



Digital disruption at work?

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And the definition of high skills

Powering the European digital transition Conference,
Cedefop, 9th December 2022

Structure

Technology and skills at work

The meaning of “high skills” in a digital context:
what has changed?

Take-aways



1. Technology and skills



TECH



Elon Musk says robots will beat humans at everything by 2030

By Margi Murphy, The Sun

June 6, 2017 | 2:10pm

Competition Fear

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“According to our estimate, 47 percent of total US employment is in the high risk category, meaning that associated occupations are potentially automatable over some unspecified number of years, perhaps a decade or two”

Frey & Osborne 2013.

End of work?

TECHNOLOGICAL UNEMPLOYMENT AND THE END OF WORK

Has captured most of the headlines; often based on experts' views (like Musk) who tend to overestimate technology adoption and spread

Less pessimistic

NOT SO LARGE A LOSS (10% or less)
RESTRUCTURING RATHER THAN LOSS

What do European workers think?



MORE THINK THAT THEY WILL NEED TO RE-SKILL (ALMOST HALF)
THAN THINK TECHNOLOGY CAN OR WILL DO PART OF THEIR JOB (AROUND A THIRD)
(ESJS2)

Barriers (+ job creation)

ECONOMIC AND SKILLS RELATED

The tech itself being too expensive
Lack of skills to implement it
(employees or customers)

SOCIAL, ETHICAL AND LEGAL

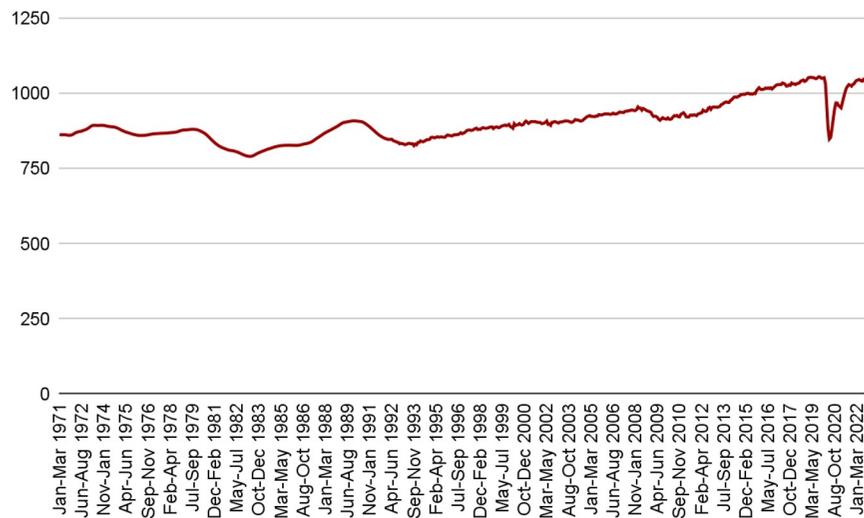
E.g. driverless car, recruitment
Human value in certain tasks -
nursing, education, etc.

ORGANISATIONAL: MANAGEMENT (WP DfW)

Companies' business strategies
*Managers' views of the competence of
their workforce*

Millions of hours worked

Per week UK



ONS LFS

And no change average hours per worker (1,500) since 2010



N E X T

Who gets it in this restructuring?

Who will win and who will lose?

Central idea

in this debate **'high skills'** -complementary rather than competing with technology.

This debate tends to take **a higher education** as the measure of high skill.



2. High skills in a digital context

<https://digitalfuturesofwork.com>





We wanted to explore...

What is the meaning of **high skills** in a digitalised context?

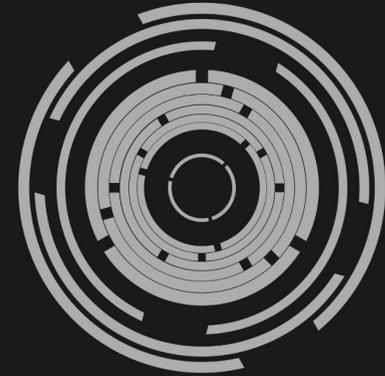
I will present results from Finland and Germany: high and medium/ high digitalised countries

On-going research in other labour markets (Singapore, UK, China)

Interview data (CEOs, Head FoW, Head of Digital; Professional Services, IT, Manufacturing and Finance)

Digital Futures of Work (Skills Futures Singapore) + some ESJS2 data

2.1 Context





**We would
expect to
see it here:
Highly digitalised and
high labour costs**

If we looked for 'end of work' Finland would seem like a good place to start:

"In Finland, the **wages are so high and the tax are so high**, the labour force is going to be so expensive (...), **regardless of the industry almost.**"

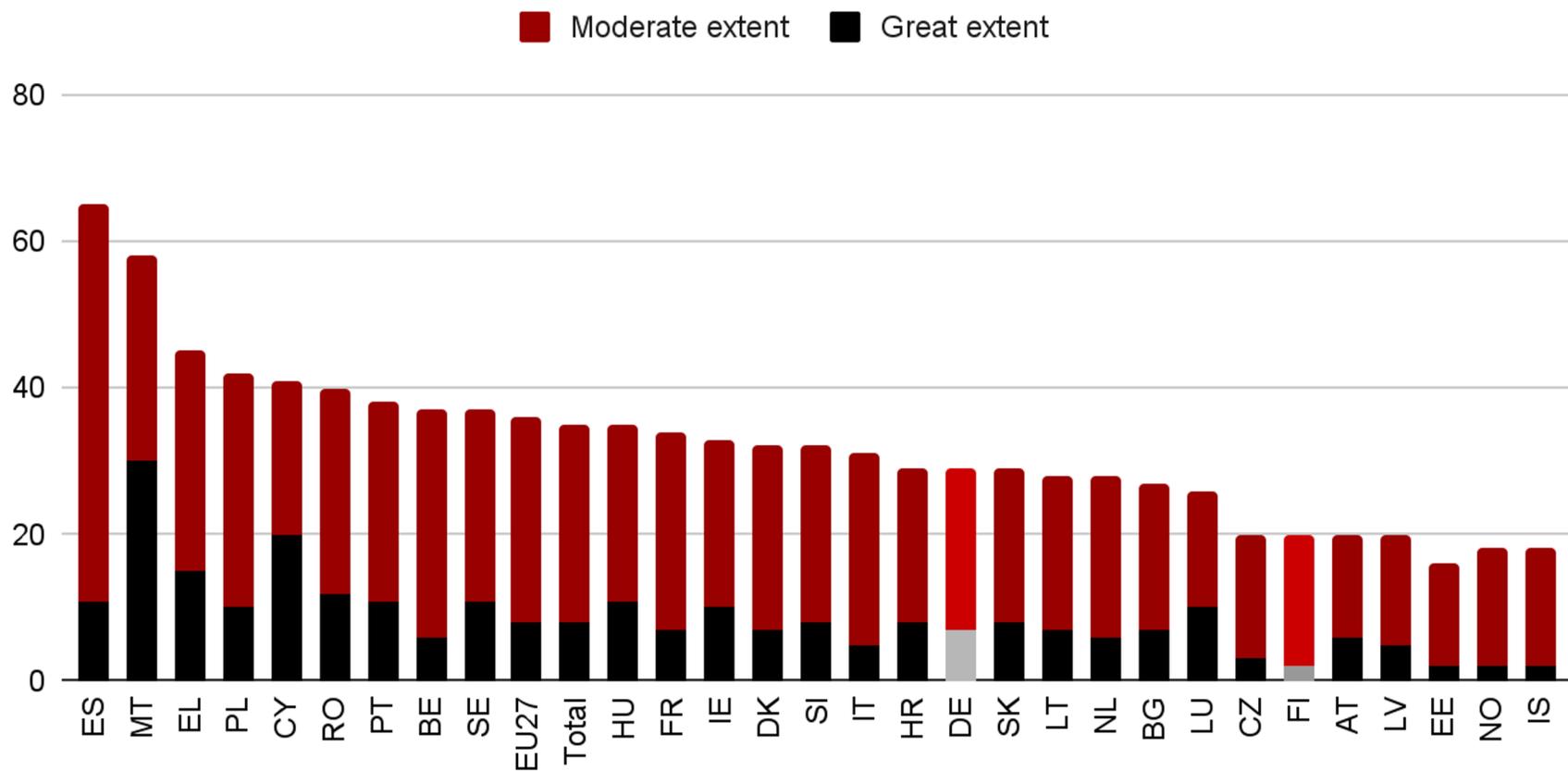
You have these constraints regardless of the industry.

(Finnish employer, Professional Services)

below average on one thing: fear

(ESJS2)

Digital technologies can or will do part of your job



Human decisions

“I'm familiar with the results from **other countries that find industrial automation tends to replace workforce but in Finland** what seems to have happened is that the industrial automation has allowed factories and plants to become **more productive** so they actually end up **hiring more people** as a result. We **don't really see** the sort of **'robots taking people's jobs', as a big issue”**

(Finnish Think-tank)

Technology introduction:

New processes OR

New products/ flexible specialisation (improved quality and reliability) can have different effects

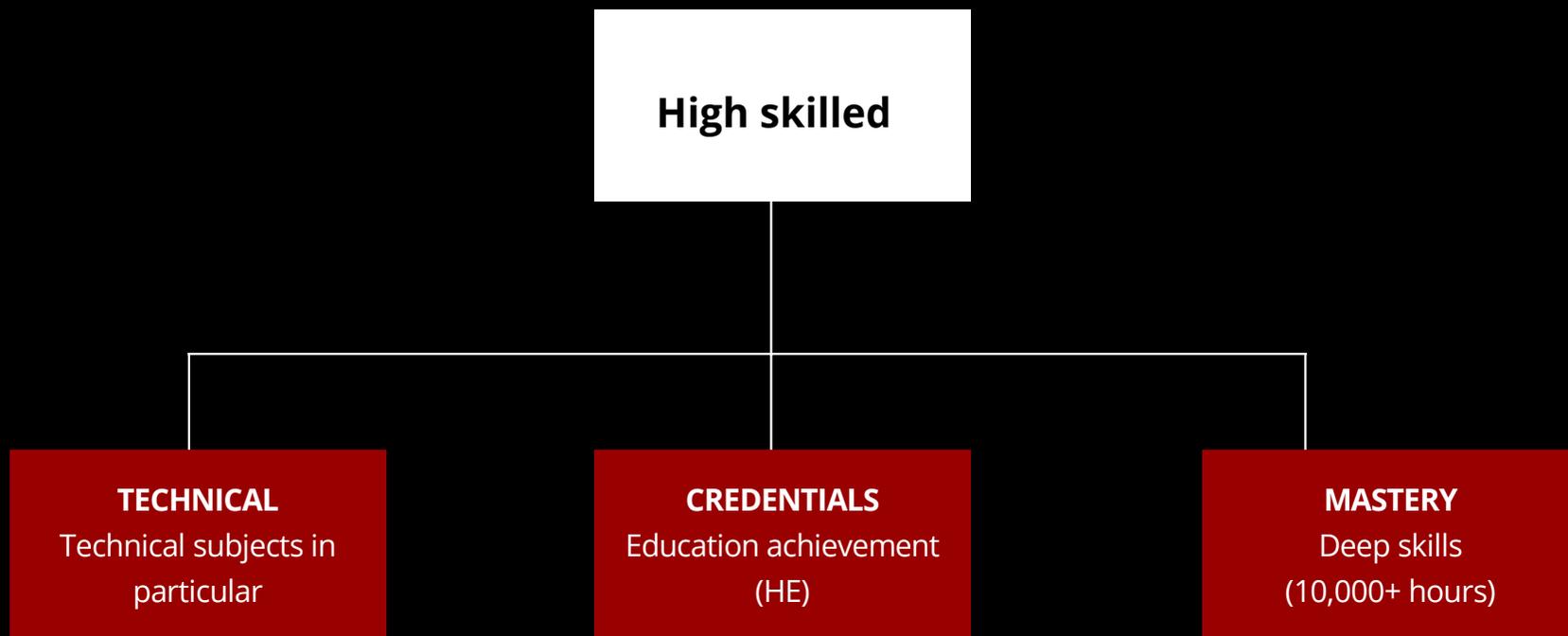
(DfW WP)



2.2 High skills



Standard conception



Redefining high skills

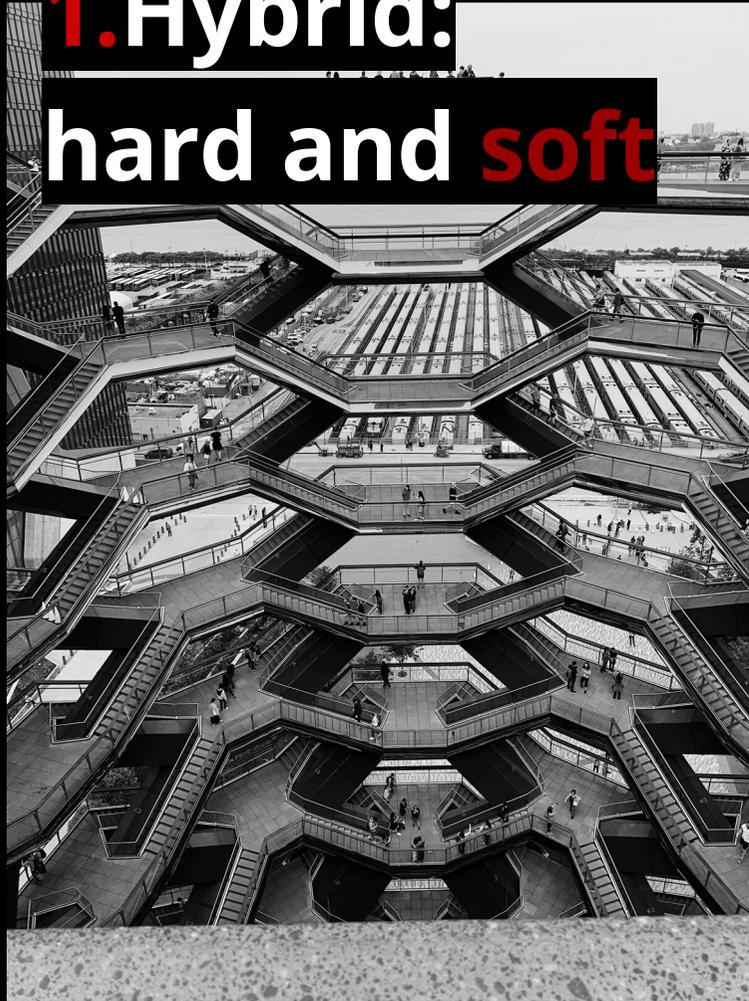
in a digital context

1. Beyond **technical**
skills: 'hybrid profiles'

2. Beyond **HE**
credentials?
Performance, actions,
'skills/vocational drift'

3. Beyond **deep** skills: -
the value of **holistic**
view and filling 'empty
spaces' between
complementary skills

1. Hybrid: hard and soft



Types of skills

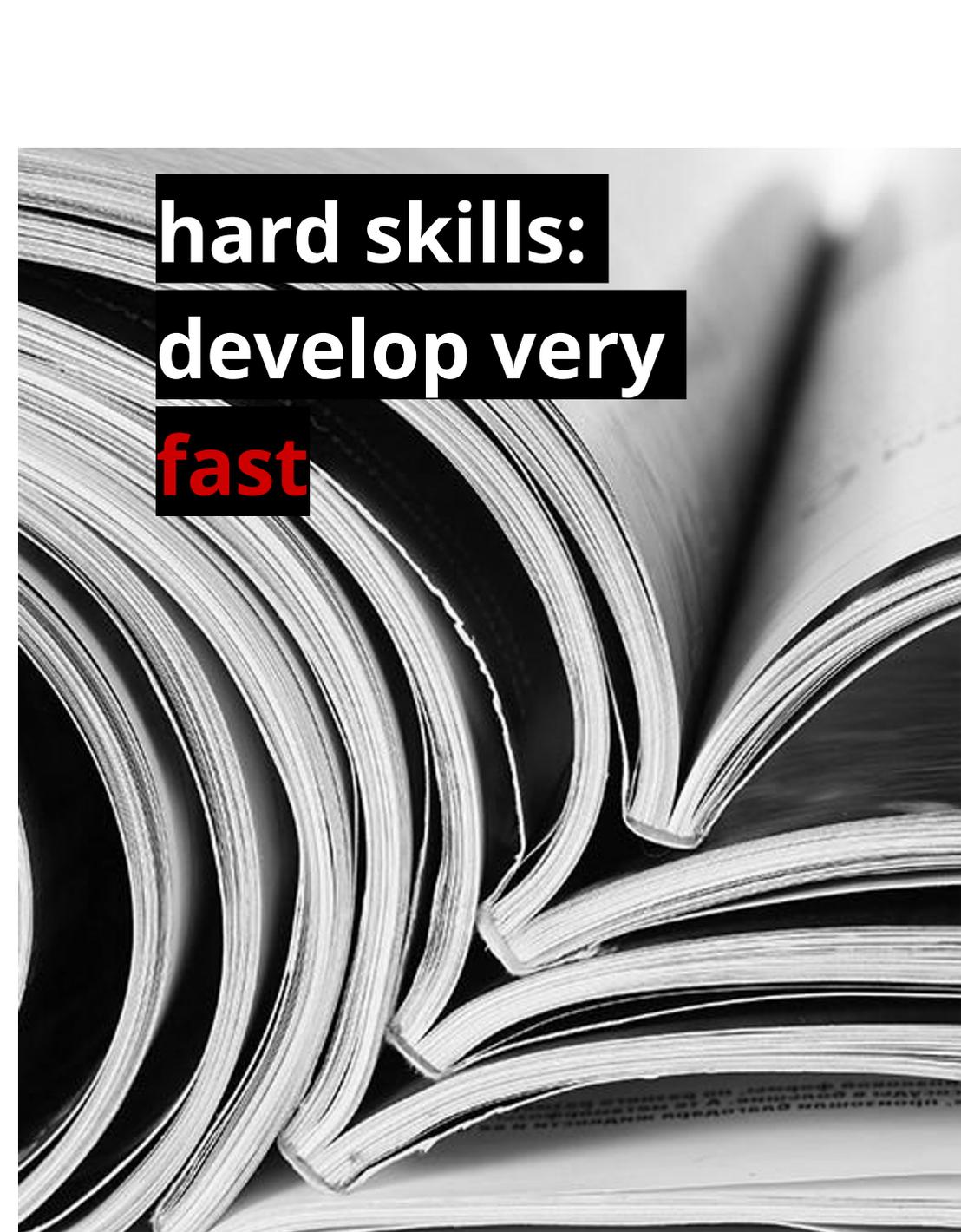
Software engineering, coding, machine learning, data analytics, AI, etc. **but also** 'human' skills like problem solving, adaptability, flexibility, dealing with uncertainty, creativity, entrepreneurship, curiosity, teamwork, communication, storytelling and a **growth mentality**,.

"biggest change in the last 10 years"
(Finnish Employer, Professional services)

1. Hard and soft

“Jobs that require both technical skills and some interpersonal skills, (...), those are the... **there's much more demand for those and those also sort of like pay a lot more** so we see sort of like demand for these sort of like **interpersonal traits** increasing over time and it's definitely **something that computers don't do very well**”

(German employer, IT).

A black and white photograph of a stack of books, with the pages of several books fanned out in the foreground. The text is overlaid on the top left of the image.

hard skills:
develop very
fast

“Yeah, I think the Finnish, like, **education system is excellent**, not only because it’s free, but it gives you some kind of context for thinking. **I appreciate the degrees very much myself**. But I think the challenge is, is that the development is **so fast nowadays** and it’s not only related to digitalisation, but **all industries** are moving quite fast”.

“In Finland, **we appreciate degrees**. But (...) in the areas where the digitalisation is quite rapid is that some of the things that you learnt can be outdated already when you graduate. And the **speed** of... of the **development is so huge.**”

(Finnish employers, Prof. Services and Manufacturing)

Contrast with German “hidden champions”?



soft skills **not** so
well covered

“We have also noticed ourselves that people straight from the universities, they are **really good with all the technology** (...). But what they are lacking, or what **they need to become better at in work life, is work life skills**. So how do you work in **stressful situations** and manage different pieces of your life?

Because work life and projects, **customer projects**, it's completely **new** for them (...). **Burnouts**, are horribly common, especially with junior people. **Traditional consultancy** companies like “X” and many others... many of them are American, and they are very competitive. So, they might take in a big number of people. And then they fire or lay them off after a couple of years. **We want are very different from that: enter the work life in a way that is sustainable.**”

(Finnish Employer, Professional services)



the role for
companies
mismatch

Continuous mismatch

“People who join us straight from university or after changing careers need training and specialisation. But **within a month** we can put them in projects”

“Even if you were a perfect match when we hired you in **one or two years** maybe you are going to still need to grow” (Finnish Employer, IT)

Room to Grow.

Company
culture



you don't have to be ready. In our opinion, you never have to be. This is how we learn and grow.

“You do not have to be ready”

The development of soft skills needs to be very holistic. Training is not enough: “So if you attend one self-leadership programme, most likely *that is not enough*”. You need, in addition, the *whole company culture and trust*. The most important way of learning is through work (on the job learning)”

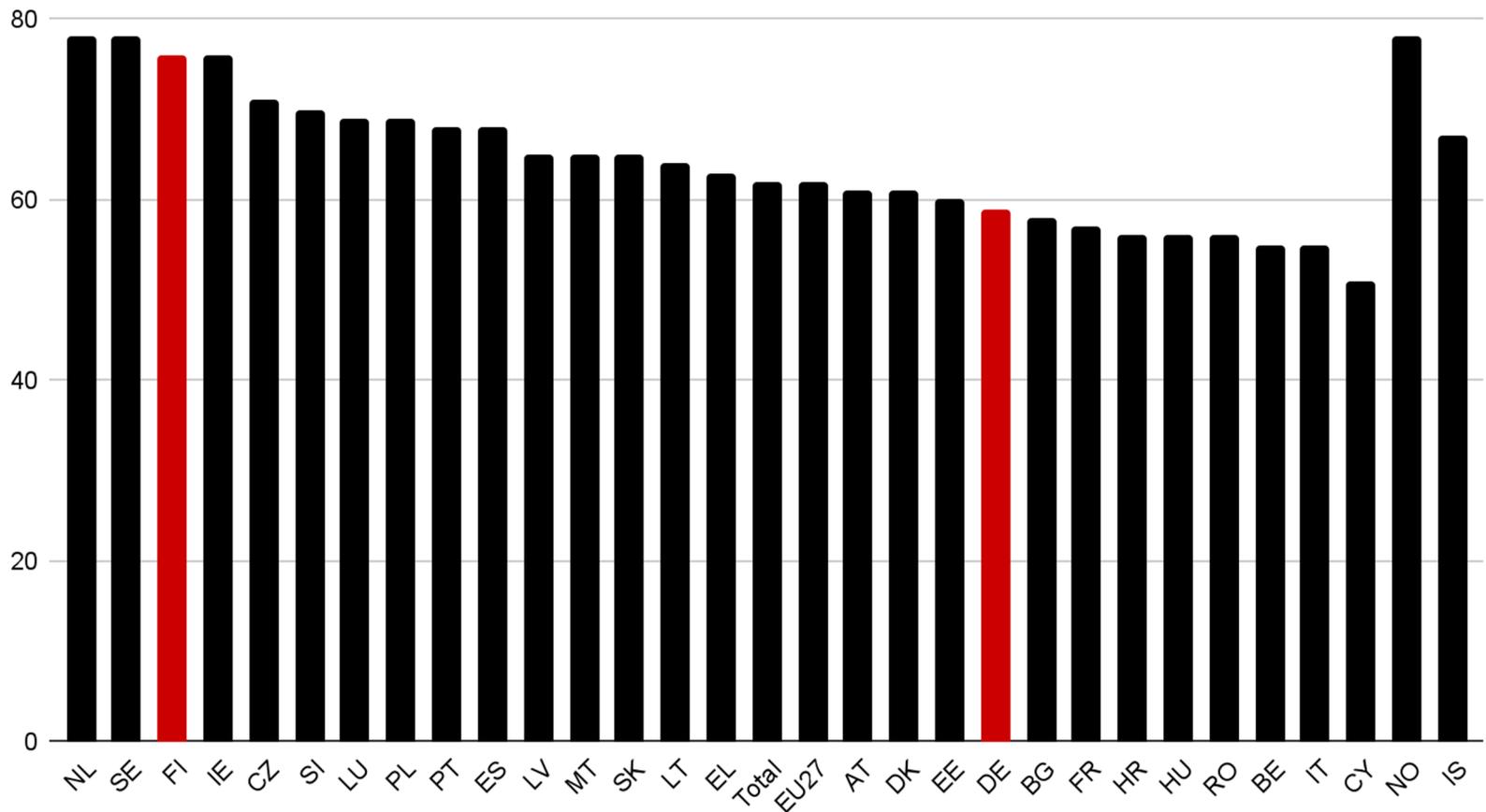
“And you need *slack time*”: “not like click, click, click” doing tasks all the time. You must also have time to breathe! (and *create* new ideas)

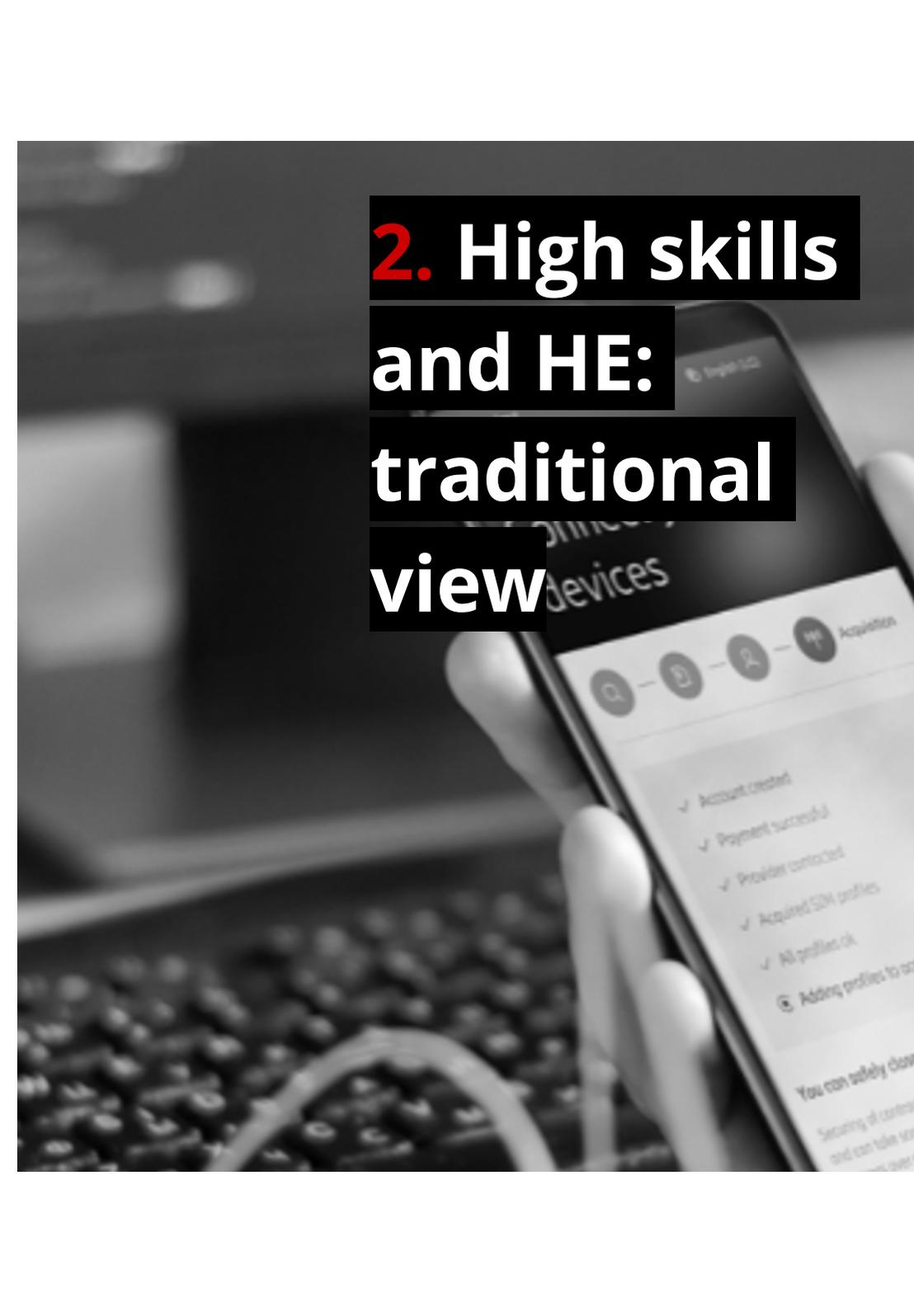
What to do? E&T

(ESJS2)

And a leader in tech related education and training

Any education and training to learn job related skills





2. High skills and HE: traditional view

At the same time, the demand for sort of like **high-skilled thinkers**, like coders or the labour market for sort of high skilled, sort of like the **engineers, coder, folks with higher education**.

Even with the unemployment rate at, what, I think 7%, 8%, what it is at the moment, even now there has been talk about **labour shortages** in sort of more high-skilled positions.

(...) So the big hope has been trying to bring in some sort of **apprenticeship models**, sort of like learning by doing types of models for **kids who don't... for kids who might, for one reason or the other, not like sitting in school** " (Finnish Employer, IT)



2. Alternative narrative: beyond HE

“It used to be about being a person coming up with intelligent thinking and new ideas, **but now it is also about actions**”

(Finnish Employer, Finance)

“We’ll never have so much money that we will be the leader of artificial intelligence. But **how we use it** — that’s something different”

Mika Lintilä, Economic Minister of Finland.
https://www.reaktor.com/?page_id=102694

“There has been a **blurring of boundaries** between blue and white collar employees, and more interaction between them”

(Finnish Employer, Manufacturing)

2. Beyond HE: performance & VET

“A degree from the best computer science department is good, but **it does not mean much for us**. Your Github profile means more to us. Or your portfolio for design roles.”

“**I think it should be switching**. I mean, and in our minds, it is switching. What we feel that we have to point quite often is that when we talk about **skilled people, we are not talking only about university education**. Also, people who get vocational education; their skills need to be improved too.”

(Finnish Employers, IT & Manufacturing)

VET graduates Finland **not more prone to risk of unemployment due to automation**, and no evidence that it is **more difficult** for VET graduates to adapt to **digital technologies** -Silliman and Virtanen (2019)



2. Beyond HE: European dilemmas

Obstacles: “In Germany VET offers computer science but companies do not use it, although there is not much difference; **it is not used enough and it is weird.** Perhaps it is **some kind of snobbery,** but it has to change.

One issue is that **we recruit all over Europe.** And it would be difficult to say: **in Germany** it is totally fine to opt for this position at **this paygrade with a VET qualification** but **in Barcelona or in this other place not,** because there is no really an **equivalent”.**

(German Employer, IT/ Logistics)



3. Beyond deep skills

75 + 75 is more than 100

“I think, and still to some extent today, you can... you can succeed **if you have a really deep knowledge in one topic**. But I’d say that if **instead of being 100 in certain topic, I’d say if you’re 75 in 2, I think that... that’d be more valuable** if... if the basic cognitive and behavioural skills are there.

So, basically, as we know, **innovations are... are always a combination”**

(Finnish Employer, Professional Services)



3. Beyond deep skills

“One thing that is shifting, (...) previously, you could be very deeply skilled in one area, and you had that very deep domain know... knowledge.

But that’s not enough anymore. So, now you need to have, maybe that deep skill, but also broader skill sets. Softer skills that are not digital skills directly but (...) are really vital in being..., what you would say, a top talent these days. And it’s not only university level degrees, but in also vocational.”

(Finnish Employer, Manufacturing)

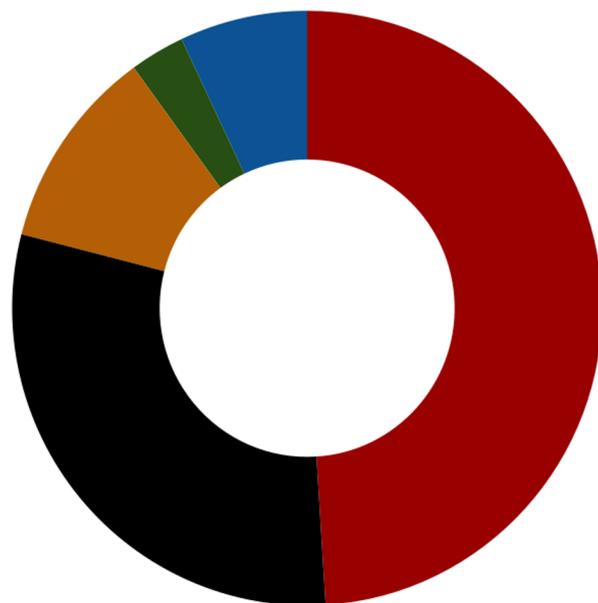
3. Beyond deep skills

“It is 100% different from what it was 10 years ago. When I look at our teams of **data analysis, data science, machine learning, artificial intelligence**, 10-15 years ago meant that you could **understand fully every algorithm** (...). You had to programme all of these things ourselves. Very close to the computer so, you honestly needed a higher education for that. **I had a PhD**, I am not sure whether you need a PhD, but there was really a lot of deeply technical, logical, theoretical stuff involved.

Nowadays if you look exactly at the same field (...) **it is a lot easier**. Now you need to understand **how to bring the business to the next level and to use all the tools that there are**, right? So all these **algorithms** that you had to work on yourself before **are just there**: you can use Python, (...) you just need to use the library. It is a lot easier.

The important thing nowadays is not to get into the deeply technical academic field of work but to **understand what the technology can do for you**, and how you can **exploit the technology** in the best way. (...).”

(German Employer, IT)



● Less than a week ● 1-4 weeks ● 1-6 months ● More than 6 months
● Still learning/DK

ESJS2

Time to learn!

Time to learn new digital skills
(computer programmes or computerised machine)

3. Takeaways



Takeaways

Important barriers to automation remain

People continue to be important for organisations. The future is about people as much as about machines.

Digital futures, not future

Different approaches to dealing with automation and different purposes for the use of digital technologies. Human replacing but also human-centric. Policy can help to shape those.

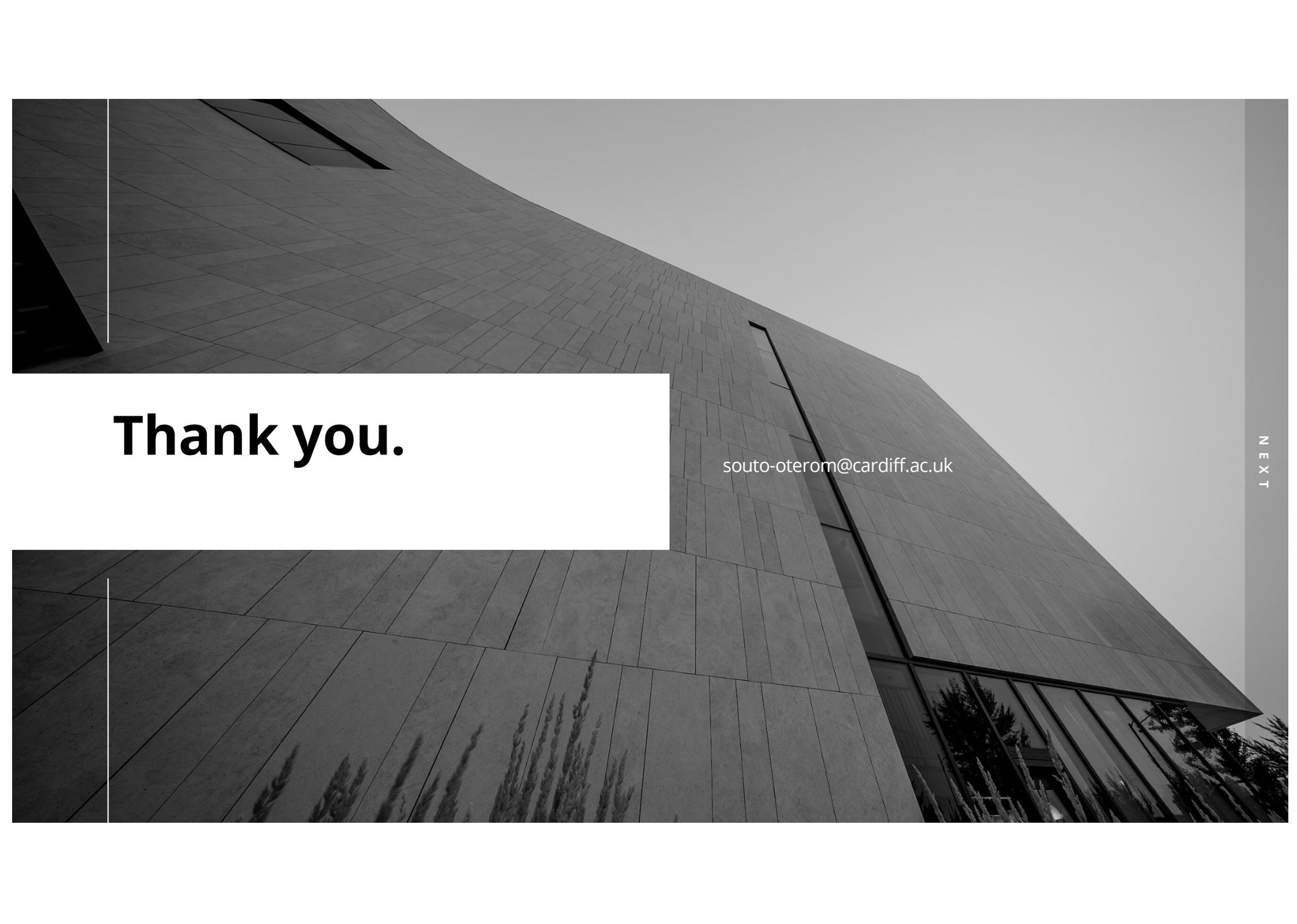


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Redefinitions of high skills in a digital context, with implications for individuals, organisations and policy

Beyond focus on technical
Beyond focus on higher education
Beyond deep skills mastery

Focus on application
Need for shared action in EU labour market



Thank you.

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