

# Absorptive capacity in UK business

## Challenges and opportunities presented by Brexit

27 June 2017



# What is absorptive capacity and why does matter?

What is Absorptive capacity?

The ability of a firm to acquire relevant external knowledge, transform existing practices, and exploit these new capabilities for commercial ends

Why does it matter?

- A firm's absorptive capacity has been strongly linked with improved performance, including productivity growth
- Specifically, research has shown that investment in digital technology requires complementary investment in skills and organisational change to deliver benefits in terms of productivity

Why are we talking about it today?

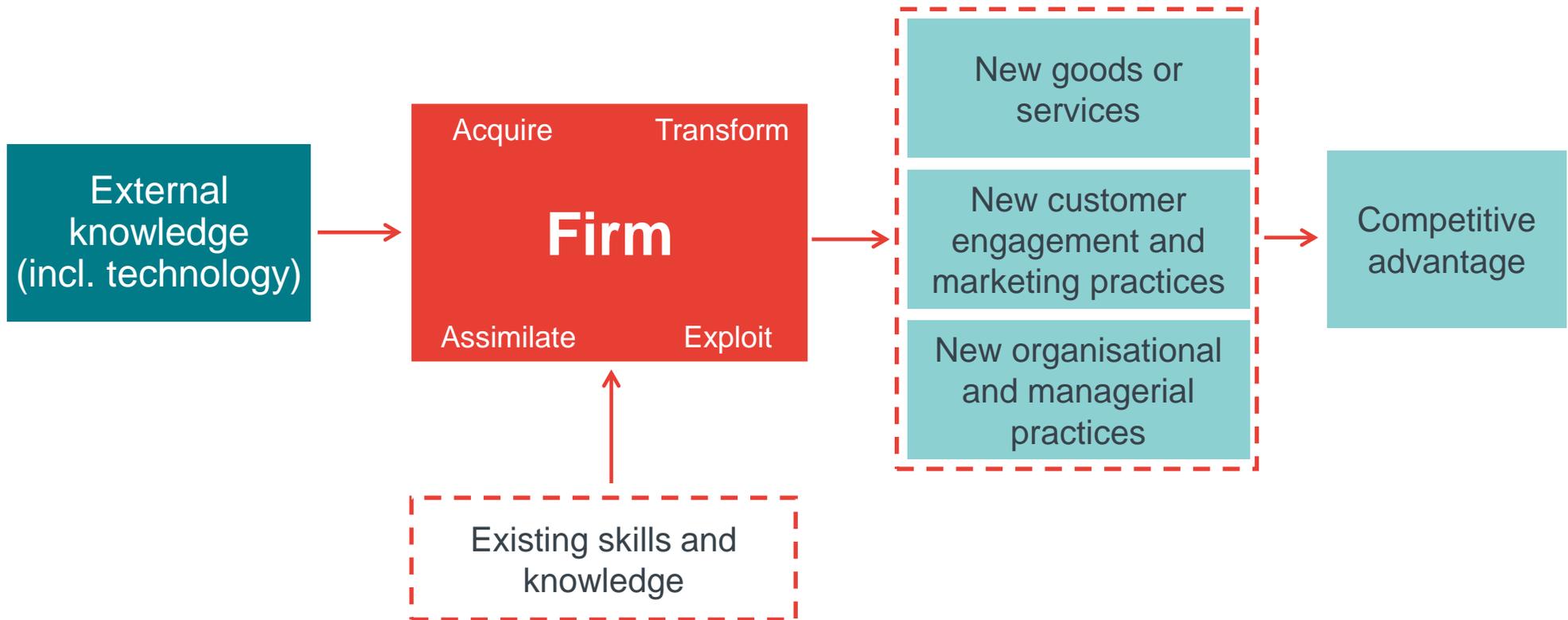
- Evidence suggests that a number of factors may be limiting the absorptive capacity of UK business
- Policy can play a role in fostering absorptive capacity
- Brexit affects many of the relevant policy areas

Key academic literature:

Bresnahan, Timothy F., Erik Brynjolfsson, and Lorin M. Hitt (2002), "Information technology, workplace organization, and the demand for skilled labor: Firm-level evidence", *The Quarterly Journal of Economics* 117(1), pp. 339-376

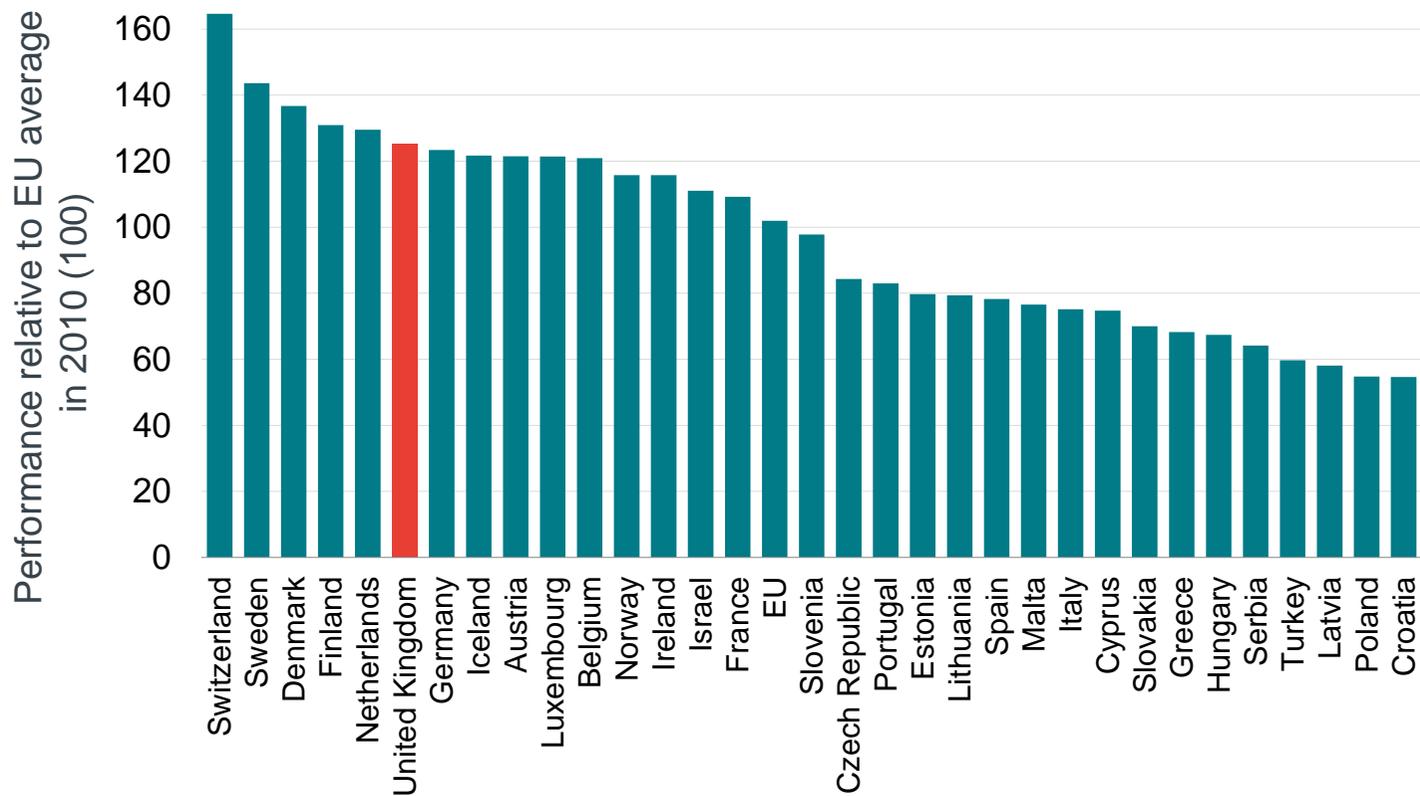
Zahra, Shaker A. and George, Gerard (2002), "Absorptive Capacity: A Review, Reconceptualization, and Extension", *Academy of Management Review*, 27(2), pp. 185-203

# A model of absorptive capacity



# The UK is close to the best countries in Europe in terms of innovation capacity..

- There is no universally agreed way to measure absorptive capacity – some of our work attempts to do so at national level
- The European Innovation Scoreboard includes relevant concepts, including data on skills, linkages, availability of finance



Source: European Innovation Scoreboard, 2017

## ...But there are issues in specific areas

### Skills

- Nearly 30% of working age adults in England have low literacy and numeracy skills, well above most countries in the OECD<sup>1</sup>
- Low numeracy also affects a relatively large proportion of university graduates
- Increasing demand for digital skills across the labour market

### Management

- Absorptive capacity requires organisational flexibility, and may be highest where it is embedded in organisational routines
- Recent academic research<sup>2</sup> finds that management practices in UK manufacturing, on average, are worse than in the US, Germany and France

### Divergence across firms

- The relatively slow growth of productivity in recent years masks differences between firms, with the globally most productive pulling away from the rest<sup>3</sup>
- Our research on the creative industries<sup>4</sup> suggests a number of factors limiting the absorptive capacity of many smaller firms

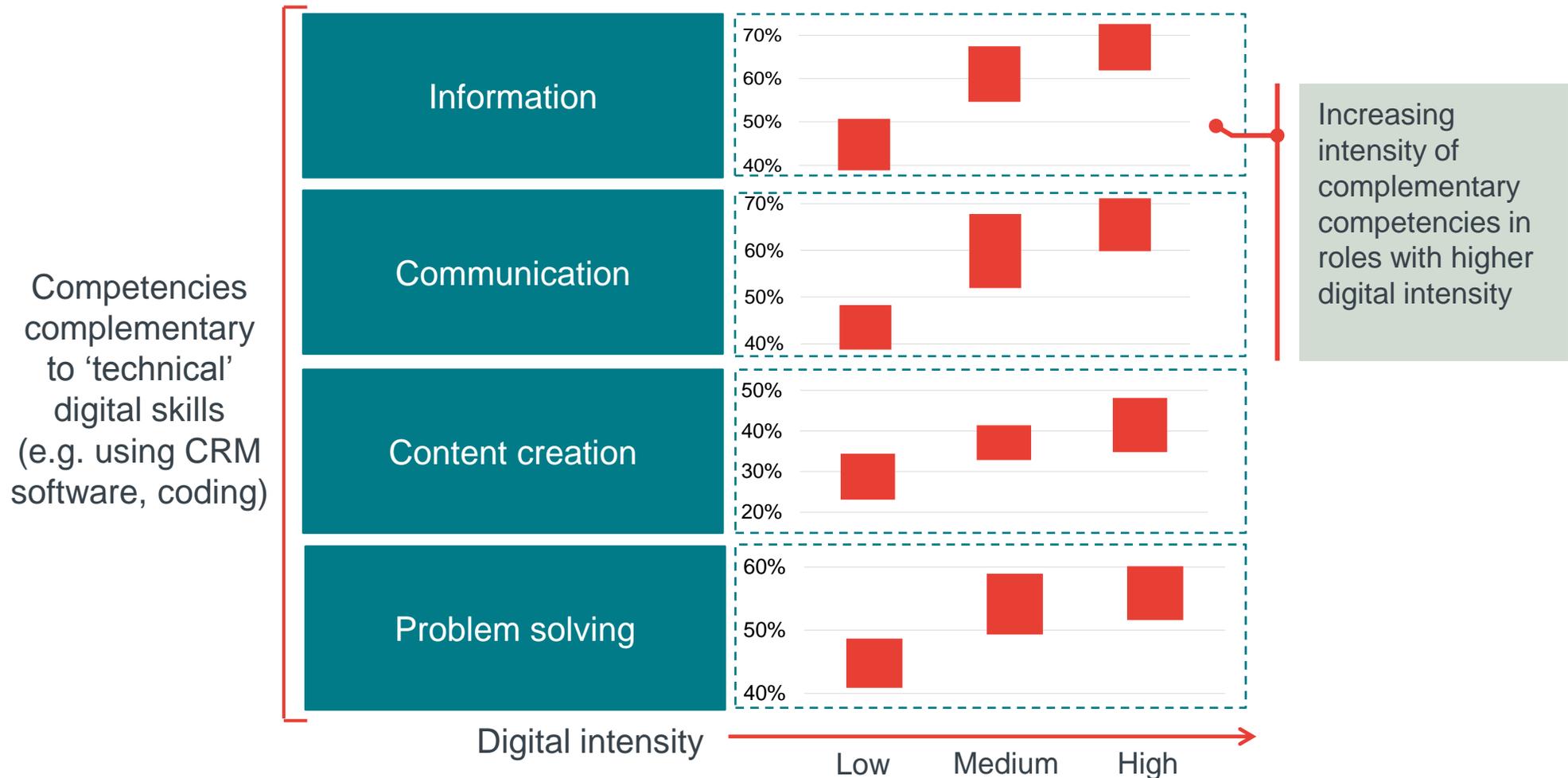
1. Source: OECD Survey of Adult Skills (PIAAC), 2012

2. Bloom, N. and Van Reenen, J. (2007), "Measuring and explaining management practices across firms and countries, *Quarterly Journal of Economics*

3. Andrews, D., Criscuolo, C. and Gal, P., (2015), "Frontier firms, technology diffusion and public policy: Micro evidence from OECD countries ", OECD Publishing.

4. Frontier Economics (2016), "Absorptive Capacity – Boosting productivity in the creative industries", [report](#) prepared for Channel 4

# Digital skills include not only 'technical' skills, but also a broader set of complementary competencies

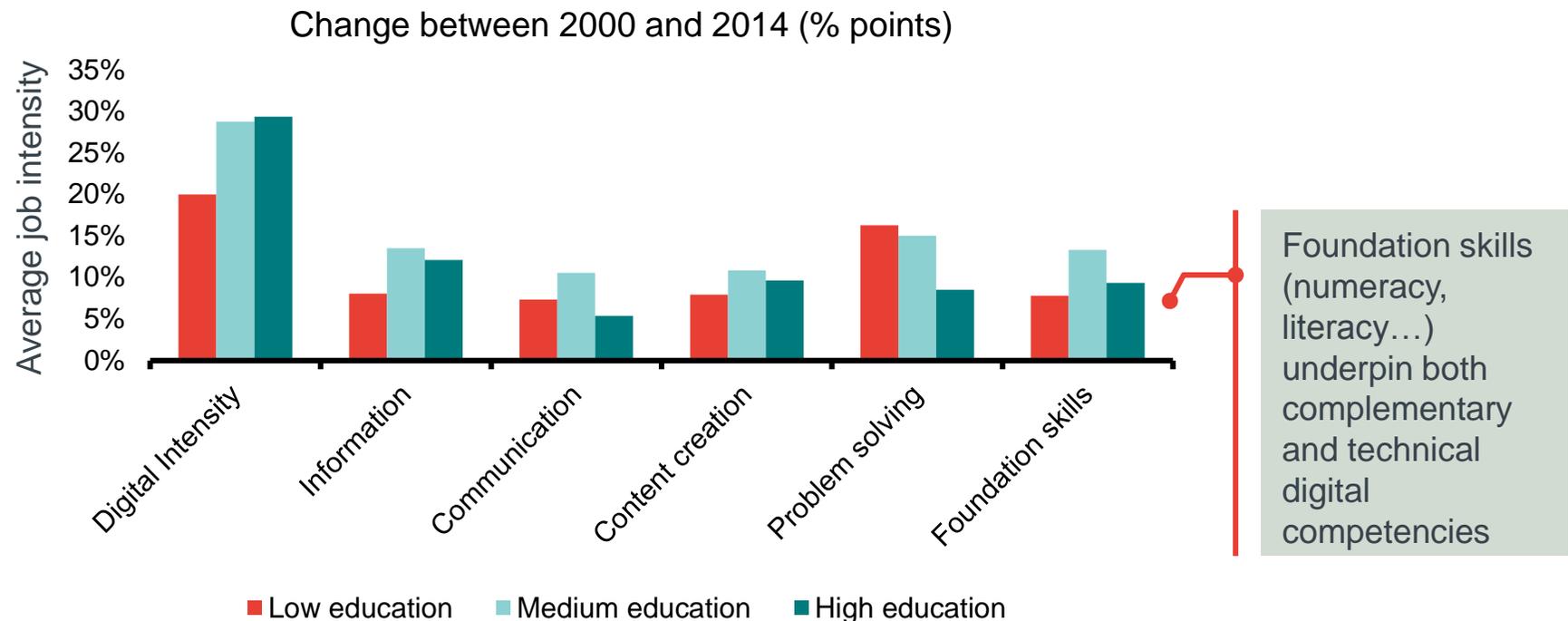


Sources: Frontier Economics analysis, based on:

1) Framework for systematising digital skills: Digital Competence Framework, European Commission, and Chinien (2011), "Defining essential digital skills in the Canadian workplace"; 2) Data on skills used at work from Occupational Information Network (O\*NET) dataset, United States Bureau of Labor Statistics, 2014

# The demand for complementary competencies is growing over time, not only in high education jobs

- The chart below shows how digital intensity and requirements for complementary competencies have changed between 2000 and 2014
- Digital intensity and complementary requirements have grown substantially, across all levels of education required to perform a given job



Note: 'intensity' defined as the combination of frequency and proficiency of relevant skills used in each occupation.

Low education: up to secondary education diploma (high school); Medium: undergraduate degree; High: postgraduate university degree and others.

Source: Frontier Economics analysis of data on skills used at work and educational requirements from Occupational Information Network (O\*NET) dataset, United States Bureau of Labor Statistics, 2014

# A number of challenges and opportunities influenced by Brexit

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## Skills

- Skilled immigration and education of local workforce are **not** substitutes: foreign skilled workers are likely to complement, not substitute for, UK workers
- Education systems are likely to be slow to change
- We may need more research to understand how they *should* change

## Infrastructure (physical and digital)

- Physical: connectivity is obviously important, but transport and housing are also key to delivering agglomeration, which can boost innovation and its adoption
- Regulation on consumer data and privacy will be key – but not clear what scope for the UK to diverge from EU General Data Protection and ePrivacy regulations

## Sector-specific issues

- Sector-specific issues may have broader implications:
  - Digital technology is an increasingly important input into many sectors of the economy
  - Conversely, developments that affect negatively one large sector (for example, finance) may have repercussions on others

## Potential areas for discussion/research

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- What skills are complementary to digital technology and how is that changing? What does this imply for education, particularly further education?
- What are the most productive firms doing well? What are the barriers to the diffusion of innovation and technology? Is there a role for policy in supporting absorptive capacity?
- What is the optimal regulatory approach to consumer data and privacy in the UK?



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