

Some recent evidence from the R&D Scoreboard (EC-JRC)

On

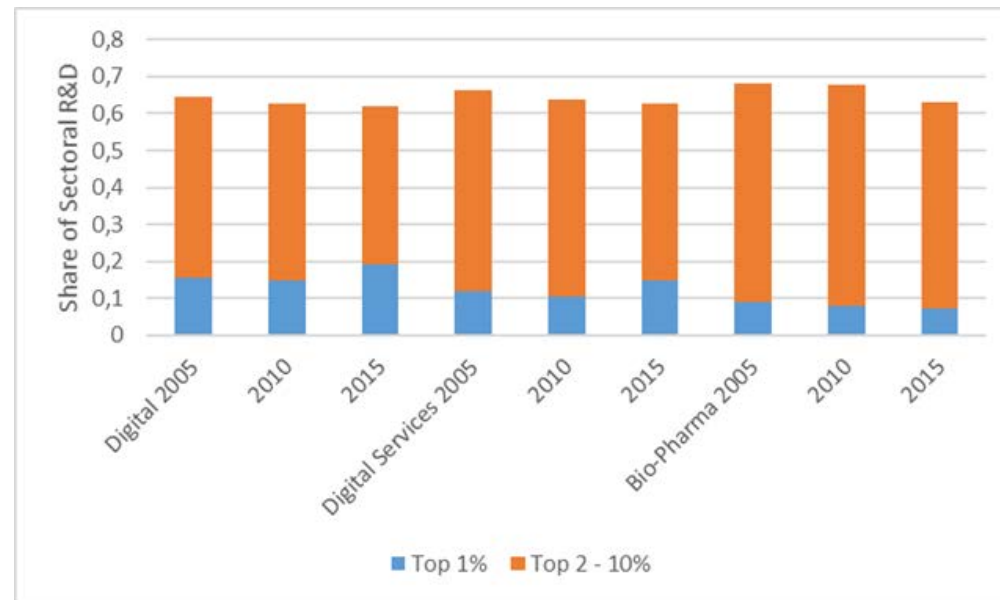
Trend in concentration of the corporate digital innovation
landscape? Winner-take-all?

EU's position at the corporate digital innovation landscape

Veugelers, R., 2018, Are European firms falling behind in the global corporate research race?
Bruegel Policy Contribution 18-06, Bruegel, Brussels.
Downloadable at www.Bruegel.org

High concentration of R&D in digital (>60% by Top10%),
but not increasing over time,
Top1% share in digital services has been increasing recently

Trends in R&D Concentration: by Sector;



Source: Bruegel calculations on the basis of EC-JRC-IPTS R&D scoreboard data, various years, time comparable sample

In general, persistency in R&D leadership
 ICT Services much more turbulence in leadership

Persistency in R&D Leadership; By Sector

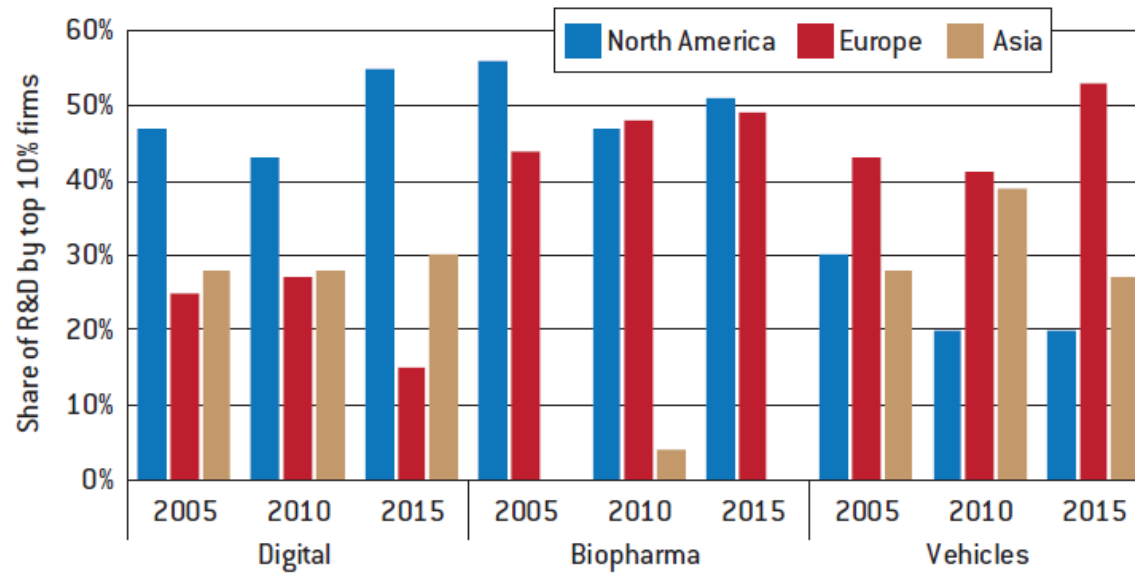
	Probability to be TOP 10% in 2015				
	All Sectors	ICT (All)	ICT Services	BioPharma	Vehicles&Parts
TOP 10% in 2005	65%	52%	31%	86%	89%

	Share of sector R&D 2015				
	All sectors	ICT	ICT Services	BioPharma	Vehicles&Parts
Top 10% in 2005	50%	48%	29%	63%	56%
Persistent Top 10%	47% (6% of Cies)	43% (5% of Cies)	48% (4% of Cies)	54% (7% of Cies)	54% (8% of Cies)

Source: Bruegel calculations on the basis of EC-JRC-IPTS R&D scoreboard data, time-comparable sample (N=1337 for all; N=466 for ICT, 137 for ICT services, 145 for BioPharma, 99 for Vehicles&Parts)

The EU falling behind at the digital R&D frontier

Figure 10: Share of country/region in top 10 percent R&D spending, by sector



Source: Bruegel on the basis of EC-JRC-IPTS R&D scoreboard data. Note: numbers are calculated from the time-comparable subsample, which has 202 biopharma firms, 466 digital firms and 99 vehicles firms.

From New Digital Technology Creation
to New Digital Technology Adoption

Some recent evidence from the EIB Digital survey

On

An EU-US digital divide?

A growing divide between digital leaders and digital laggards?

A firm composition (size-age) divide?

Joint ongoing work with Désirée Ruckert and Christophe Weiss (EIB)

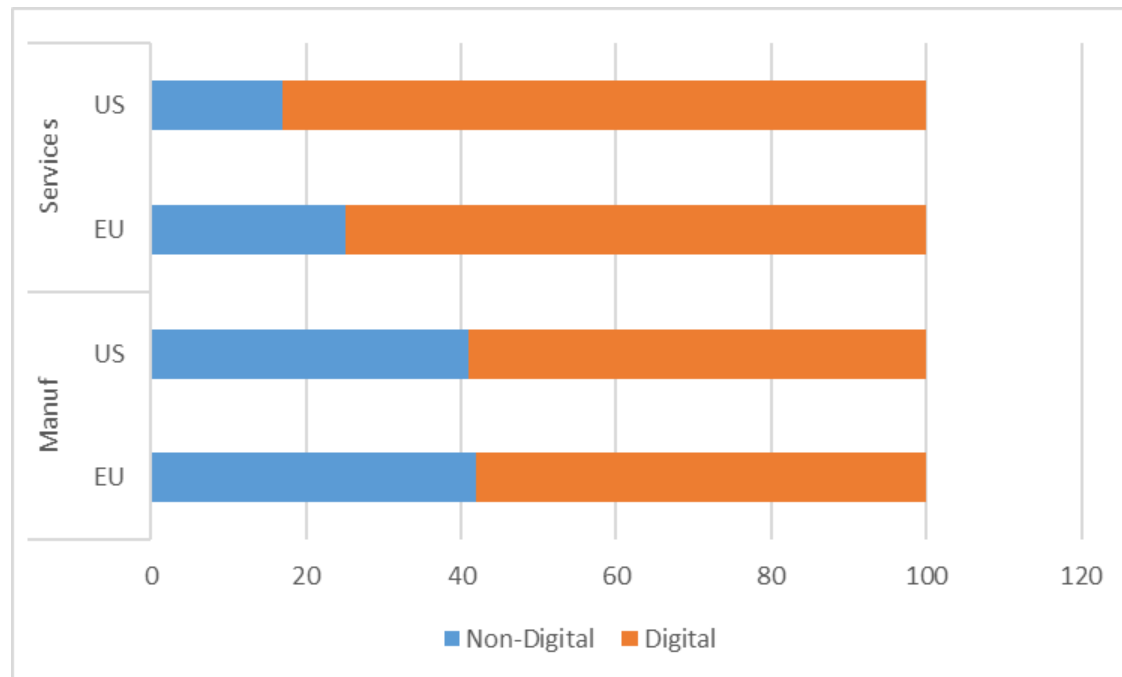
1700 Survey firms (2018):

EU and US; at least 5 empl, stratified by industry (manuf-services, size class and region)

Who is implementing new digital technologies?

New digital technologies in Manufacturing: 3D printing, Robotics, IoT, Big Data & Analytics (BD&A)

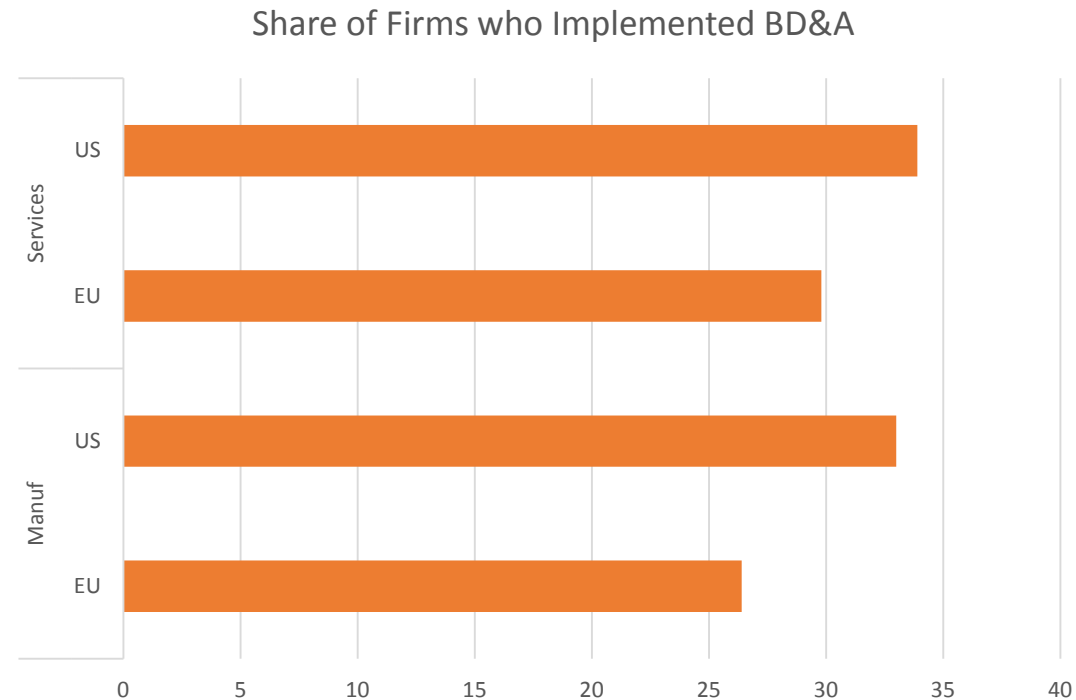
New digital technologies in Services: Automation of internal routines, web based applications for marketing & sales, providing services over the internet, Big Data & Analytics (BD&A)



Source: EIB Digital Survey (2018)

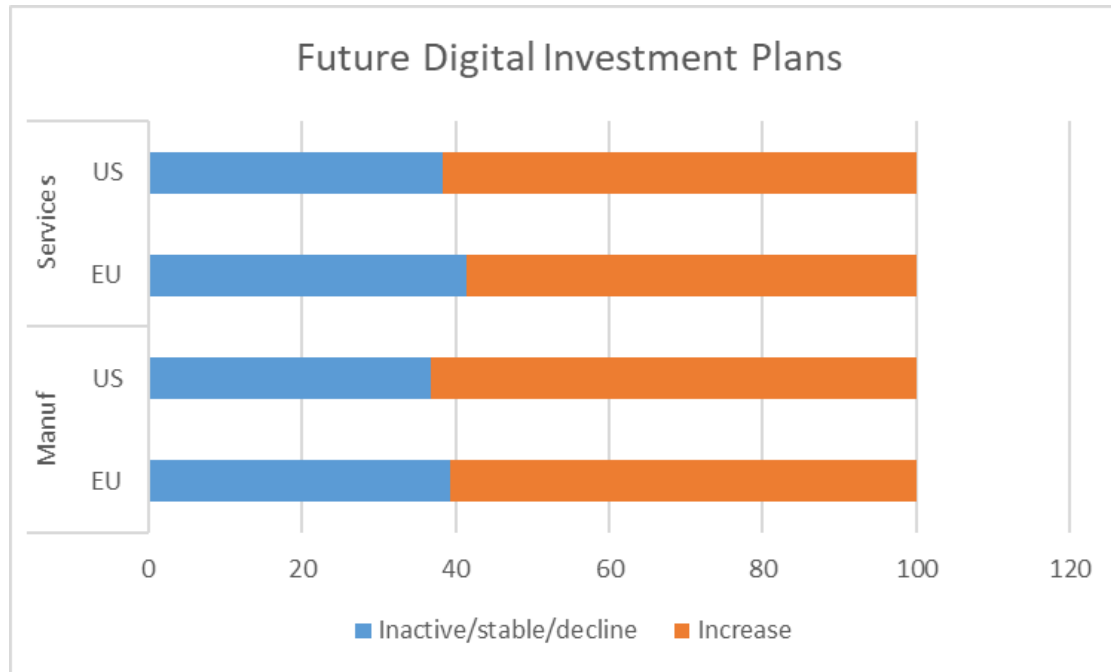
EU businesses are not so much less implementing new digital technologies than the US

But on Big Data & Analytics Adoption, the US seems to be somewhat faster than EU



Source: EIB Digital Survey (2018)

Who is more likely to increase investments in digital technologies in the near future?



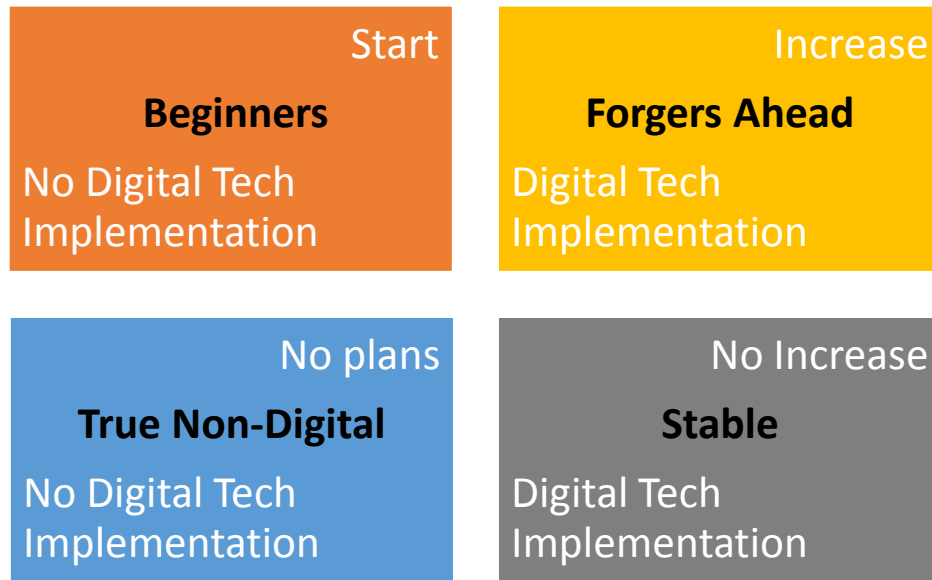
Source: EIB Digital Survey (2018)

Only minor EU lagging behind US on planned investments in new digital technologies

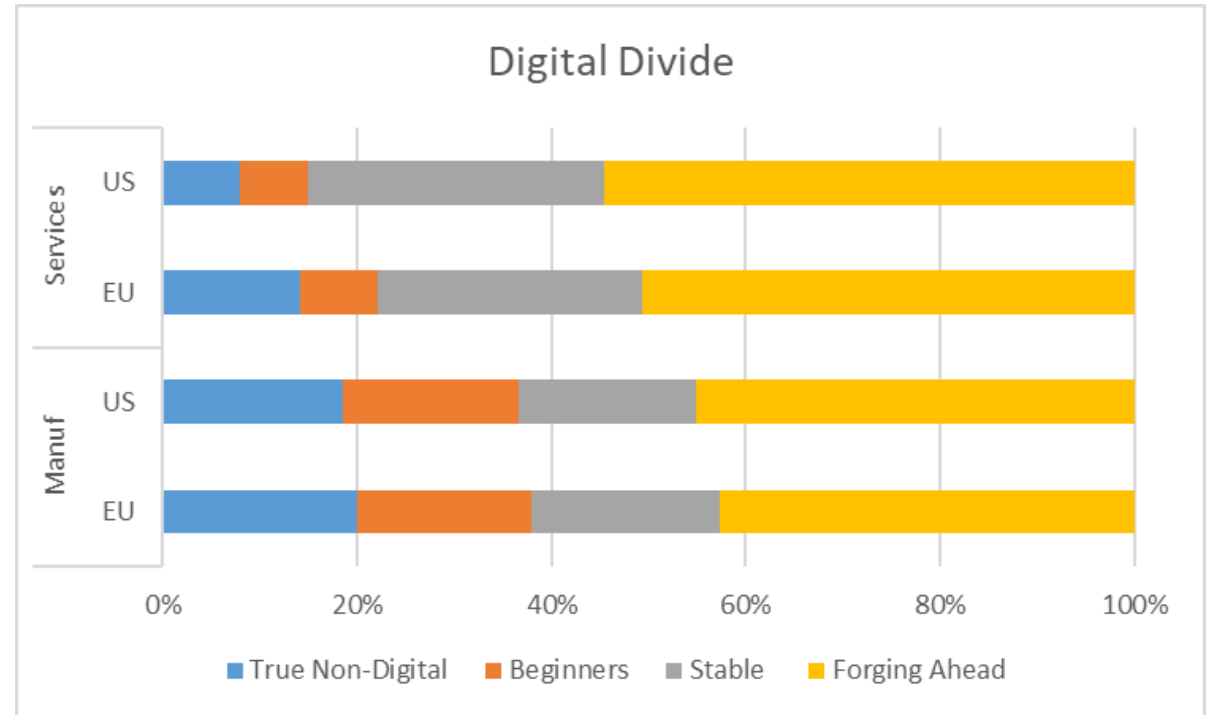
NB: no significant difference EU-US in econometrics, controlling for sector, size&age

OLD-SMALL significantly less likely to increase digital investments in future

Evidence on a growing digital divide: non-digitally stuck firms and forging ahead



Source: EIB Digital Survey (2018)



EU has more "truly non-digital" than US in services; small differences in manufacturing

Econometric Evidence on growing digital divide:

What type of firms are more likely to be “Truly Non-Digital?”

Almost one third of “old-small” (45% of sample firms) are “Truly Non-Digital”

- Those that already digitally active are significantly more likely to increase their digital investments in future
- Old-small firms are less likely to increase their digital investments in future
 - This holds among non-digitally active: probability to “begin”
 - This holds among digitally active: probability to “forge ahead”
- No significant difference between EU/US and manufacturing/services
 - Any EU/US difference would be due to a composition effect: old-small firm burden

Why do/should we care?

Truly non-digital firms are also:

- more likely to be non-innovation active
- to have lower labour productivity & TFP
- to have lower mark ups
- less likely to expand employment

How could we care?

Truly non-digital firms are less likely to see (major) obstacles for digitally investing

- NB: Access to skills always scores highest as obstacle, followed by uncertainty and in the EU by business regulations

One exception: access to (external) finance

Access to external finance as **major** barrier to digital investments

- Significantly higher for non-digitally active firms (truly non-digital as well as beginners)
- Significantly higher for EU firms
- Significantly higher for young, small firms (° 15%)