University of Ljubljana SCHOOL OF ECONOMICS AND BUSINESS

Intangible investment as part of proactive strategy to catching up with the developed

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Data on intangible investment collected in cooperation with all participating partners in the Globalinto survey

GLOBALINTO

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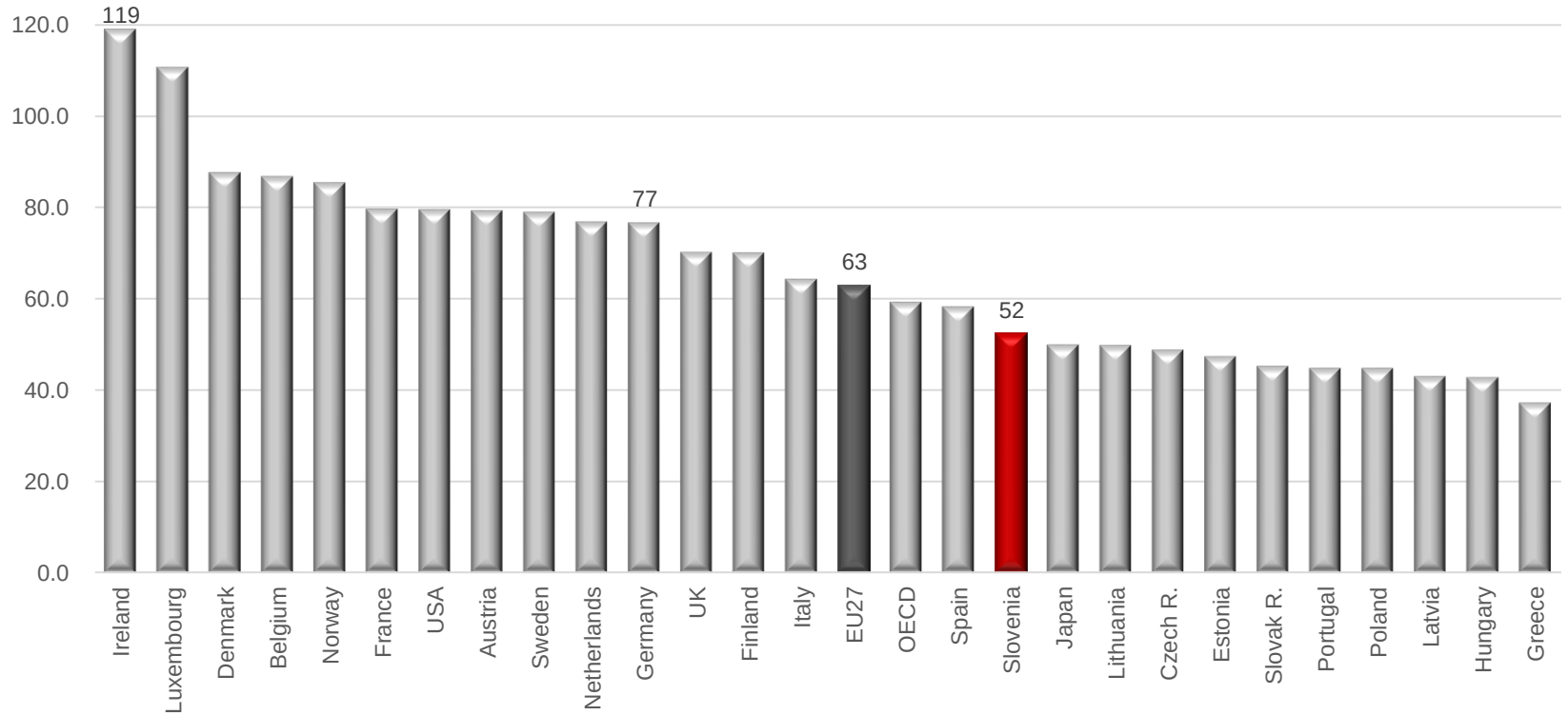
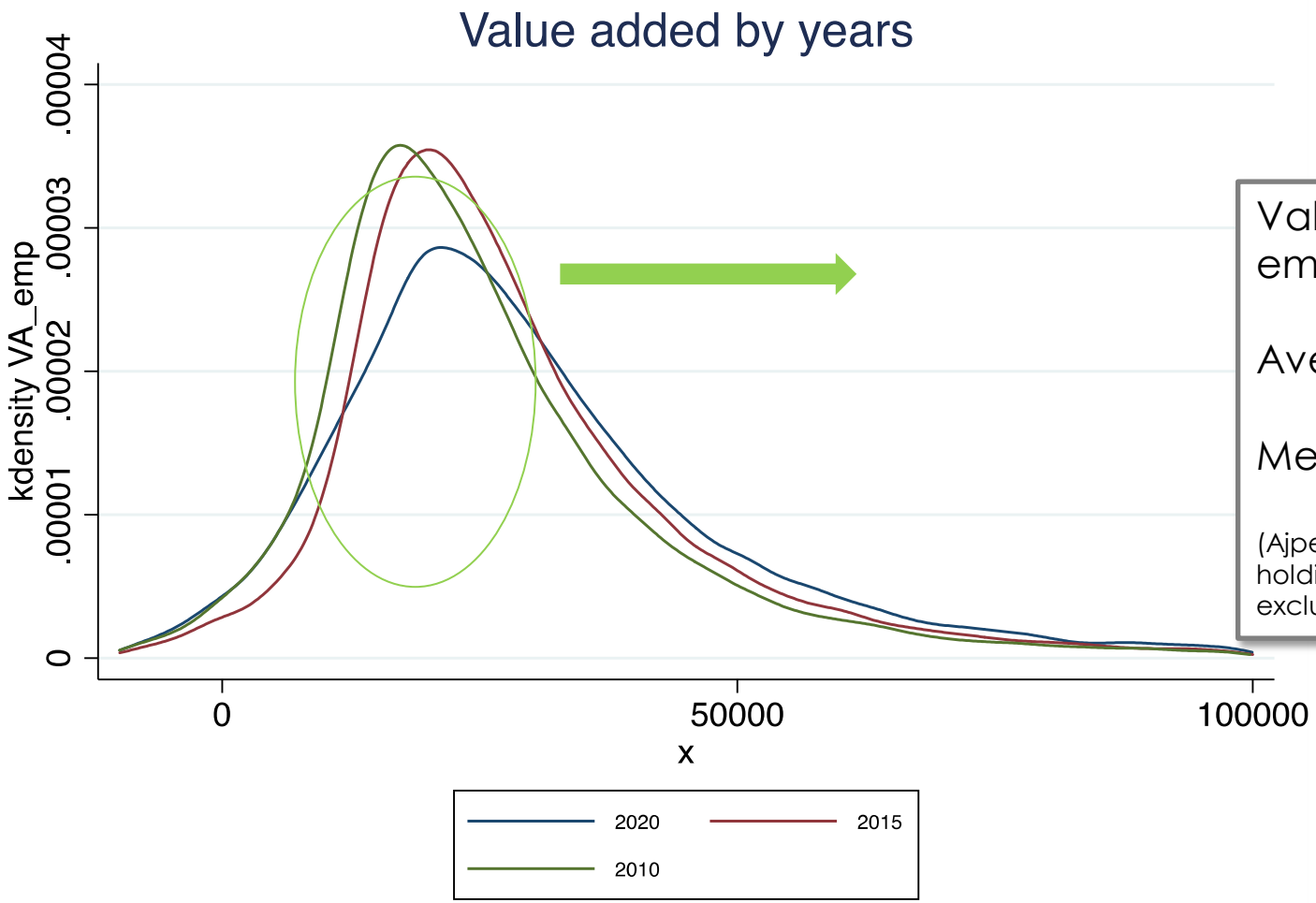
The challenge of productivity gap and catchup

GDP per hour worked in 2020 in selected countries

(Data: OECD, 2022)



"*The lion's share of productivity growth in most nations comes not from changing the sectoral mix to higher-productivity industries, but from all industries, even low productivity ones, boosting their productivity (…)*". (Atkinson, 2013)



Value added per employee in 2020:

Average: 49100

Median: 27480

(Ajpes data, 2021, sole proprietors, holdings and public organizations excluded)

Motivation

Successful companies do not just invest more, they behave differently.

This “behaviour” inherently is also intangible. And is also in a way corporate capital.

And laggard companies?

Motivation

Successful companies do not just invest more, they behave differently.

Crisis?

Offensive strategy	Defensive strategy
new markets new innovative products push foward, seek solution	cut cost, cut employment

Motivation

PROACTIVE BEHAVIOUR

- "*to bring about change in their current organisation*" (Brege & Kindström, 2020)
- "*Making things happen*" (Parker et al., 2010)
- expected competitive advantage, market-share increase, revenue growth (Čater et al., 2019)

REACTIVE BEHAVIOUR

- required reactions to the pressures from the outside / inside the firm.

Intangible capital (Corrado et al., 2006)

- Computerized information
  - Computer software
  - Computerized databases
- Innovative property
  - Science and engineering R&D (costs of new products and new production processes, usually leading to a patent or license)
  - Mineral exploration (spending for the acquisition of new reserves)
  - Copyright and license costs (spending for the development of entertainment and artistic originals, usually leading to a copyright or license)
  - Other product development, design, and research expenses (not necessarily leading to a patent or copyright)
- Economic competencies
  - Brand equity (advertising expenditures and market research for the development of brands and trademarks)
  - Firm-specific human capital (costs of developing workforce skills, i.e., on-the-job training and tuition payments for job-related education)
  - Organizational structure (costs of organizational change and development; company formation expenses)

Focused on finding the best investment-mix, investing more

Identifying proactive/reactive behaviour

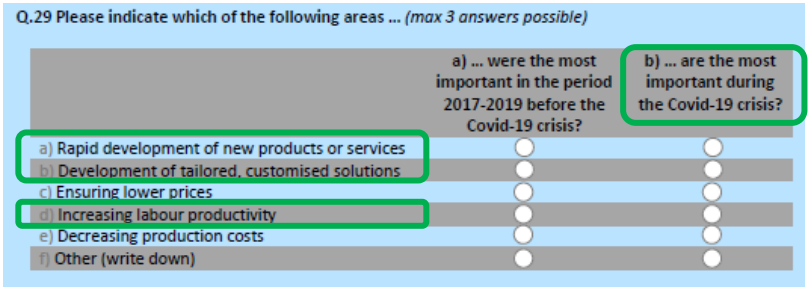
1. Questionnaire

2. Clustering
   (2 clusters)

3. Separately for Slovenia and EU

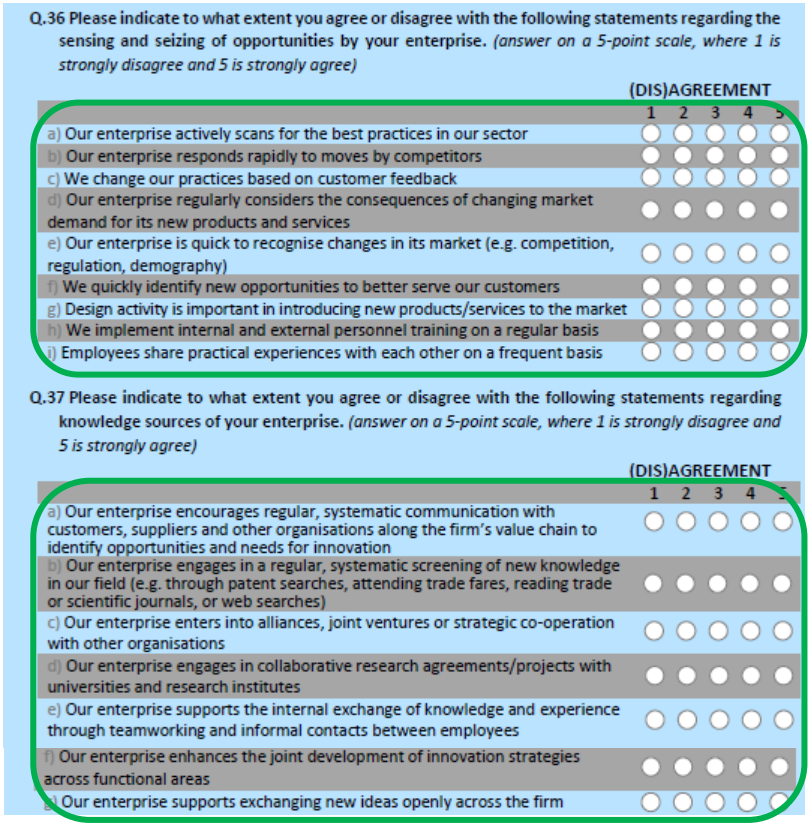
4. Manufacturing vs. services

5. Studied sample for Slovenia in more detail (data availability)



Q.29 Please indicate which of the following areas ... *(max 3 answers possible)*

	a) ... were the most important in the period 2017-2019 before the Covid-19 crisis?	b) ... are the most important during the Covid-19 crisis?
a) Rapid development of new products or services	○	○
b) Development of tailored, customised solutions	○	○
c) Ensuring lower prices	○	○
d) Increasing labour productivity	○	○
e) Decreasing production costs	○	○
f) Other (write down)	○	○



Q.36 Please indicate to what extent you agree or disagree with the following statements regarding the sensing and seizing of opportunities by your enterprise. *(answer on a 5-point scale, where 1 is strongly disagree and 5 is strongly agree)*

	(DIS)AGREEMENT 1	2	3	4	5
a) Our enterprise actively scans for the best practices in our sector	○	○	○	○	○
b) Our enterprise responds rapidly to moves by competitors	○	○	○	○	○
c) We change our practices based on customer feedback	○	○	○	○	○
d) Our enterprise regularly considers the consequences of changing market demand for its new products and services	○	○	○	○	○
e) Our enterprise is quick to recognise changes in its market (e.g. competition, regulation, demography)	○	○	○	○	○
f) We quickly identify new opportunities to better serve our customers	○	○	○	○	○
g) Design activity is important in introducing new products/services to the market	○	○	○	○	○
h) We implement internal and external personnel training on a regular basis	○	○	○	○	○
i) Employees share practical experiences with each other on a frequent basis	○	○	○	○	○

Q.37 Please indicate to what extent you agree or disagree with the following statements regarding knowledge sources of your enterprise. *(answer on a 5-point scale, where 1 is strongly disagree and 5 is strongly agree)*

	(DIS)AGREEMENT 1	2	3	4	5
a) Our enterprise encourages regular, systematic communication with customers, suppliers and other organisations along the firm's value chain to identify opportunities and needs for innovation	○	○	○	○	○
b) Our enterprise engages in a regular, systematic screening of new knowledge in our field (e.g. through patent searches, attending trade fares, reading trade or scientific journals, or web searches)	○	○	○	○	○
c) Our enterprise enters into alliances, joint ventures or strategic co-operation with other organisations	○	○	○	○	○
d) Our enterprise engages in collaborative research agreements/projects with universities and research institutes	○	○	○	○	○
e) Our enterprise supports the internal exchange of knowledge and experience through teamworking and informal contacts between employees	○	○	○	○	○
f) Our enterprise enhances the joint development of innovation strategies across functional areas	○	○	○	○	○
g) Our enterprise supports exchanging new ideas openly across the firm	○	○	○	○	○

Division of companies (SI, *N*=207)

REACTIVE MANUFACTURING

69 companies

Value added per employee
38.6 thousand euros

167 employees (Me=67)

Export oriented (55% sales)

Reactive behaviour in the sample dominant in industries C10, C15, C22, C23, C26

PROACTIVE MANUFACTURING

52 companies

Value added per employee
53.8 thousand euros

361 employees (Me=96)

Export oriented (64% sales, Me=77%)

Proactivity in the sample dominant in industries C20, C27, C28, C29, C30

REACTIVE SERVICES

40 companies

Value added per employee
54.4 thousand euros

171 employees (Me=49)

Export oriented (23%, Me=6.8%)

Reactive behaviour in the sample dominant in industries D35, G46, M71, M73

PROACTIVE SERVICES

46 companies

Value added per employee
64.8 thousand euros

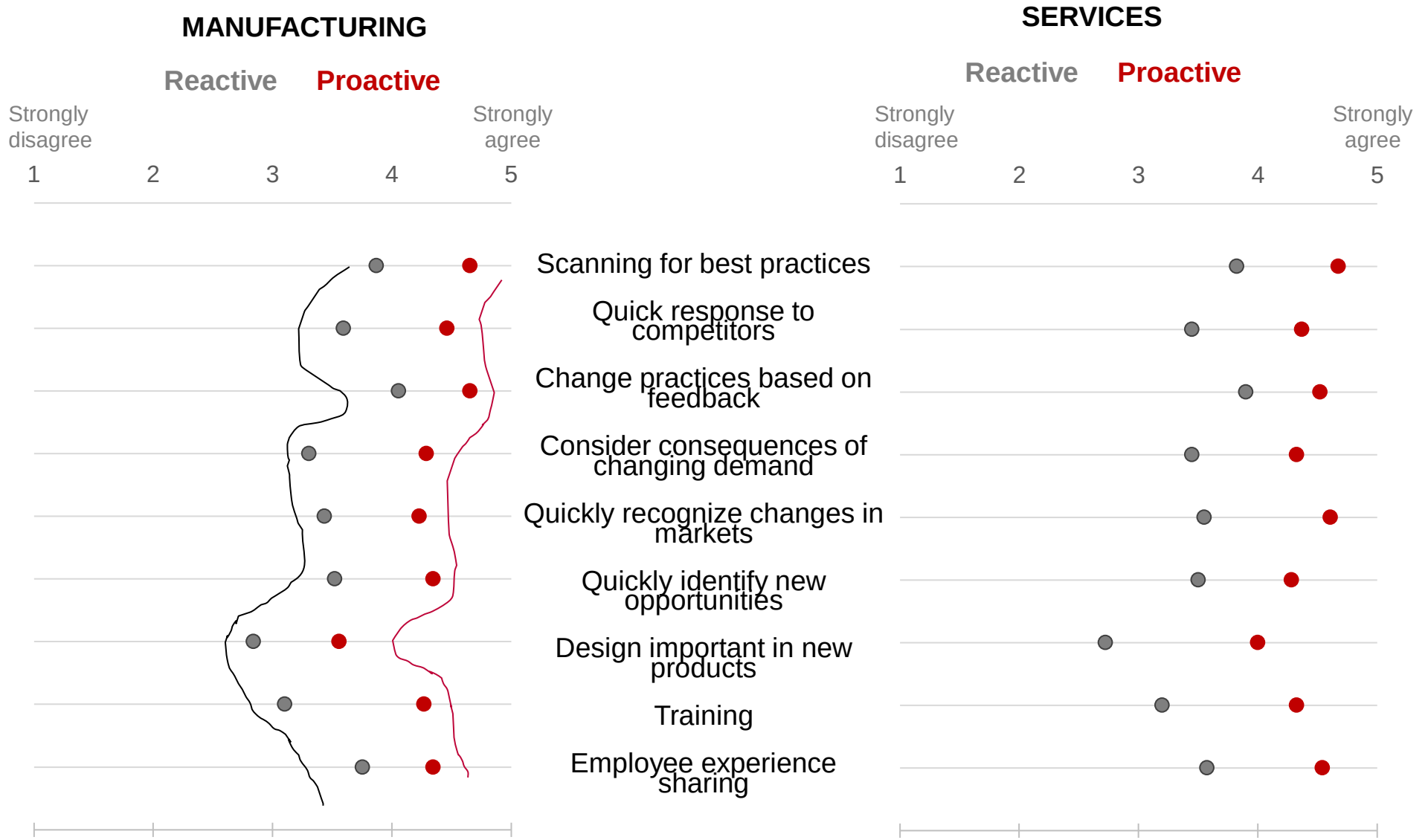
299 employees (Me=50)

Export oriented (25%, Me=9.7%)

Proactivity in the sample dominant in industries G47, J62, M72

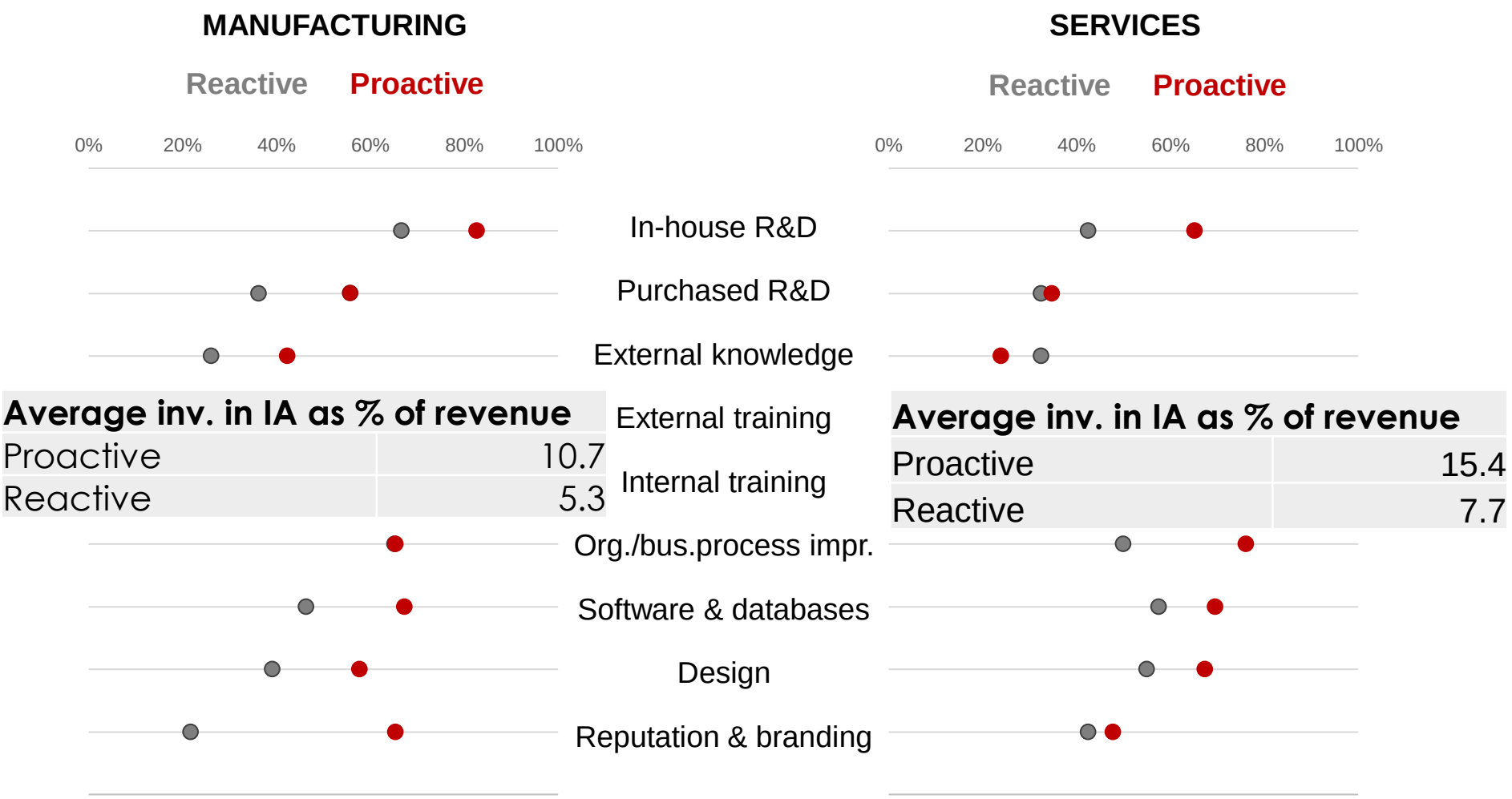
Source: Globalinto data for Slovenia, own calculations.

Division of companies (SI, Q36)



Source: Globalinto data for Slovenia, own calculations.

Investment in intangible assets: share of investing firms by sector & type of intangibles (SI)

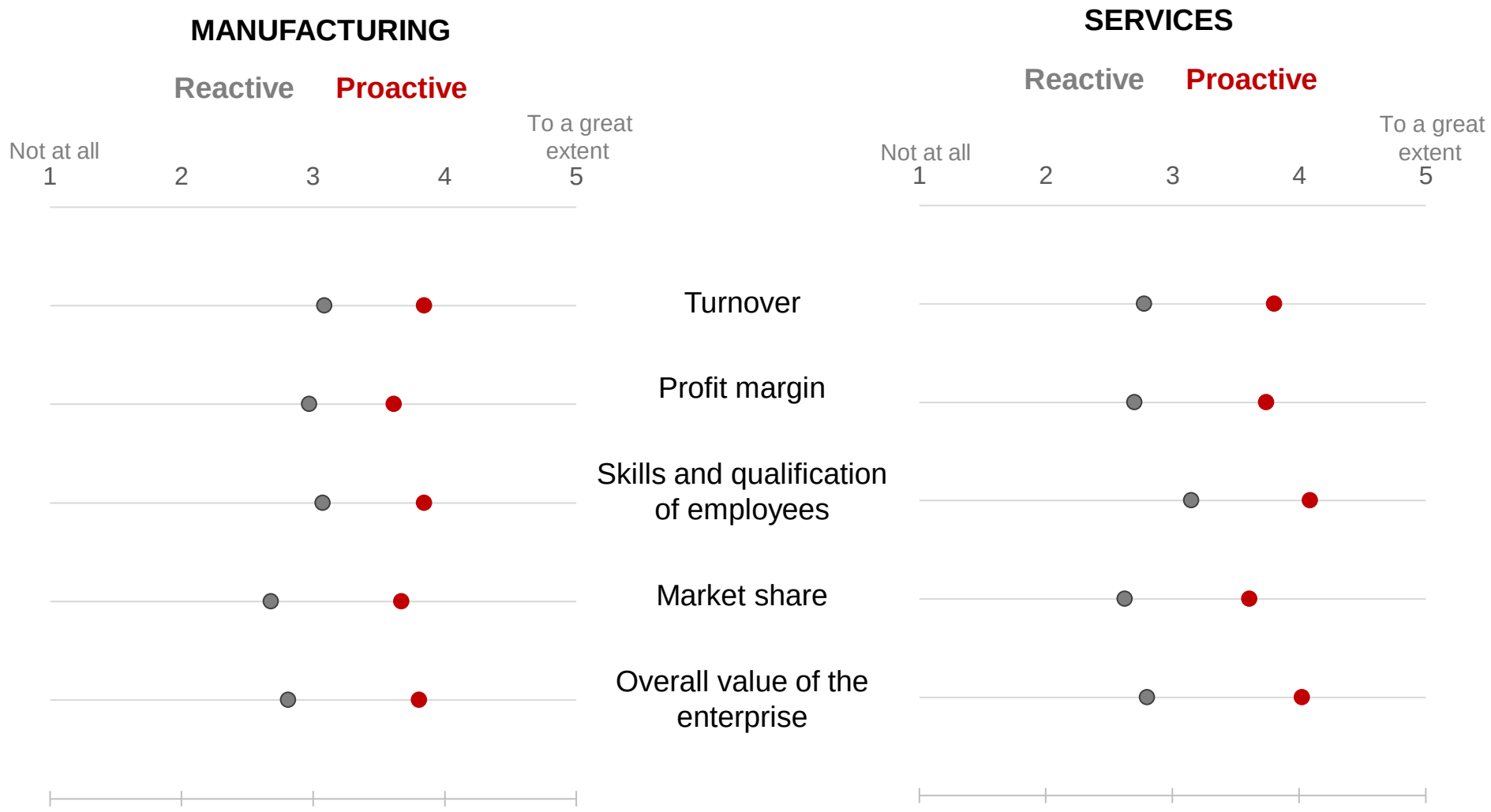


Average inv. in IA as % of revenue	
Proactive	10.7
Reactive	5.3

Average inv. in IA as % of revenue	
Proactive	15.4
Reactive	7.7

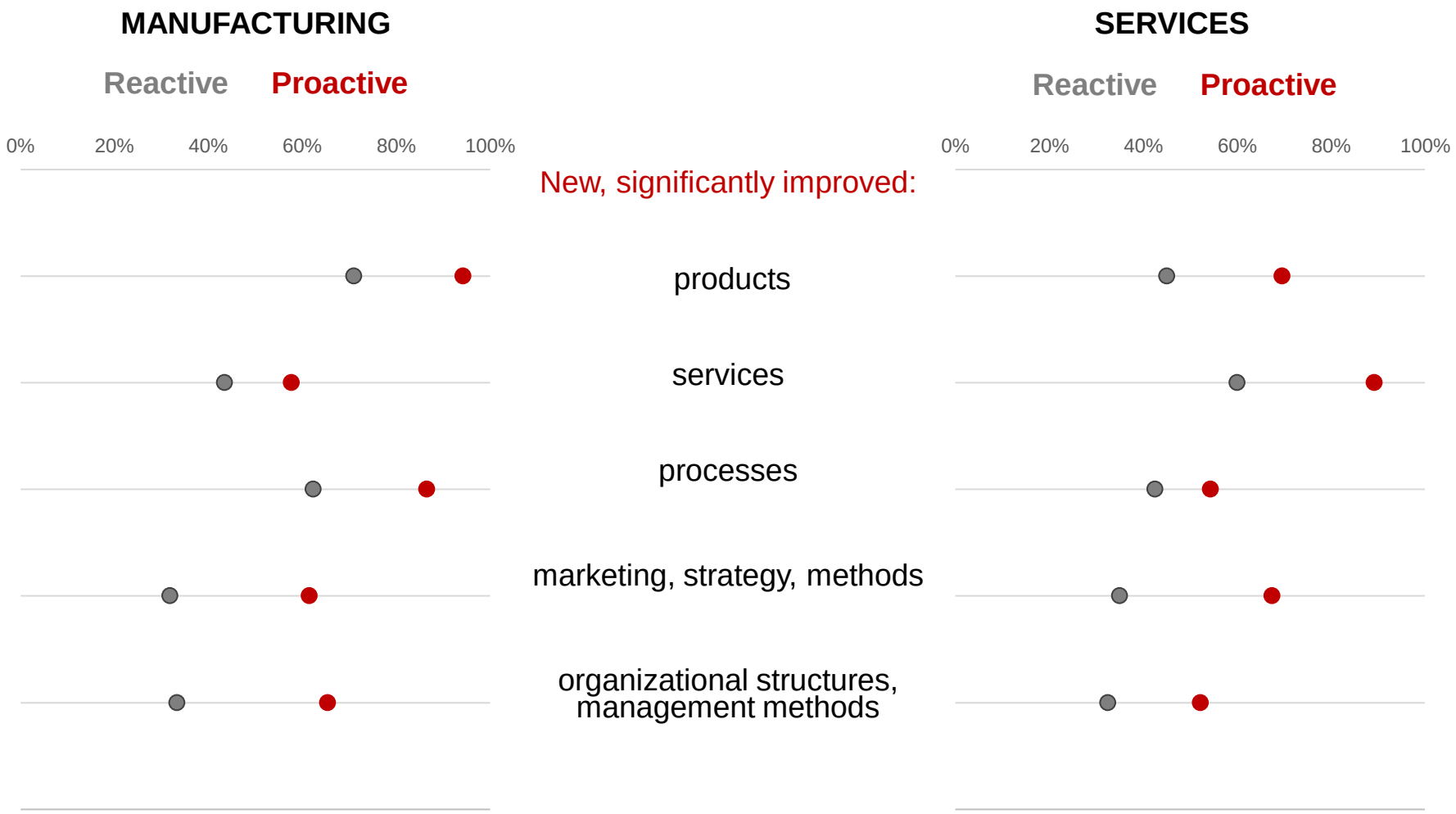
Source: Globalinto data for Slovenia, own calculations.

Perceived contribution of intangibles to firm performance (SI)



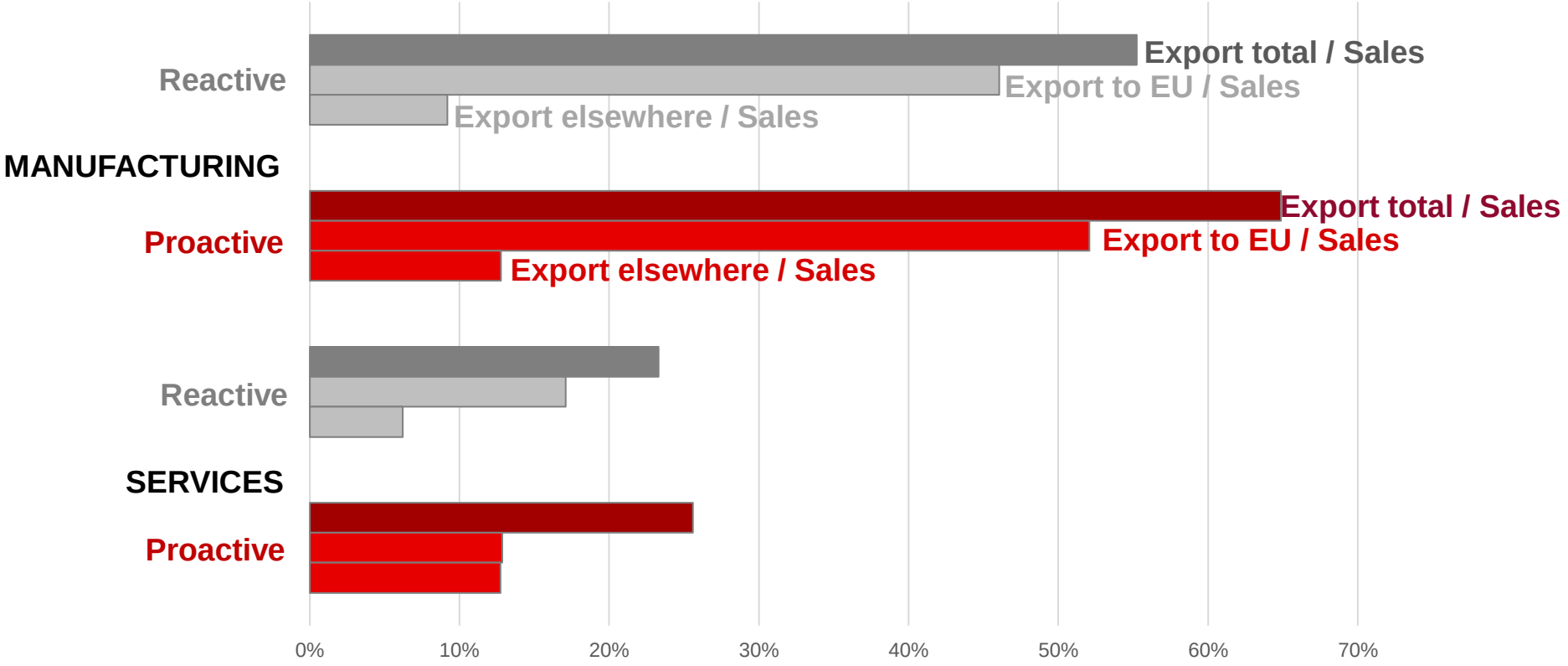
Source: Globalinto data for Slovenia, own calculations.

Innovativeness (SI)



Source: Globalinto data for Slovenia, own calculations.

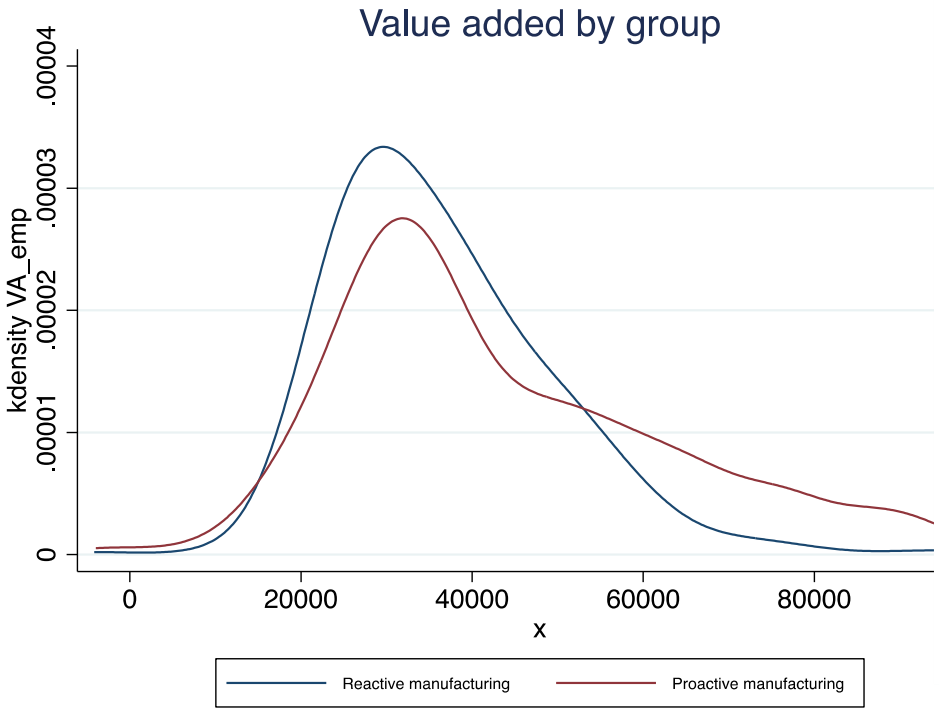
Export share in sales (SI)



Source: AJPES data, own calculations.

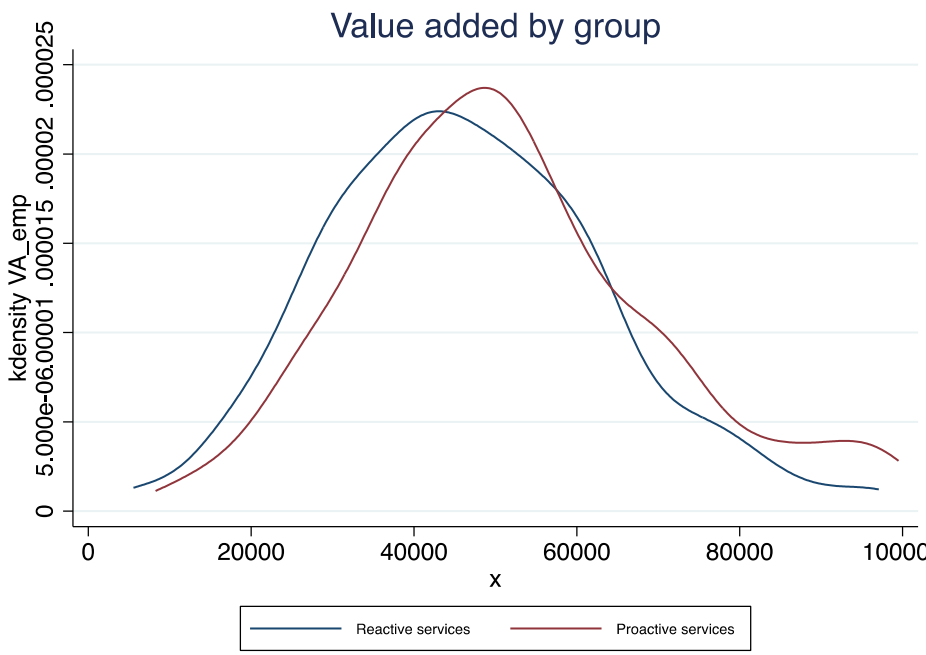
Value added per employee distribution of the sample firms, 2015 on

MANUFACTURING: 2015 on



Proactive: 47.6
Reactive: 36.6
p(2020)= .000

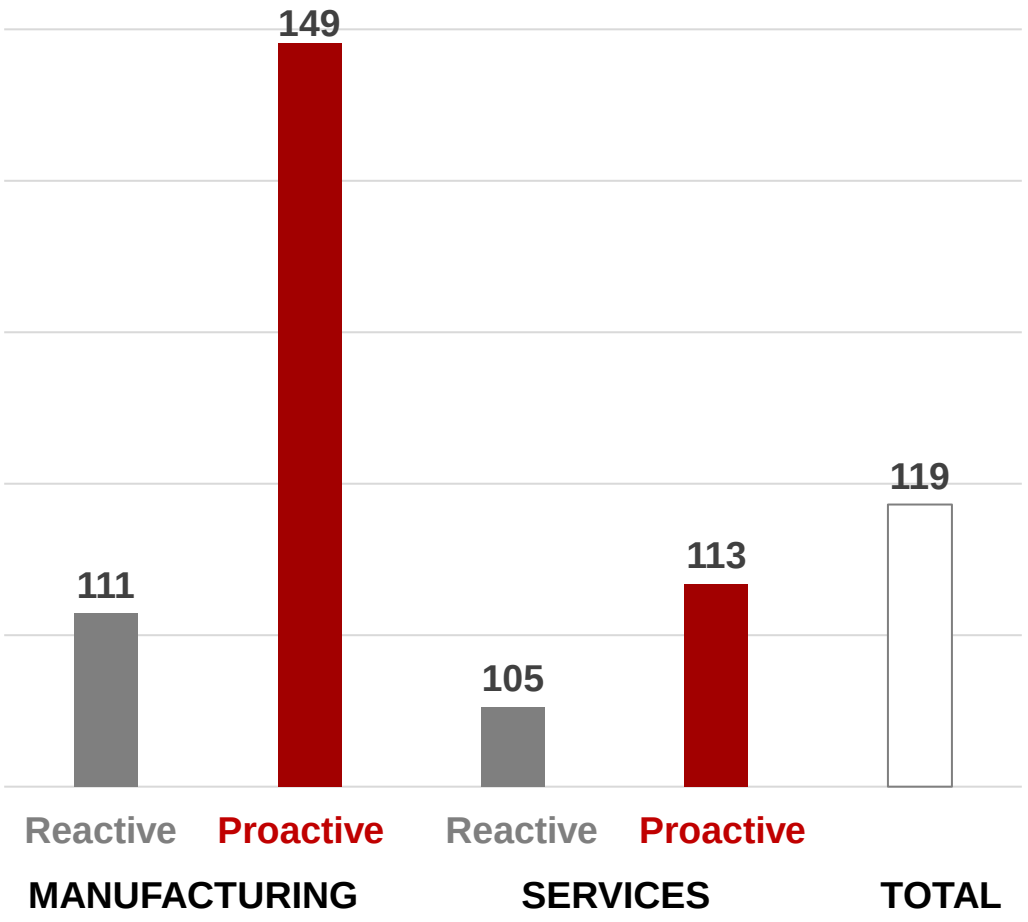
SERVICES: 2015 on



Proactive: 63.4
Reactive: 51.4
p(2020)= .001

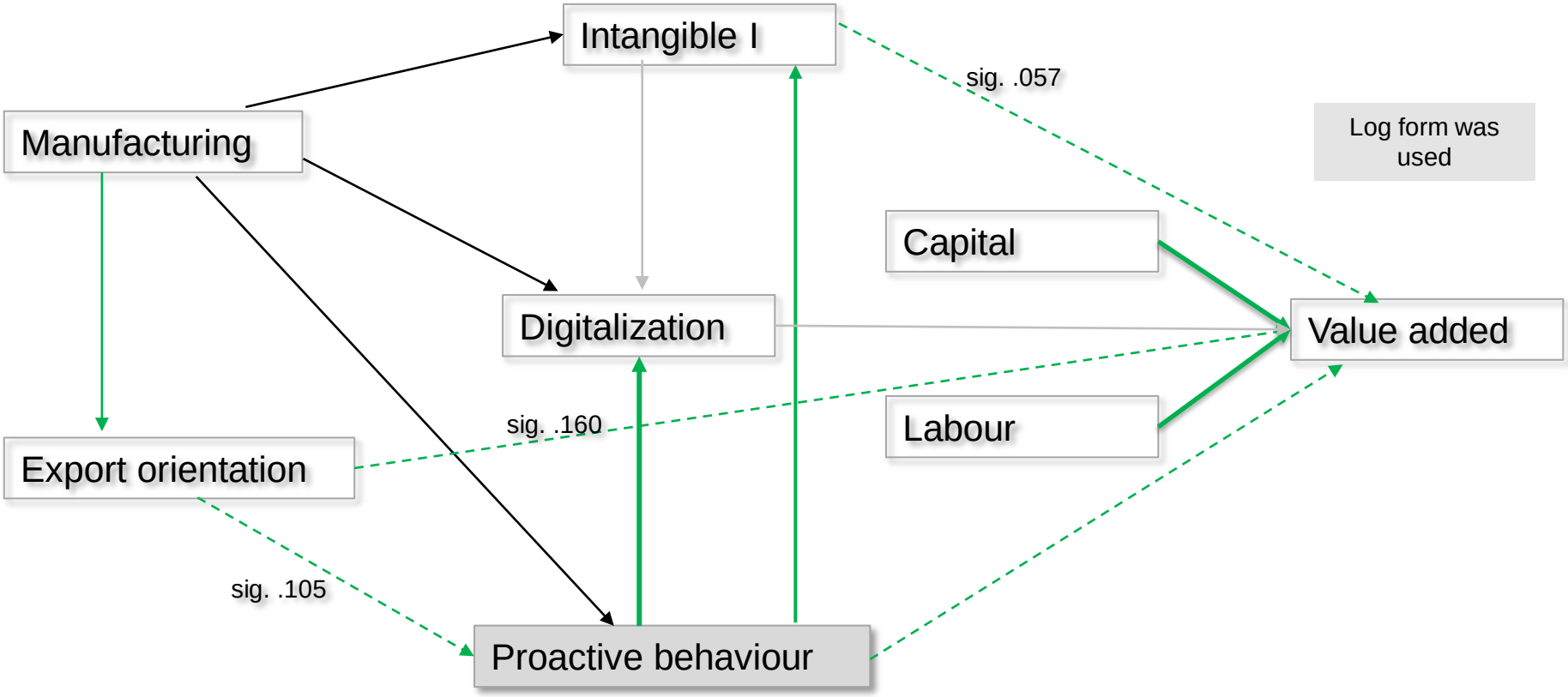
Source: AJPES data, own calculations.

Value added change ($Index_{2020/2010}$, SI)



Source: AJPES data, own calculations.

Proactive behaviour has several positive impacts



	Effects		
Ln (Value added)	Direct	Indirect	Total
Intangible investment	+ *	-	0.004#
Digital intensity	+		+
Proactivity	**+**	**+**	**0.078*** **
Export orientation	+	+	0.114#
Ln (Capital)	+***		0.368***
Ln (Employment)	+***		0.630***
Manufaturing sector		+	+

Source: Globalinto and AJPES data, own calculations.

Division of companies (EU7, *N*=1796)

REACTIVE MANUFACTURING

591 companies

166 employees (*Me*=61)

Sales: 47mio euros (*Me*=12)

Reactive behaviour in the sample dominant in industries C10, C23, C24, C25

PROACTIVE MANUFACTURING

487 companies

269 employees (*Me*=84)

Sales: 56mio euros (*Me*=16)

Proactivity in the sample dominant in industries C20, C27

REACTIVE SERVICES

315 companies

215 employees (*Me*=45)

Sales: 73mio euros (*Me*=8)

Reactive behaviour in the sample dominant in industries G46

PROACTIVE SERVICES

403 companies

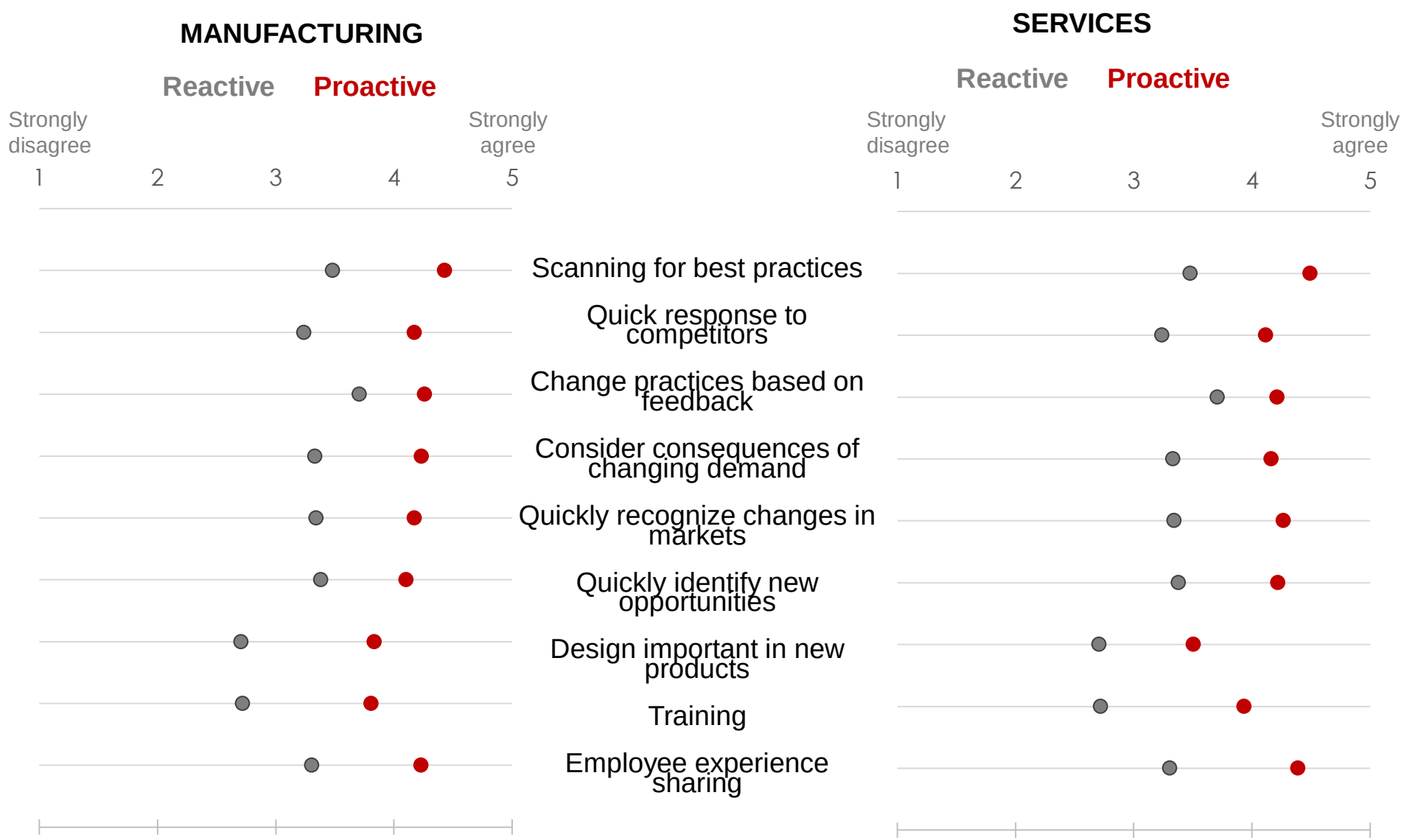
342 employees (*Me*=50)

Sales: 66mio euros (*Me*=7)

Proactivity in the sample dominant in industries J62, M72, M73

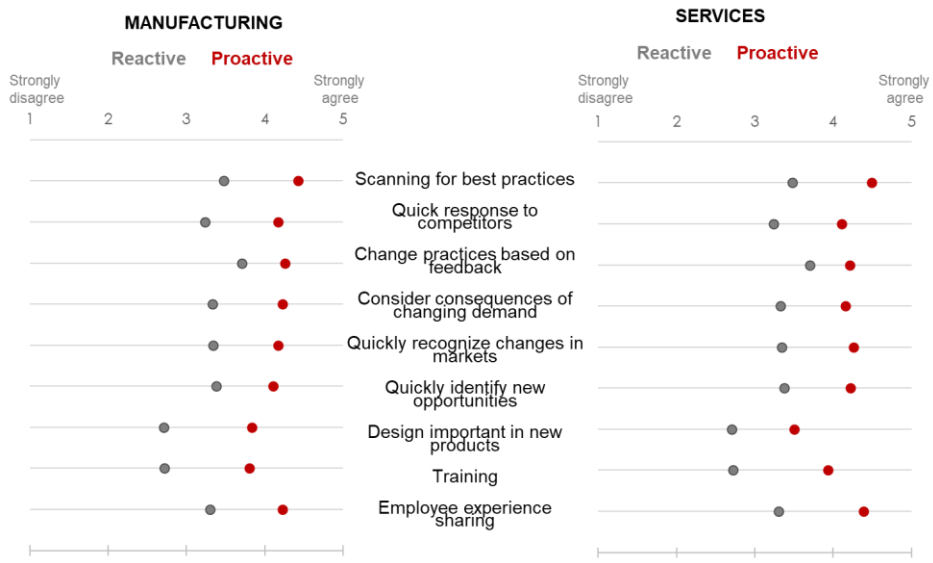
Source: Globalinto data, own calculations.

Division of companies (EU7, Q36 - opportunities)



Source: Globalinto data, own calculations.

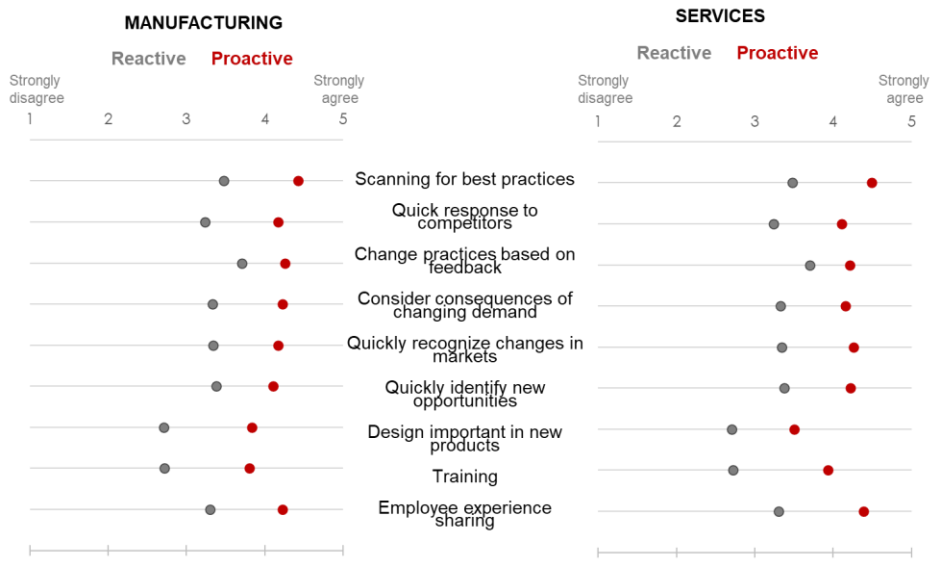
Division of companies (EU7, Q36 - opportunities)



EU7 (absolute difference: Proactive – Reactive)	Manufacturing	Services
Scanning for best practices	0.95	0.82
Quick response to competitors	0.93	0.89
Change practices based on feedback	0.55	0.67
Consider consequences of changing demand	0.90	0.87
Quickly recognize changes in markets	0.83	0.81
Quickly identify new opportunities	0.72	0.80
Design important in new products	1.13	1.17
Training	1.09	0.97
Employee experience sharing	0.93	0.90

Source: Globalinto data, own calculations.

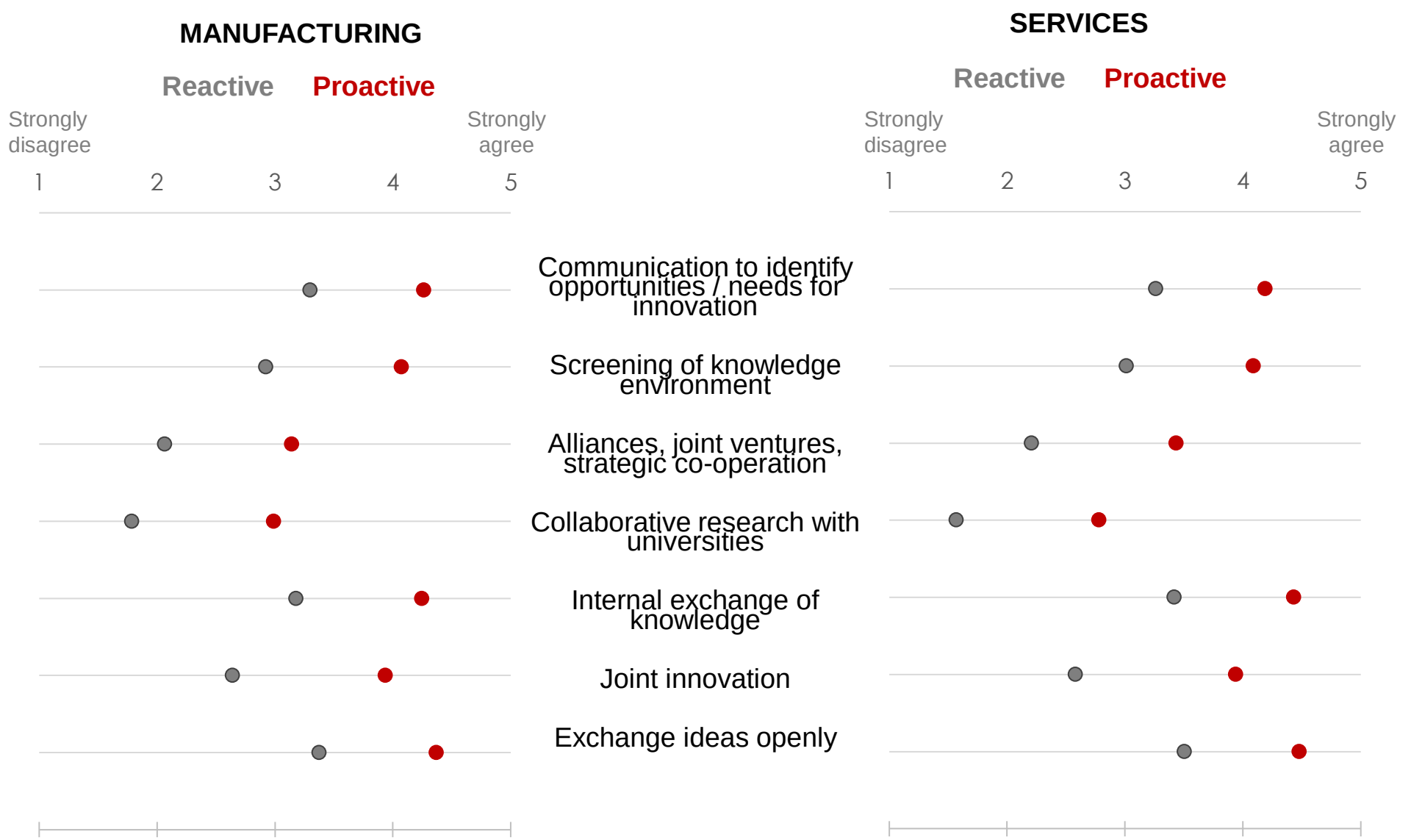
Division of companies (EU7, Q36 - opportunities)



EU7 (absolute difference: Proactive – Reactive)	Manufacturing	Services
Denmark	0.78	0.88
Finland	0.65	0.74
France	0.89	1.06
Germany	0.88	0.71
Greece	0.92	0.86
Slovenia	0.91	0.92
UK	1.07	0.91

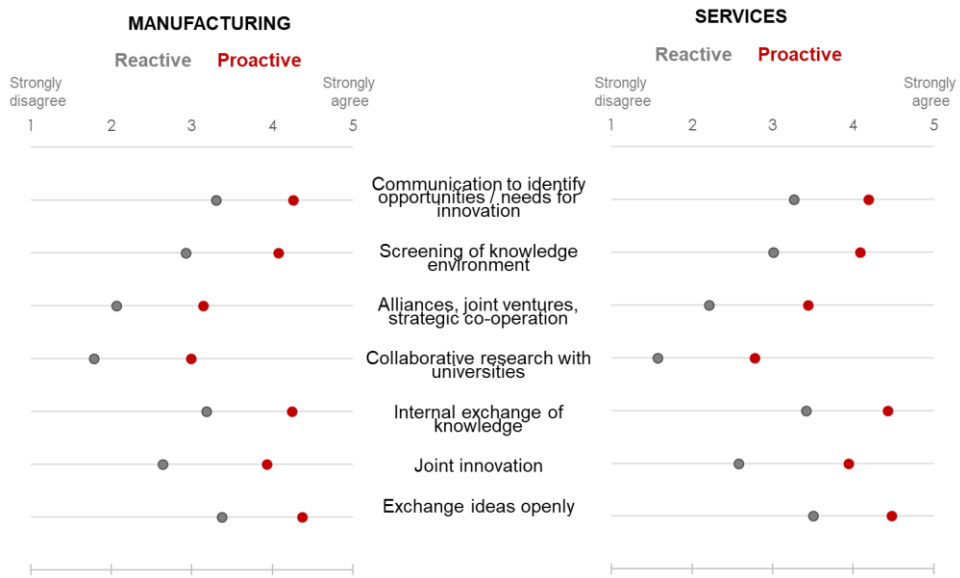
Source: Globalinto data, own calculations.

Division of companies (EU7, Q37 – knowledge sources)



Source: Globalinto data, own calculations.

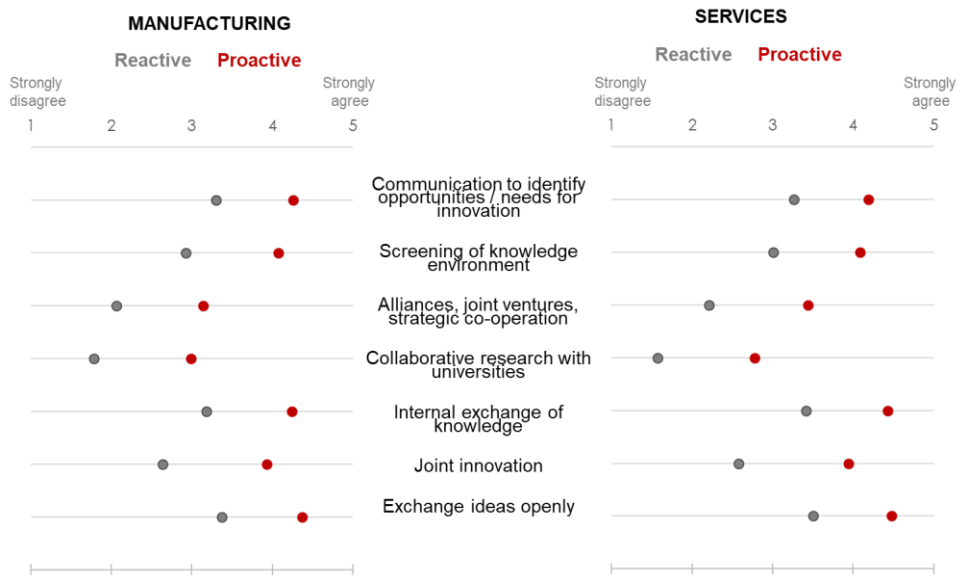
Division of companies (EU7, Q37 – knowledge sources)



EU7 (absolute difference: Proactive – Reactive)	Manufacturing	Services
Communication to identify opportunities / needs for innovation	0.96	0.93
Screening of knowledge environment	1.15	1.08
Alliances, joint ventures, strategic co-operation	1.08	1.23
Collaborative research with universities	1.21	1.21
Internal exchange of knowledge	1.06	1.01
Joint innovation	1.29	1.36
Exchange ideas openly	1.00	0.97

Source: Globalinto data, own calculations.

Division of companies (EU7, Q37 – knowledge sources)

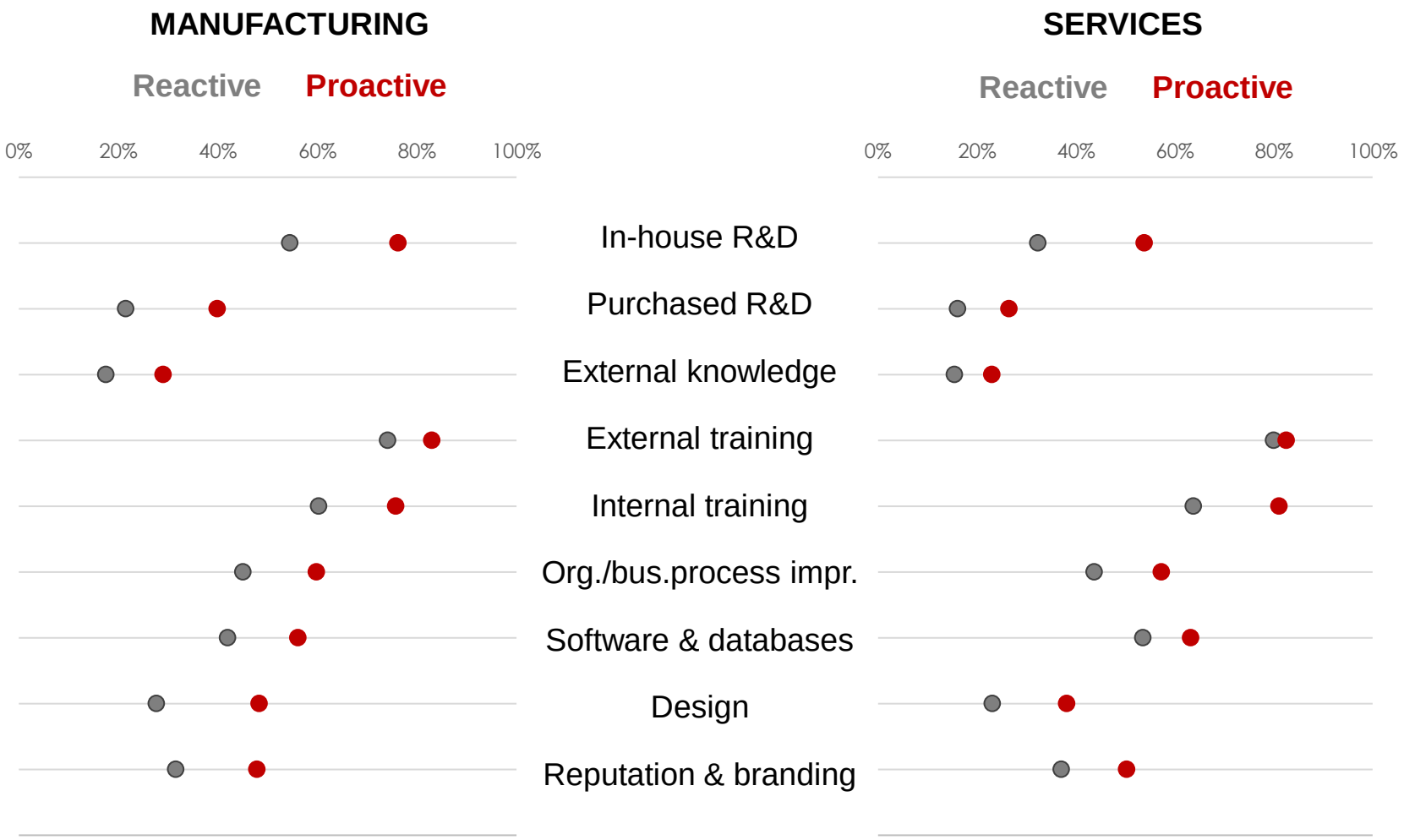


EU7
(absolute difference: Proactive – Reactive)

	Manufacturing	Services
Denmark	1.15	0.93
Finland	1.05	1.00
France	1.11	1.14
Germany	1.02	1.08
Greece	1.19	1.19
Slovenia	0.92	1.05
UK	1.19	1.20

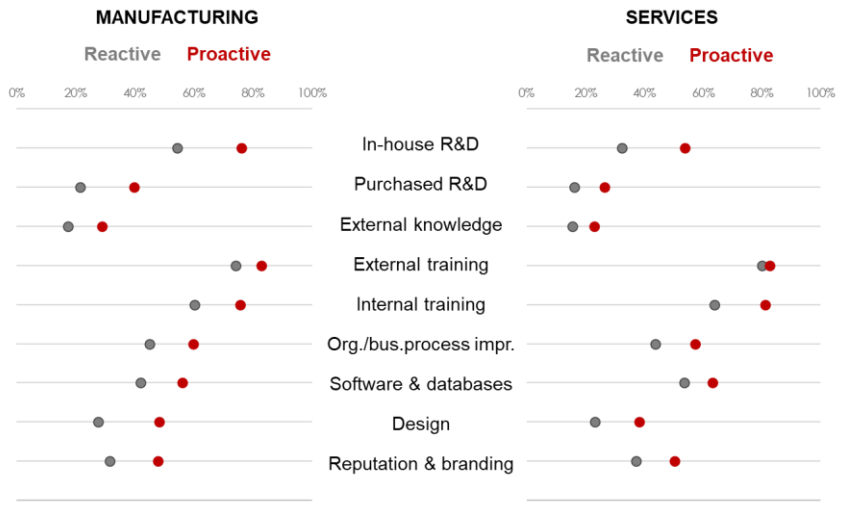
Source: Globalinto data, own calculations.

Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)



Source: Globalinto data, own calculations.

Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)

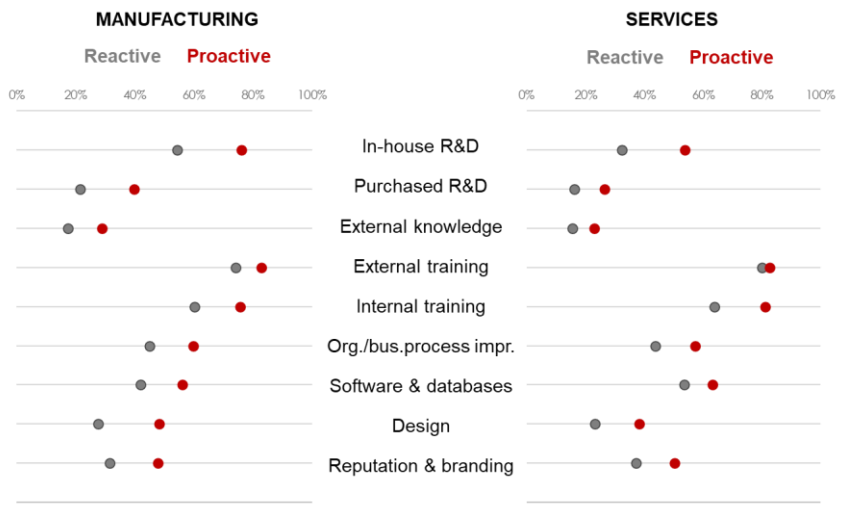


EU7
(absolute difference in % points: Proactive – Reactive)

	Manufacturing	Services
In-house R&D	22	21
Purchased R&D	18	10
External knowledge	12	8
External training	9	3
Internal training	16	17
Org./bus. Process impr.	15	14
Software & databases	14	10
Design	21	15
Reputation & branding	16	13

Source: Globalinto data, own calculations.

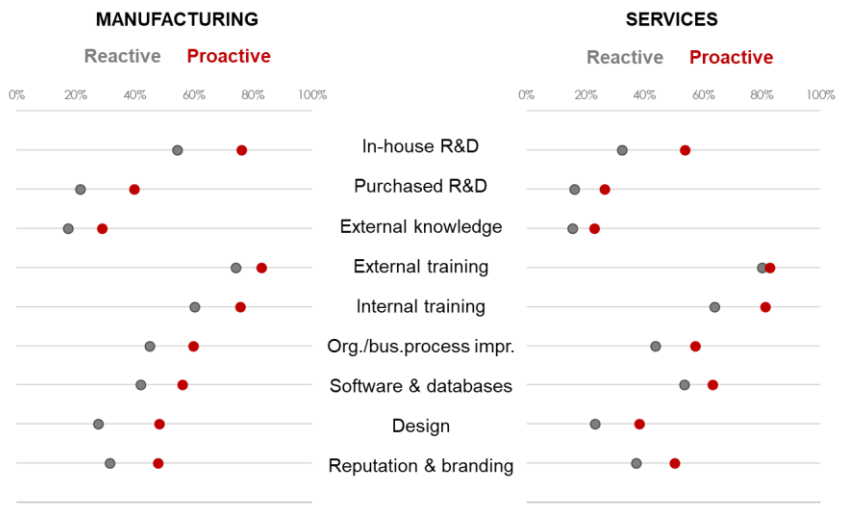
Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)



Denmark (absolute difference in % points: Proactive – Reactive)		
	Manufacturing	Services
In-house R&D	4	23
Purchased R&D	4	14
External knowledge	-7	9
External training	-8	-11
Internal training	14	18
Org./bus. Process impr.	6	5
Software & databases	4	7
Design	19	9
Reputation & branding	21	-2

Source: Globalinto data, own calculations.

Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)

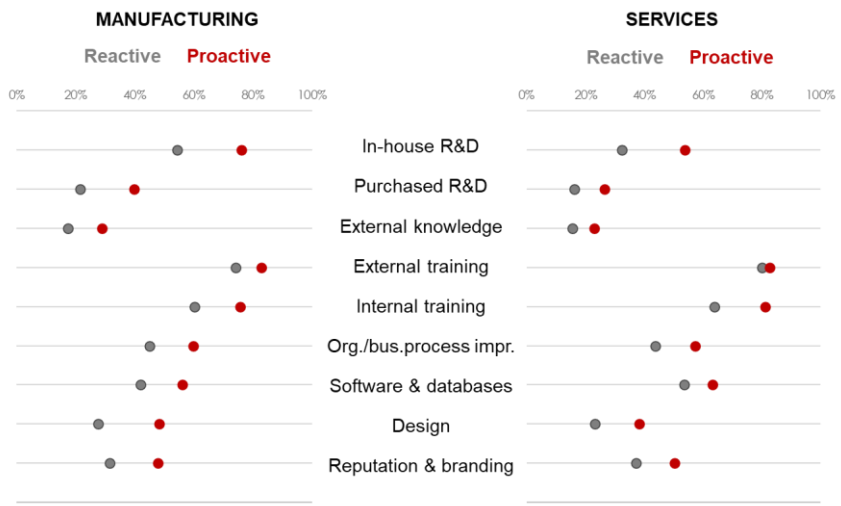


Finland
(absolute difference in % points: Proactive – Reactive)

	Manufacturing	Services
In-house R&D	23	18
Purchased R&D	33	8
External knowledge	2	24
External training	17	5
Internal training	28	6
Org./bus. Process impr.	14	11
Software & databases	19	15
Design	17	25
Reputation & branding	10	31

Source: Globalinto data, own calculations.

Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)

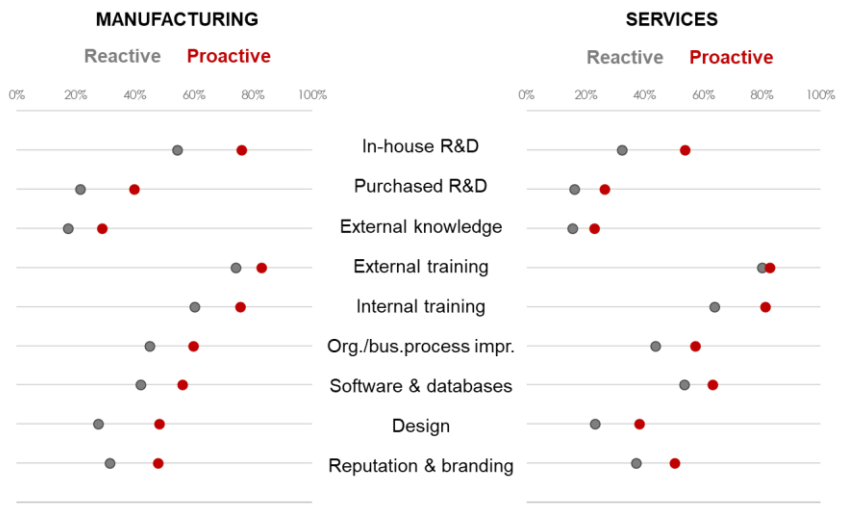


France
(absolute difference in % points: Proactive – Reactive)

	Manufacturing	Services
In-house R&D	27	17
Purchased R&D	16	8
External knowledge	18	-1
External training	-4	1
Internal training	8	10
Org./bus. Process impr.	10	3
Software & databases	10	9
Design	30	7
Reputation & branding	1	8

Source: Globalinto data, own calculations.

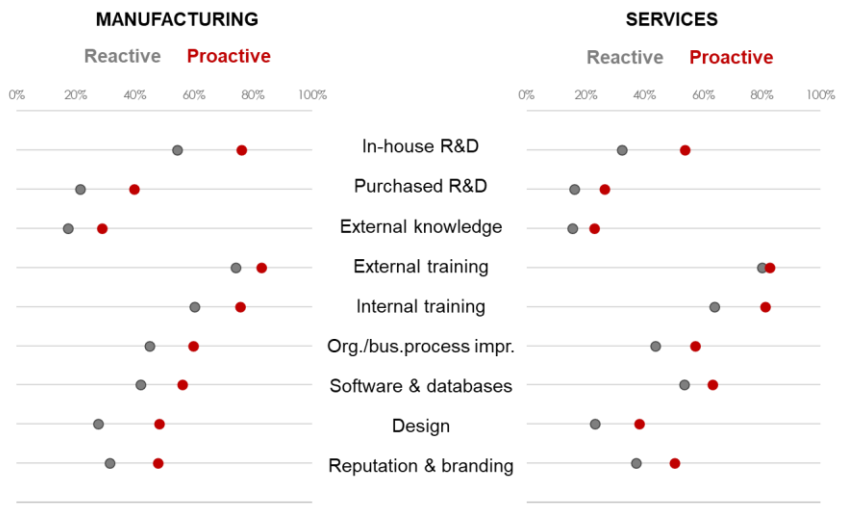
Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)



Germany (absolute difference in % points: Proactive – Reactive)	Manufacturing	Services
In-house R&D	40	28
Purchased R&D	12	4
External knowledge	1	8
External training	10	5
Internal training	18	14
Org./bus. Process impr.	27	17
Software & databases	27	-2
Design	24	27
Reputation & branding	19	18

Source: Globalinto data, own calculations.

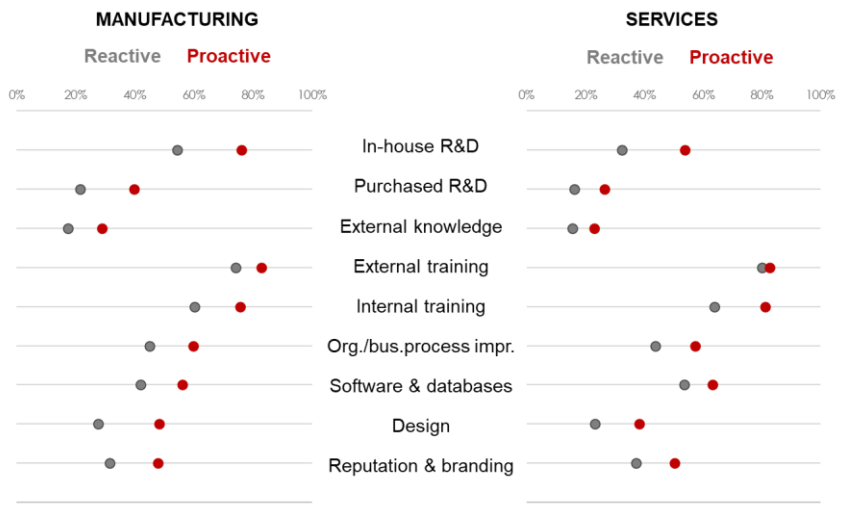
Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)



Greece (absolute difference in % points: Proactive – Reactive)	Manufacturing	Services
In-house R&D	28	27
Purchased R&D	20	17
External knowledge	23	-1
External training	13	-9
Internal training	17	7
Org./bus. Process impr.	24	3
Software & databases	0	11
Design	3	7
Reputation & branding	14	1

Source: Globalinto data, own calculations.

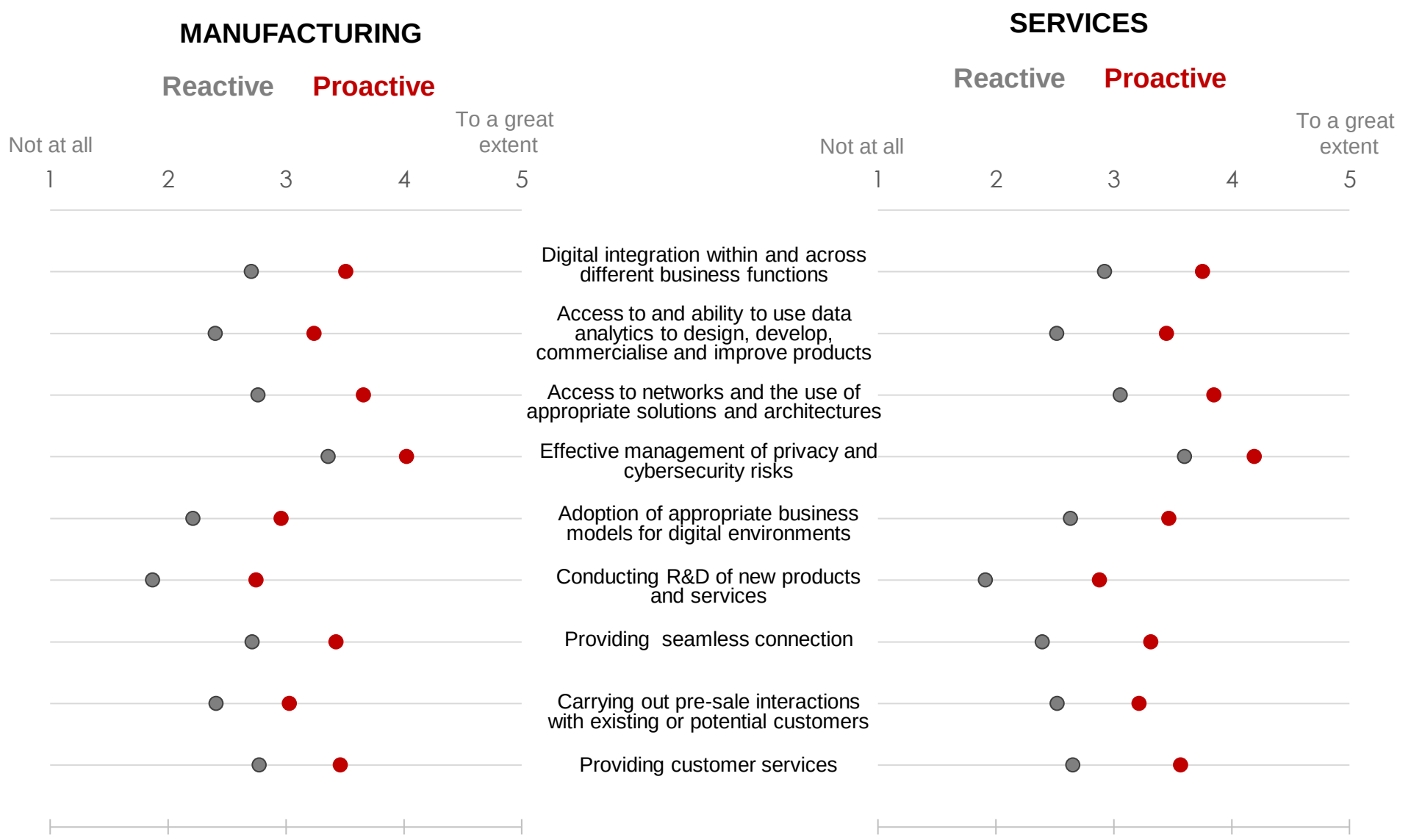
Investment in intangible assets: share of investing firms by sector & type of intangibles (EU7)



UK (absolute difference in % points: Proactive – Reactive)	Manufacturing	Services
In-house R&D	14	7
Purchased R&D	28	6
External knowledge	22	12
External training	18	11
Internal training	4	27
Org./bus. Process impr.	4	29
Software & databases	12	4
Design	11	-2
Reputation & branding	8	24

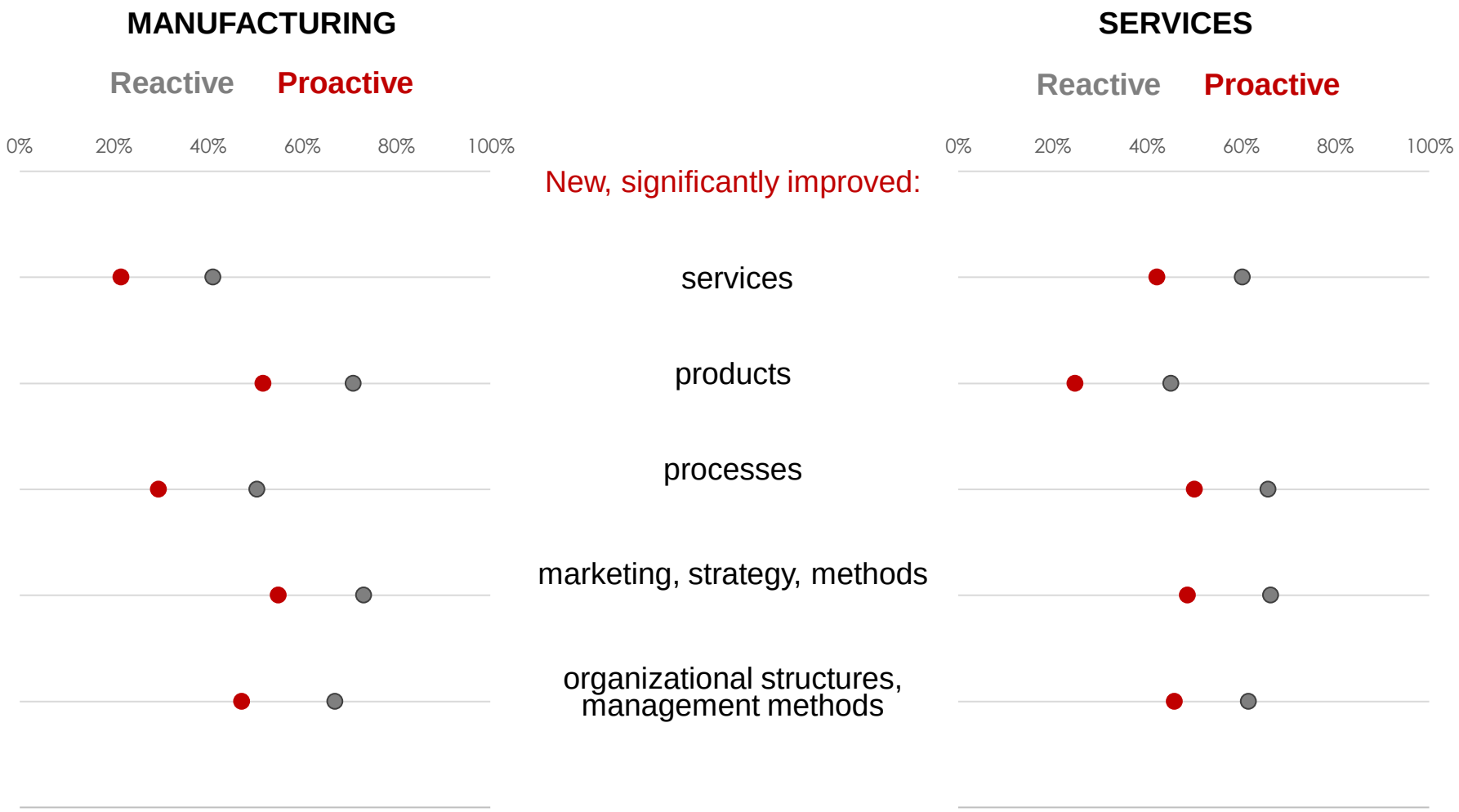
Source: Globalinto data, own calculations.

Use of digital solutions (EU7)



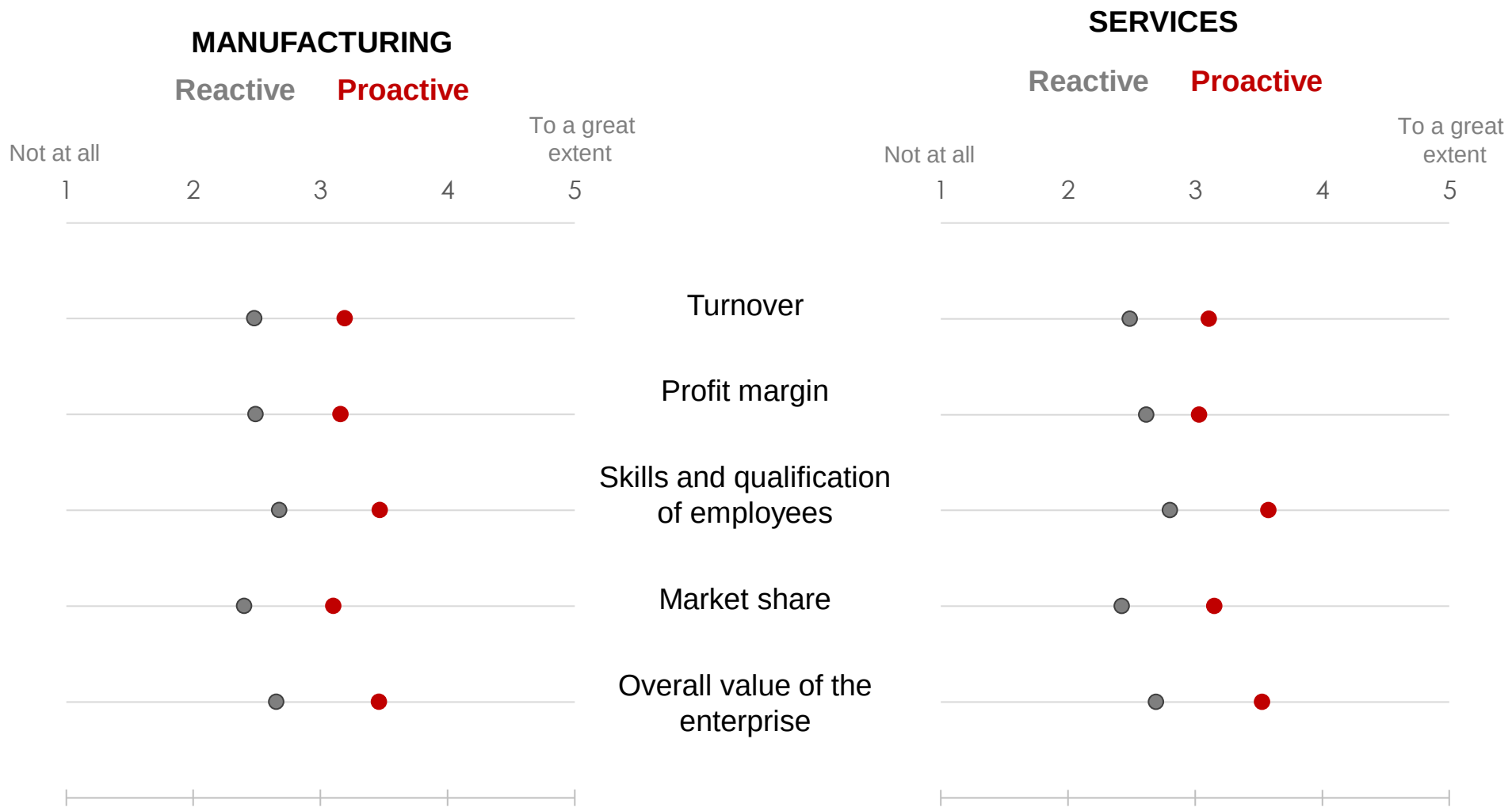
Source: Globalinto data, own calculations.

Innovativeness (EU7)



Source: Globalinto data, own calculations.

Perceived contribution of intangibles to firm performance (EU7)



Source: Globalinto data, own calculations.

Implications

1. Firms differ in their behaviour – proactive behaviour seeks to identify and exploit opportunities etc., to make things happen
2. Proactive behaviour is also inherently intangible and firm specific
3. Results show that proactive firms invest more in intangible capital, are more innovative and focus more on technology
4. In Slovenia:
   - more proactive firms are also more export oriented (push factors towards proactivity?)
   - more proactive firms perform better
5. Consequently, to catch up, firms should change their behaviour and acknowledge that "business as usual" is not the best strategy