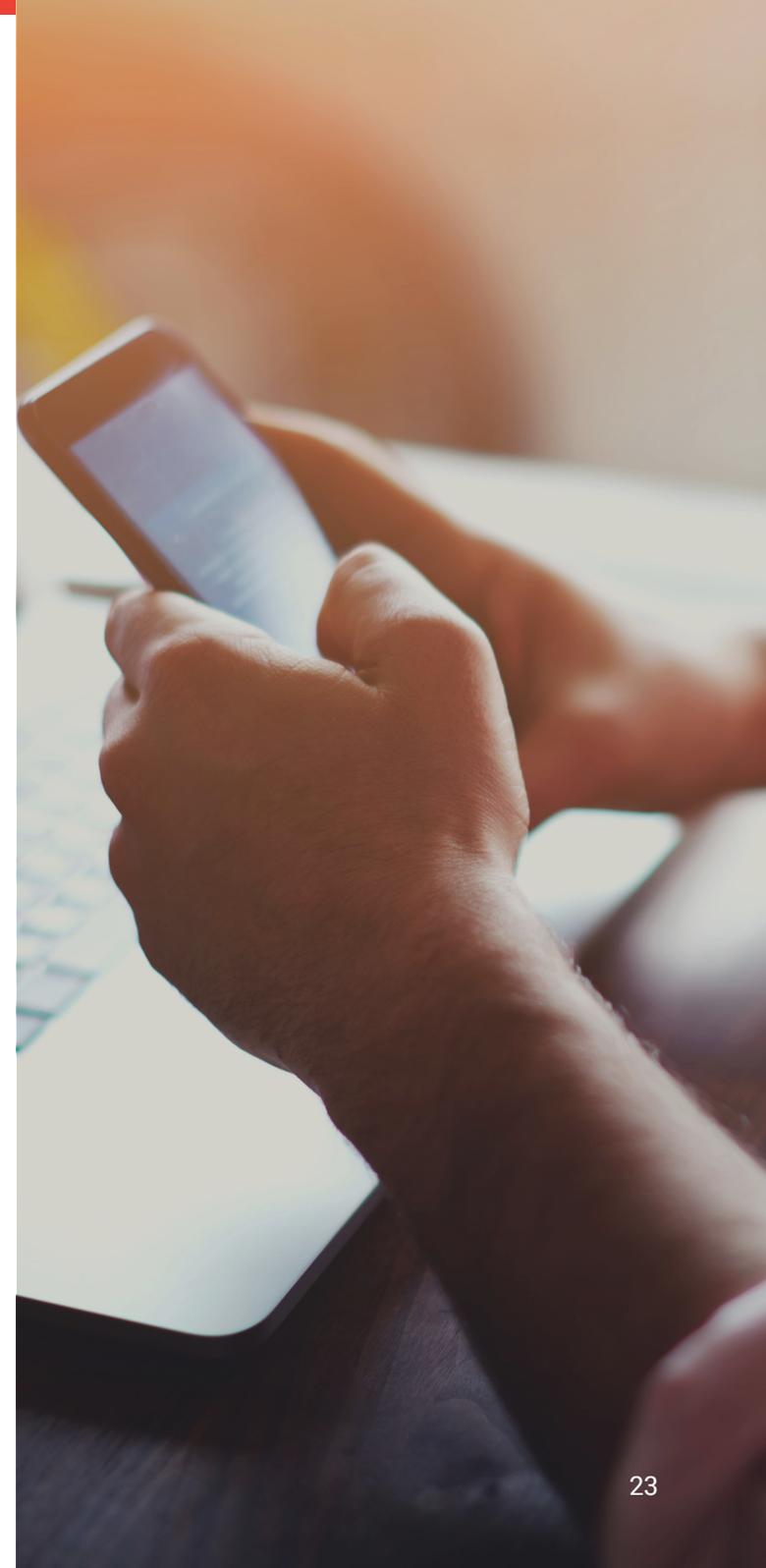
The future workforce will need to complement developments in new technology. Despite well publicised research detailing the risk to jobs from automation<sup>15</sup>, it seems likely that robots will not replace human employees, but instead undertake laborious tasks like heavy lifting, so humans can focus on more creative, complex work – and direct the robots. For this to happen, both employers and employees will need the necessary digital skills and understanding of technology.

These are skills not just needed by those in ‘technical jobs’. Many roles which do not require direct coding skills, for example, will still need a greater understanding of digital technologies.

## But what are those skills?

‘Digital skills’ encompasses a broad spectrum; from understanding how a computer works to knowing how to use social media responsibly. We surveyed how confident European adults feel in a selection of key skills:

-  Creating a website
-  Writing code
-  Building a computer

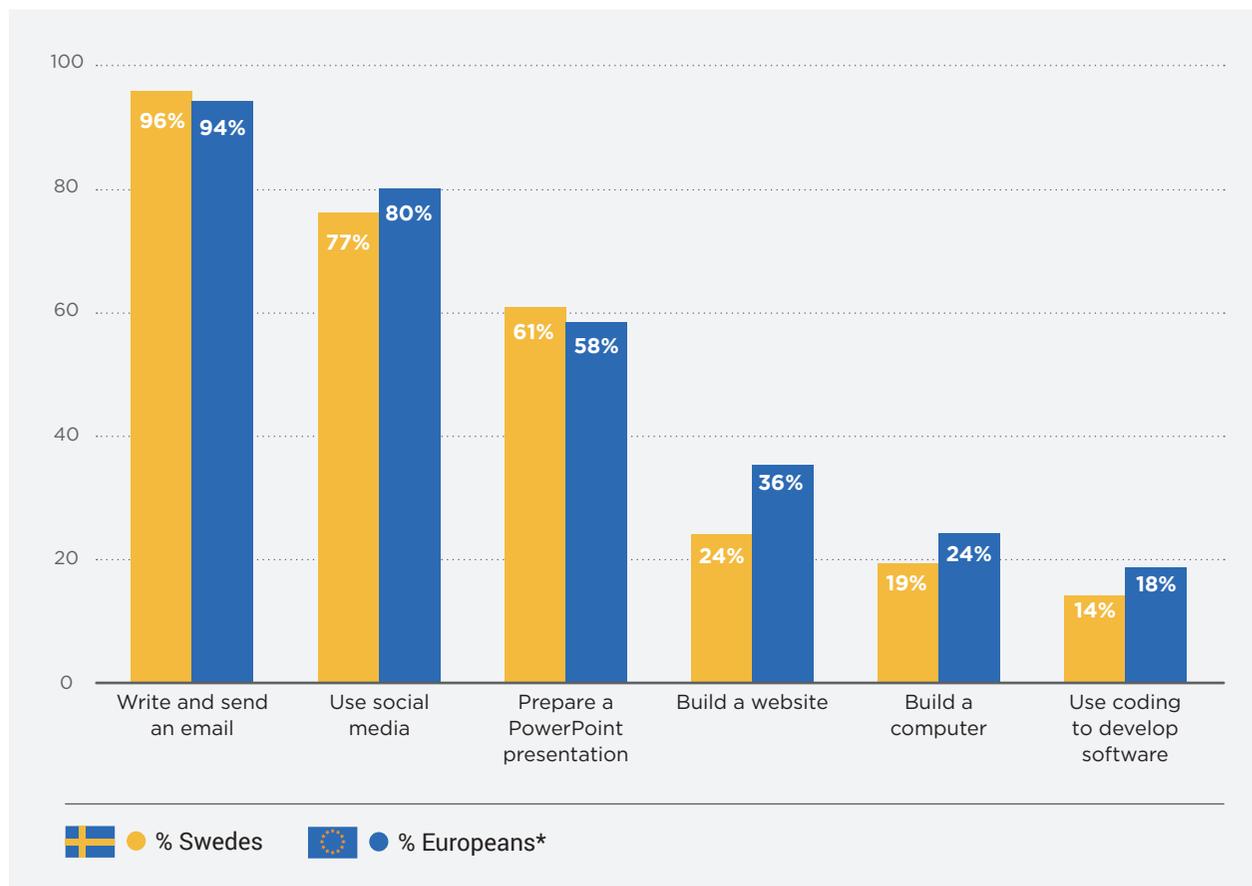


Like other Europeans, Swedish adults report a high level of confidence with basic digital skills such as using email, social media or ecommerce platforms. Confidence is lacking however when it comes to more advanced digital skills such as creating websites, writing code and building a computer. A sustainable digital society is reliant the public being able to confidently participate.

Sweden's reputation for digital competency might be good enough now but what about the future workforce? It is vital that Sweden's policymakers continue investing in digital skills programmes to ensure their country is well prepared for the future.

## Digital skills confidence amongst Swedish adults

% adults very/fairly confident



Q: If you were asked to do each of the following today, how confident or otherwise would you be in your ability to do each one? Very confident / Fairly confident / Not very confident / Not at all / Don't know

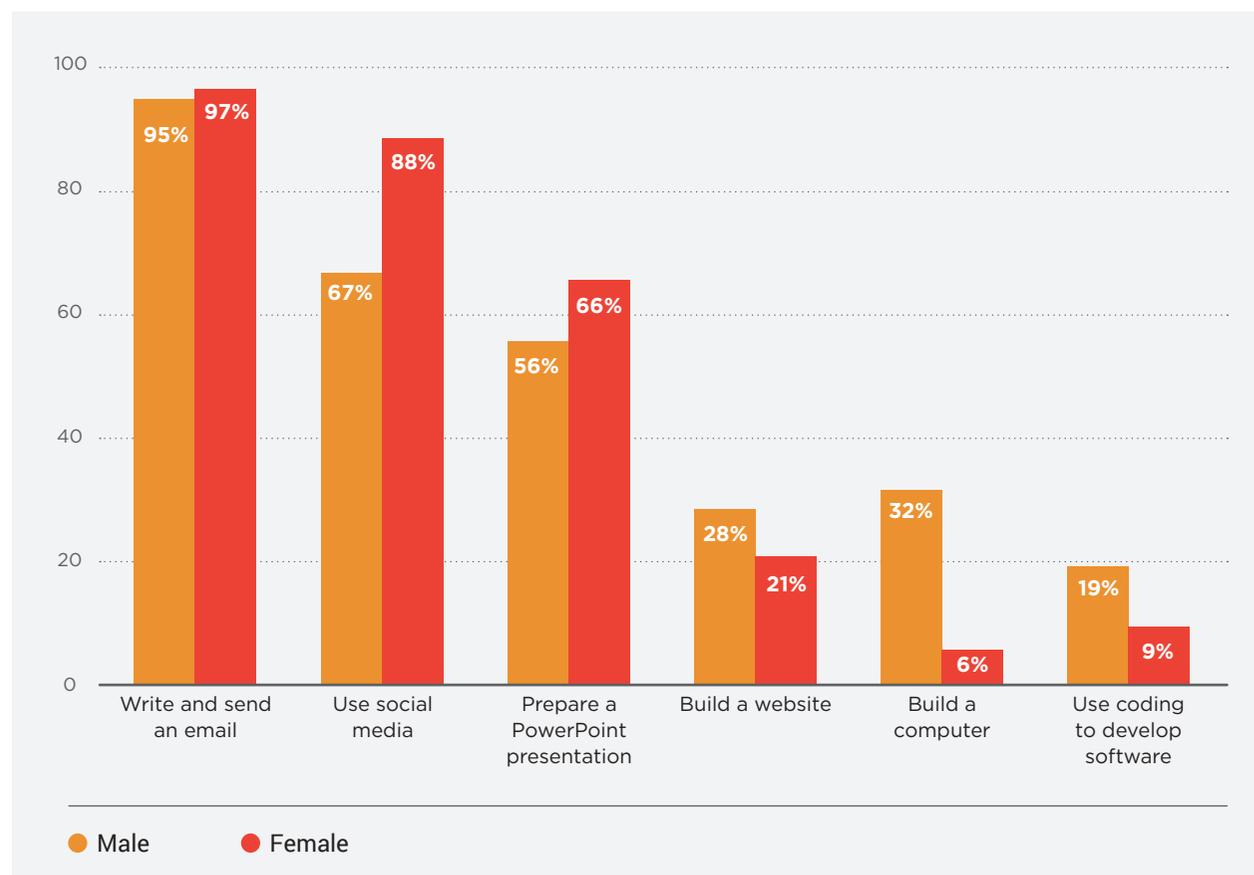
\*Average of the nine European countries tested in this research

## Two different gender gaps

Gender and age are important factors when it comes to the confidence Swedish adults have in their digital skills. Strikingly, compared to many other European countries, Swedish women report slightly greater confidence with everyday applications such as sending emails or creating PowerPoint presentations. When it comes to more technical skills, which less adults have generally, men report higher confidence. This unequal distribution of skills is likely to lead to an unequal distribution of benefits between genders, which is both bad in itself and will also erode support for new technologies.

## Swedish women are more confident in everyday skills

% adults very/fairly confident

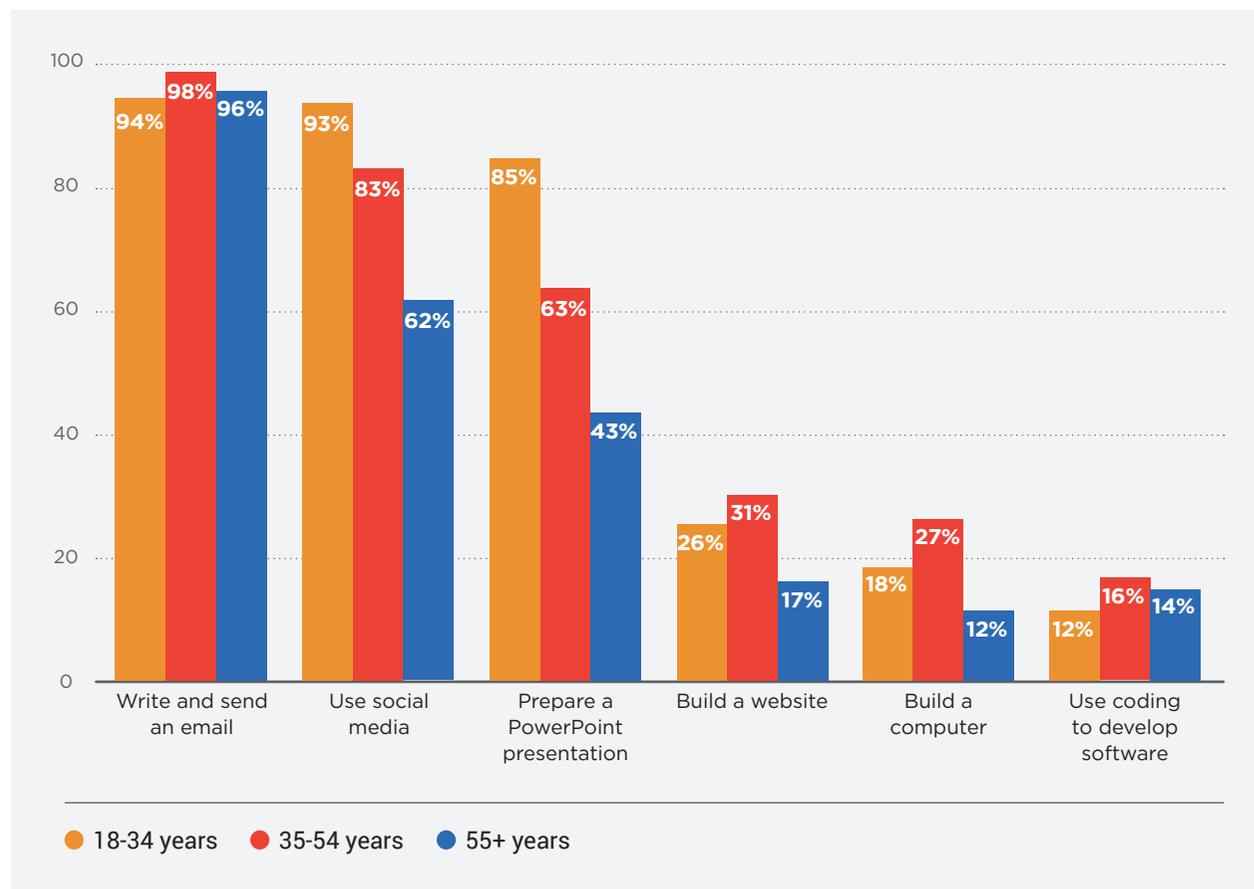


Young adults in Sweden aged between 18 and 34 are significantly more confident in digital tasks than older generations. The only systematic deviation from this trend is more technical skills, which are likely to be acquired by specially trained workers. All adults – regardless of age, gender and background – need a basic level of digital skills to confidently participate in an increasingly digital world. If high confidence with basic digital skills in young people leads to complacency in teaching more advanced skills, it could limit future benefits from digitalisation.

There are already efforts to address the shortage in digital skills in Sweden. PROMPT is an educational initiative in cooperation with several academic parties and leading industrial companies and organisations<sup>16</sup>. Corporate run programmes, such as Google’s Digital Academy is for employees within small businesses and aims to teach skills like how to engage customers online<sup>17</sup>. The government is also active: The Smart Industry Strategy includes steps to promote the skills required in the knowledge economy<sup>18</sup>.

## Young Swedes are more confident in basic digital tasks

% adults very/fairly confident



# Cybercrime and online aggression is a concern for many Swedes

**The vast majority of Swedish adults, as like most European respondents, generally believe that new technology and the internet will positively impact their lives.**

However, some anxieties remain. Understanding what concerns the public have can help businesses and governments prioritise areas that require dedicated focus, reduce the risks, and build public confidence and trust in the use of new technology.

What are the Swedes' key concerns? We surveyed a variety of potential issues.

Amongst Swedish adults, cybercrime such as hacking, infringement of privacy, and stolen data, is perceived as the top problem caused by the internet. Over half (55 per cent) also say that one of the biggest priorities for government should be to protect people's data from cyberattacks.

Compared to other European countries, Swedes are more worried about exposure to extreme views, false information and aggression online. This might be explained by the high support for individualism in Swedish society<sup>19</sup>. The ability to insult and even threaten people online, with little recourse can be seen to go against a generally liberal attitude to individual behaviour.

Swedish adults are less concerned about the breakdown of face-to-face relationships or important skills such as concentration in children (28 per cent and 24 per cent respectively). Interestingly, job automation – which many in the business and policy community worry about – is one of the smallest concerns of Swedes and Europeans alike (9 per cent vs 13 per cent).

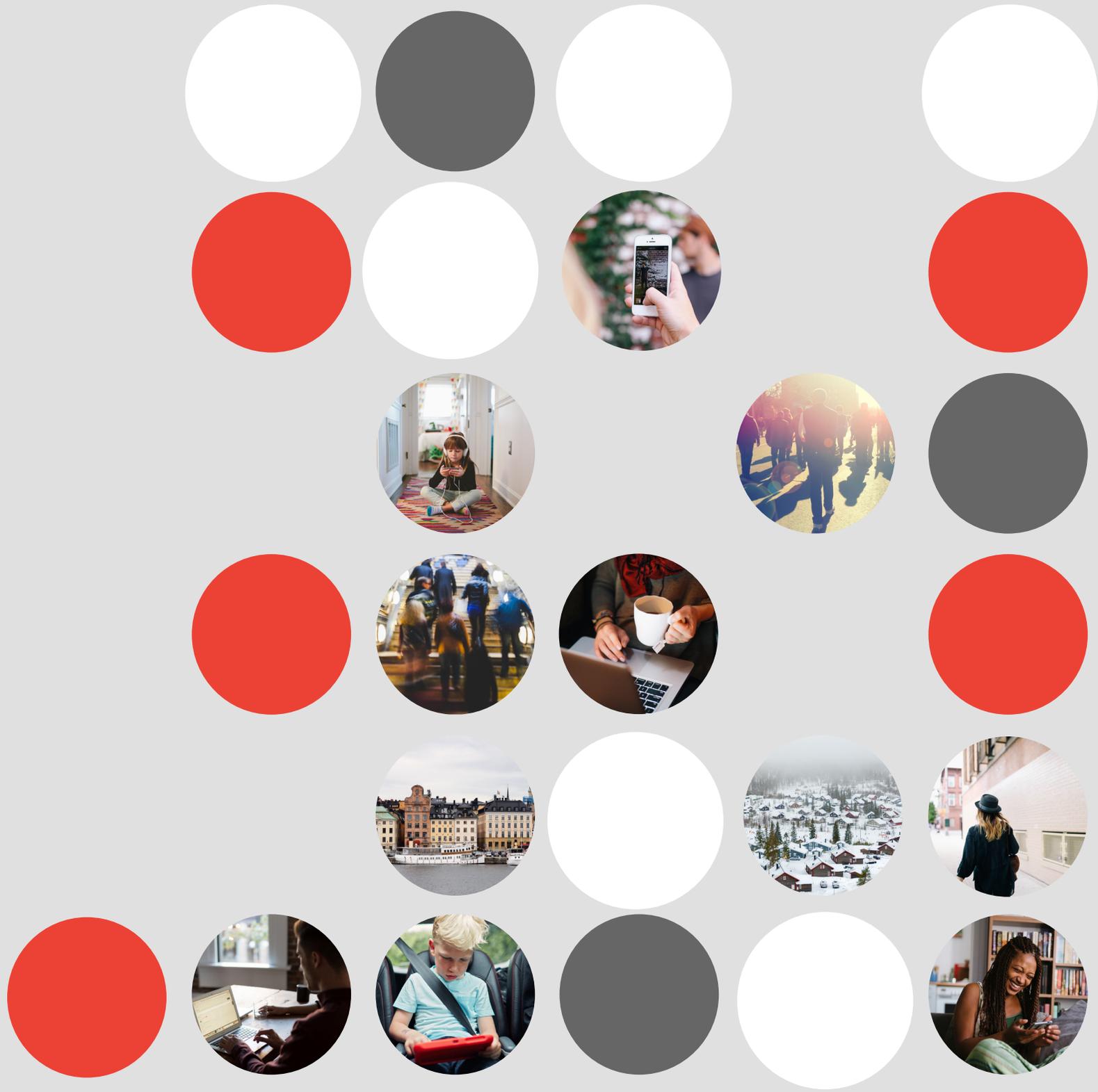
## Top five concerns of Swedish and European adults

	Swedes	Europeans*
1	Increase in cybercrime (e.g. hacking, stealing people's data, infringement of privacy)	Increase in cybercrime (e.g. hacking, stealing people's data, infringement of privacy)
2	The aggression between some people on social media (e.g. online bullying, trolling)	People spending too much time inside and not exercising
3	People spending too much time inside and not exercising	The breakdown of face-to-face relationships
4	Making it easier to access dangerous products (e.g. guns, drugs)	Children losing important skills, like their ability to concentrate or communicate
5	Making it easier for people to be exposed to extreme views or misleading, incorrect information	The aggression between some people on social media (e.g. online bullying, trolling)

Q: And which of the following, if any, do you think are the biggest problems caused by the internet? Please select your top three

\*Average of the nine European countries tested in this research

# 3. Summary



**Digital technology is profoundly changing many areas of society. While Sweden may have been an early adopter of the internet, our research shows a low interest in new digital technology.**

**This report has shown that:**

- 1. Swedish adults are less interested in adopting next generation technology, be it artificial intelligence, robotics or 3D printing.**
- 2. Sharing economy platforms attract less interest in Sweden.**
- 3. Swedish adults are less keen on using the internet to engage politically.**

Digital technology is creating many opportunities for people and businesses across Europe but the pace of change brings unique challenges when designing policies and national strategies. The majority of the Swedish public are not ready or equipped to make the most of the digital transformation. Developments in technology should benefit all people.

As our research shows, a number of groups feel less confident about digital change, and are thus unwilling to engage with the opportunities.

Governments and businesses must consider more carefully how open different sections of the population are to new platforms and technologies. It is clear that most people are optimistic about the future. Building confidence is key to empowering people to trust and embrace new technology which has potential to improve all our lives.

This report is just the start of the conversation. Readie is working with governments and businesses to help them make sense of the challenges and harness the opportunities. By sharing experiences of what has – and hasn't – worked we can help Europe drive digital economic growth and prosperity. Get in touch to find out about our programme:

[info@readie.eu](mailto:info@readie.eu)

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All errors and omissions remain those of the author.



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### About Readie

Readie is a centre dedicated to empowering policy and decision makers with cutting edge insights into the big debates and policy solutions for Europe's digital economy. We provide a platform for sharing existing policies, key trends and innovative approaches to foster digital economic growth.

Readie is managed by Nesta, the innovation foundation, and supported by Google, RKW and NEMODE as part of the Research Council's UK Digital Economy research programme.

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### About Nesta

Nesta is a global innovation foundation. Our mission is to spark and grow new ideas to improve how the world works for everyone. We use our knowledge, networks, funding and skills to take on big challenges, working in partnership with others to make change happen.

We are a UK charity and our work is enabled by a financial endowment. Nesta is a registered charity in England and Wales 1144091 and Scotland SC042833.

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# Endnotes



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