

Innovative Combinations of Print & Digital Attitudes Towards Change in the European Printing Industry

Markéta Držková and Sanne Tiekstra

Paula Miranda, Pedro Isaías, Igor Karlović,
Rozália Szentgyörgyvölgyi, Tadeja Muck,
Kaisa Vehmas, Claire Gauzente, Anu Seisto

COST FP1104 WORKING GROUP 4 – INDUSTRY

Background

- » Need for understanding the state of the printing industry
 - » Both technological and strategic dimensions
 - » Diffusion of innovations
 - » Benefits not always obvious
 - » Uncertainty and risk perceived by potential adopters
 - » Advantage of innovation to the existing production?
 - » Consequences of adopting an innovation?
 - » Resistance to change
- Connolly, R., Gauzente, C. and Dumoulin, R., 2012. Adopting IT in public healthcare sector : an institutional research agenda.
- » Current situation of innovative printing in Europe
 - » 'Technology Push' versus 'Demand Pull'

Recent studies



- » Trying to overcome problems by cutting costs and new knowledge (by investment in new technologies)
- » New opportunities come from maturing of technologies (e.g. digital printing, 3D printing, intelligent printing, augmented reality, printed electronics...)
- » Opportunities to integrate services along the value chain

Intergraf, 2011. The Future of the European printing industry-In our own hands, What the industry says.
PMG, 2012. Print Media in Times of Change, A Key Contributor to EU 2020.

- » Customer service, co-operation along the chain and open communication are needed to succeed
- » Investments and R&D needed to produce totally new products regarded as huge

Vehmas, K., Kariniemi, M., Linna, H., Jokiahho, K. and Tornainen, E., 2011. Future of European Printing Industry.

<http://conversation.which.co.uk/wp-content/uploads/2012/11/Printer-Ink-Waste2.jpg>

This study

Goal

To promote discussion between industry and academia on the benefits that may be achieved from combining print and digital

COST FP1104

- » How print media could be developed
- » How they will be used in the future
- » How industry can utilize the information for the benefit of their customers
- » How does this impact Forestry, their Products and Services

Connect research and industry



By Jnhertum (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

Questionnaire on innovative printing

- » Innovative printing
 - » Especially printed electronics/ intelligence/ functionalities and combining print with digital
- » Industry's opinion
 - » Awareness of possibilities for innovative printing
 - » Attitude of industry towards these technologies
- » Questionnaire
 - » Composed in English, with both open and closed questions
 - » In each country distributed among the targeted companies in their local language to maximize understanding

Questions

Intentionally brief in order to increase the willingness of companies to participate and gain more responses

1. Characterization of the companies
(industry, company size, printing technology)
2. Use of innovative printing techniques
3. Most important limitations
4. Benefits (increased margins, competitive advantage)
5. Interest and opinion on cooperation with academia
6. Outlook and opinion on fastest growing markets

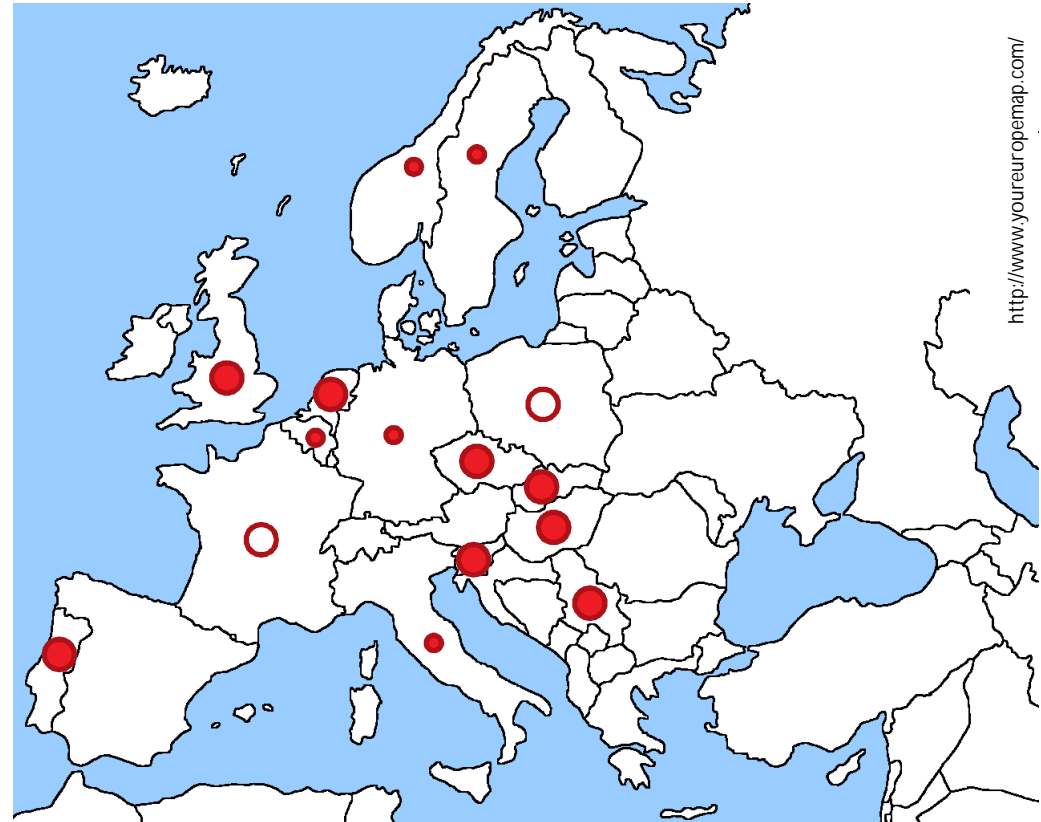
Survey modes

- » Online questionnaire
 - » Posted on a web portal
 - » Link sent by e-mail to general contact addresses
 - » Link e-mailed to company representatives
- » E-mail questionnaire
 - » Previous phone contact with the company representative
- » Phone conversation
- » Personal conversation

Responses within Europe

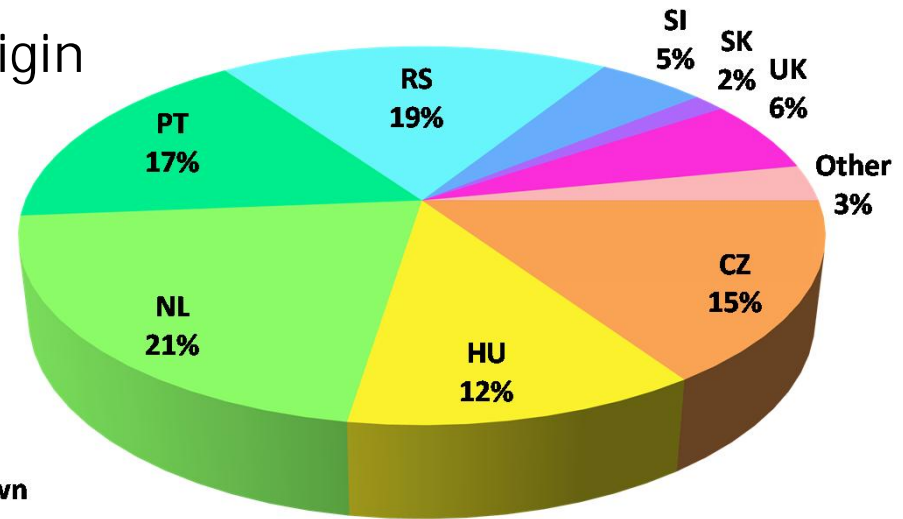
Countries

- » Czech Republic
- » Hungary
- » Netherlands
- » Portugal
- » Serbia
- » Slovakia
- » Slovenia
- » United Kingdom
- » Others (Belgium, Germany, Italy, Norway, and Sweden)

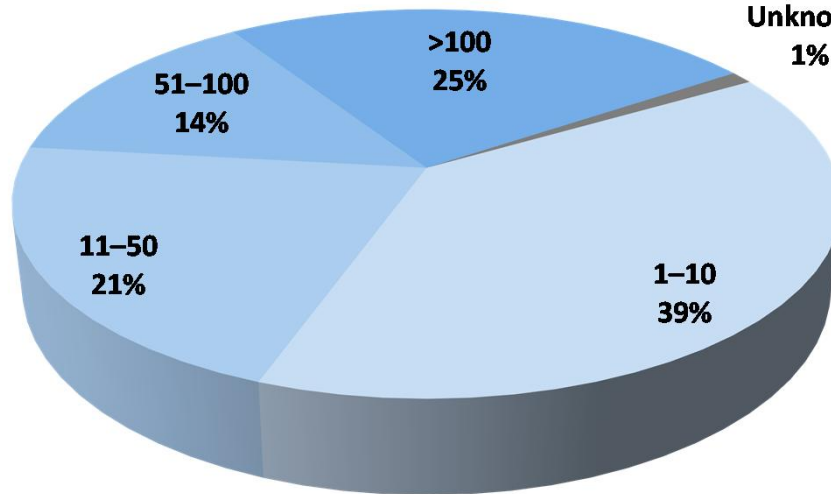


Results – respondents

Country of origin



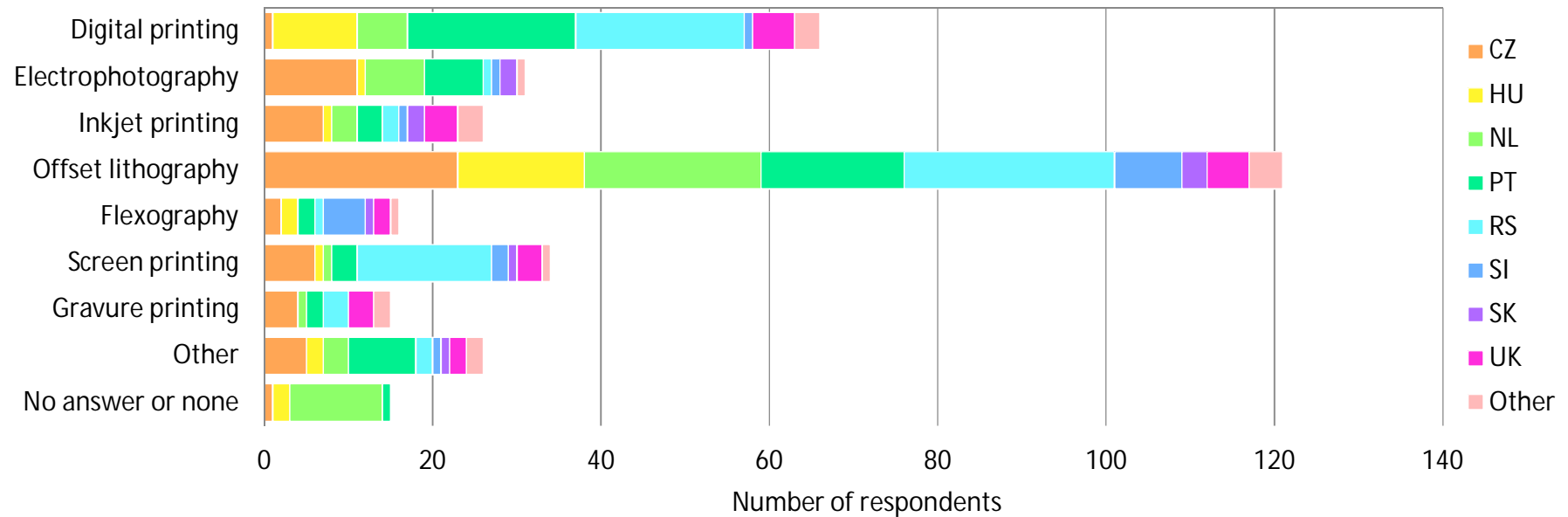
Unknown
1%



Number of employees

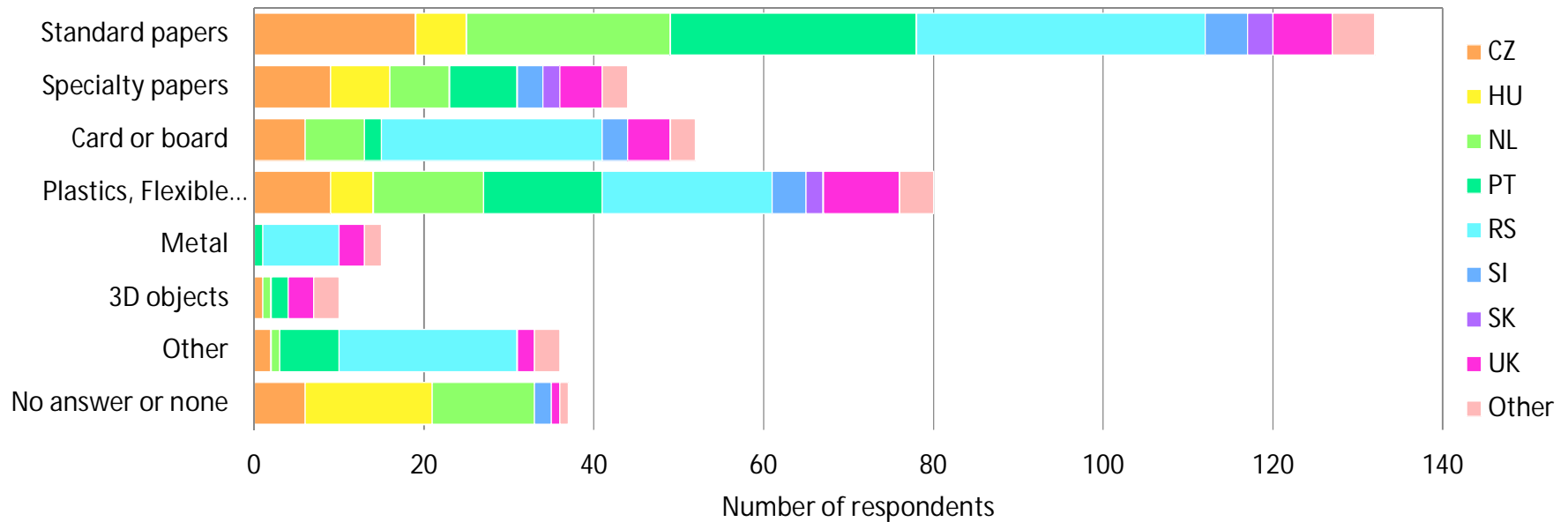
Results – respondents

Printing technologies employed



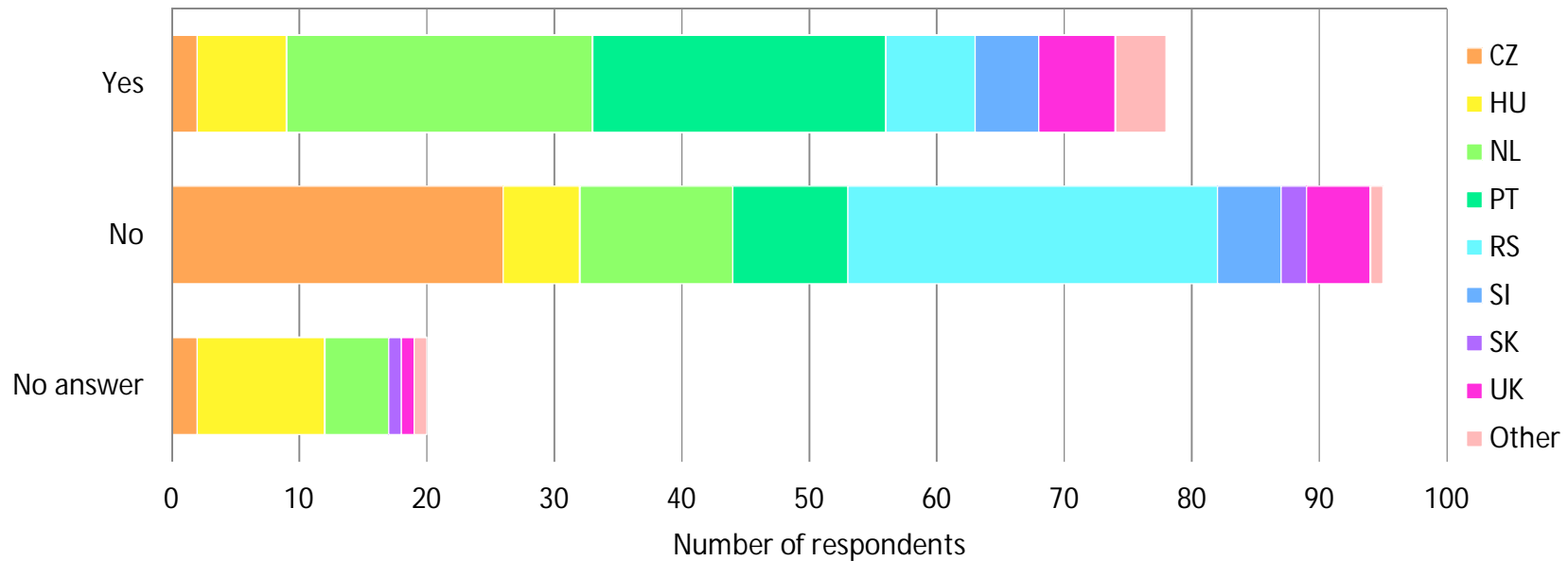
Results – respondents

Substrates commonly used



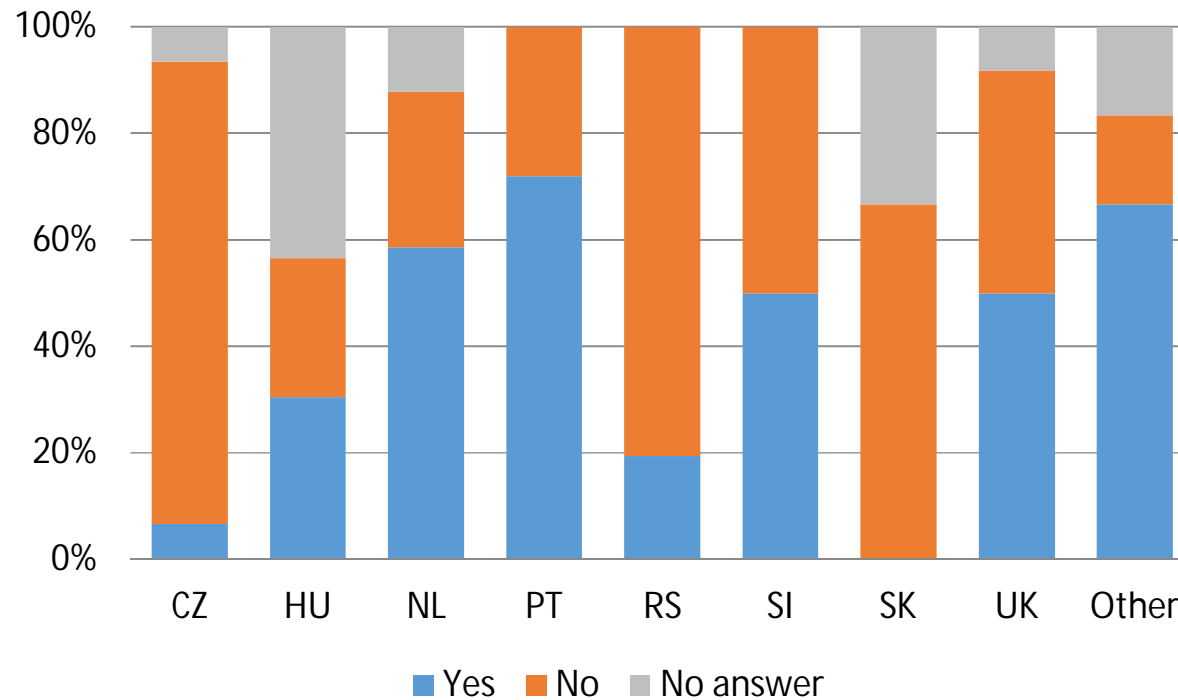
Results – innovation

Are you involved in innovative printing?



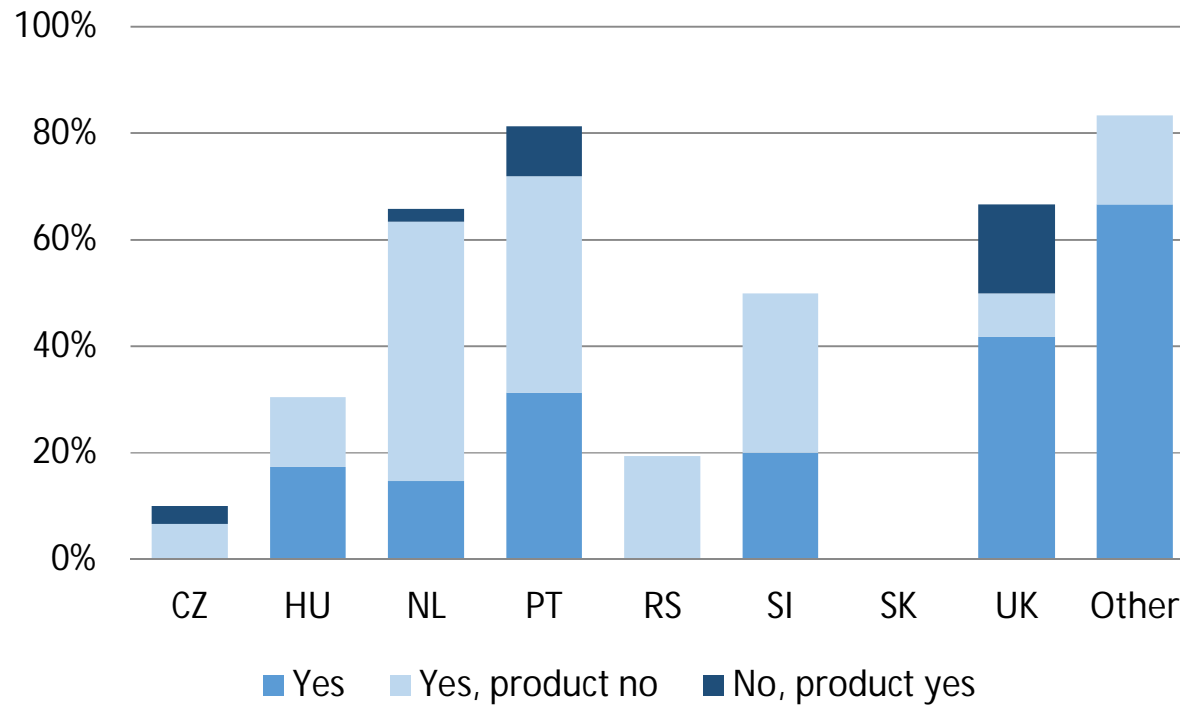
Results – innovation

Are you involved in innovative printing?



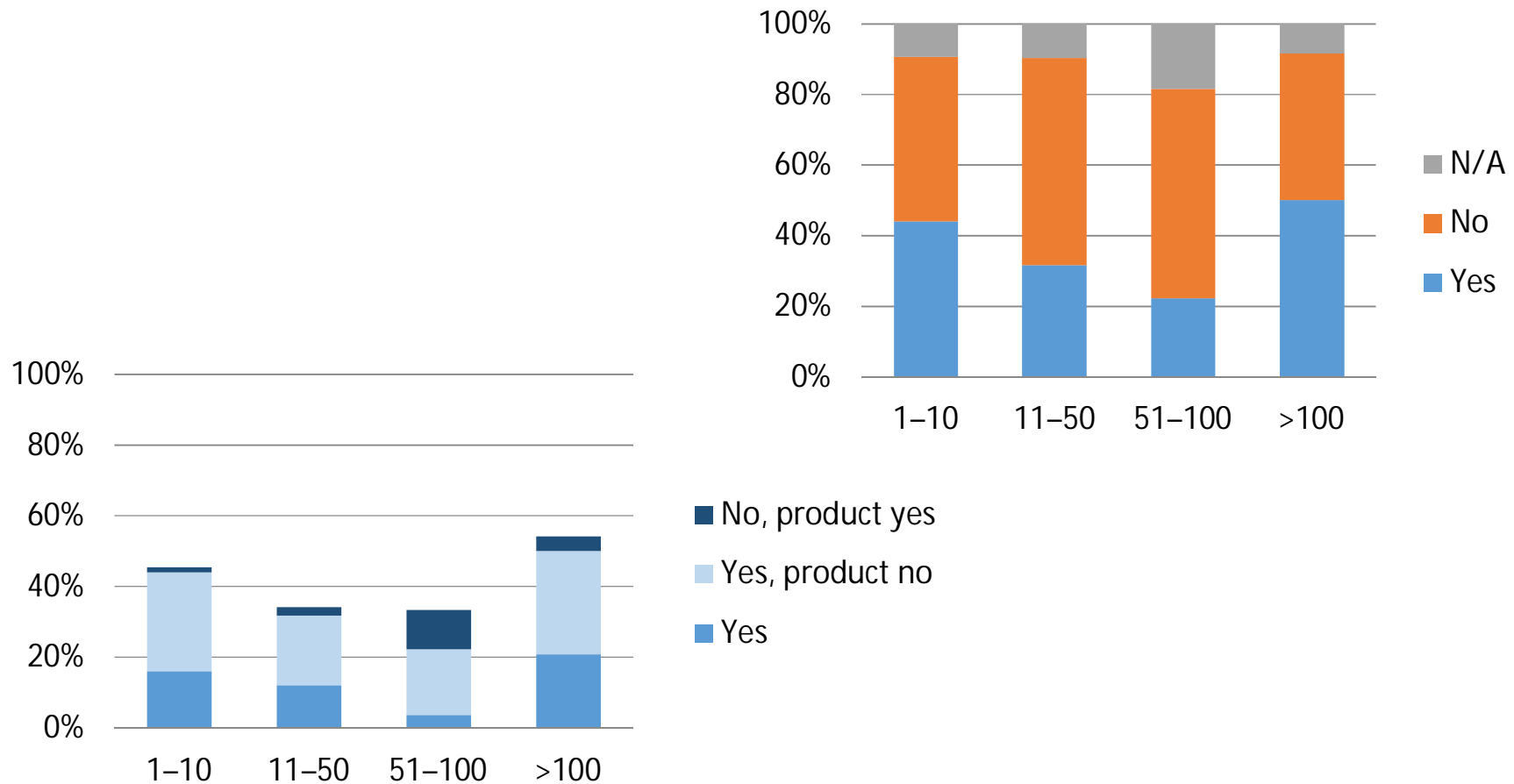
Results – innovation

Are you involved in innovative printing?



Results – innovation

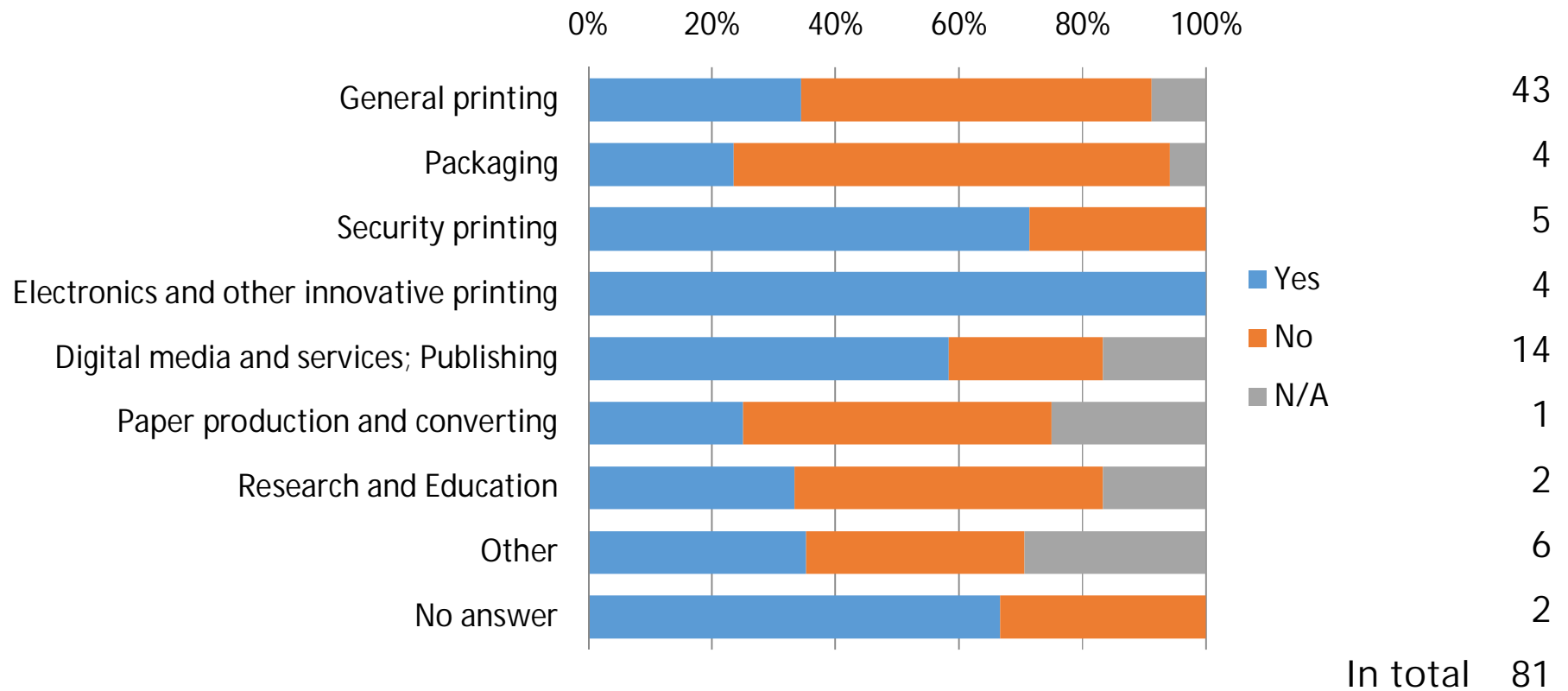
Are you involved in innovative printing?



Results – innovation

Are you involved in innovative printing?

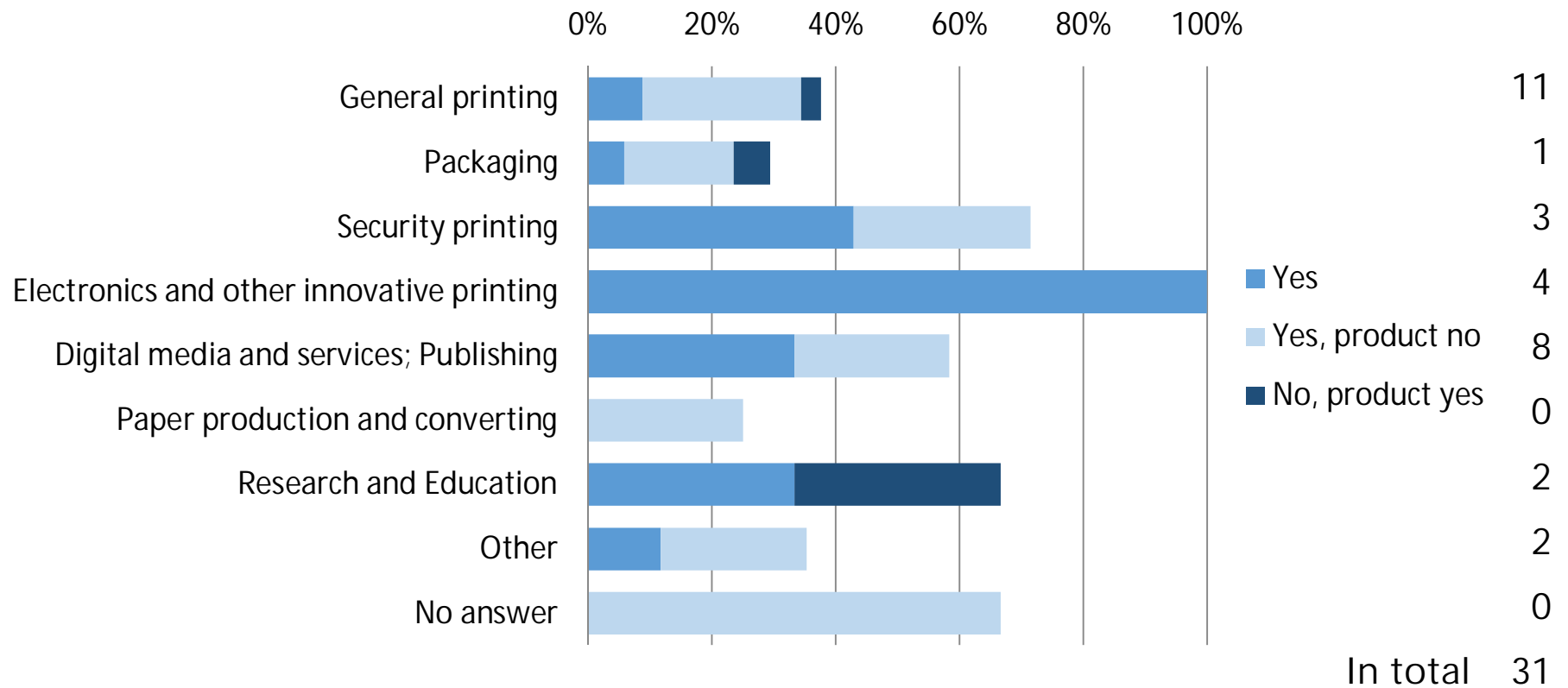
Respondents



Results – innovation

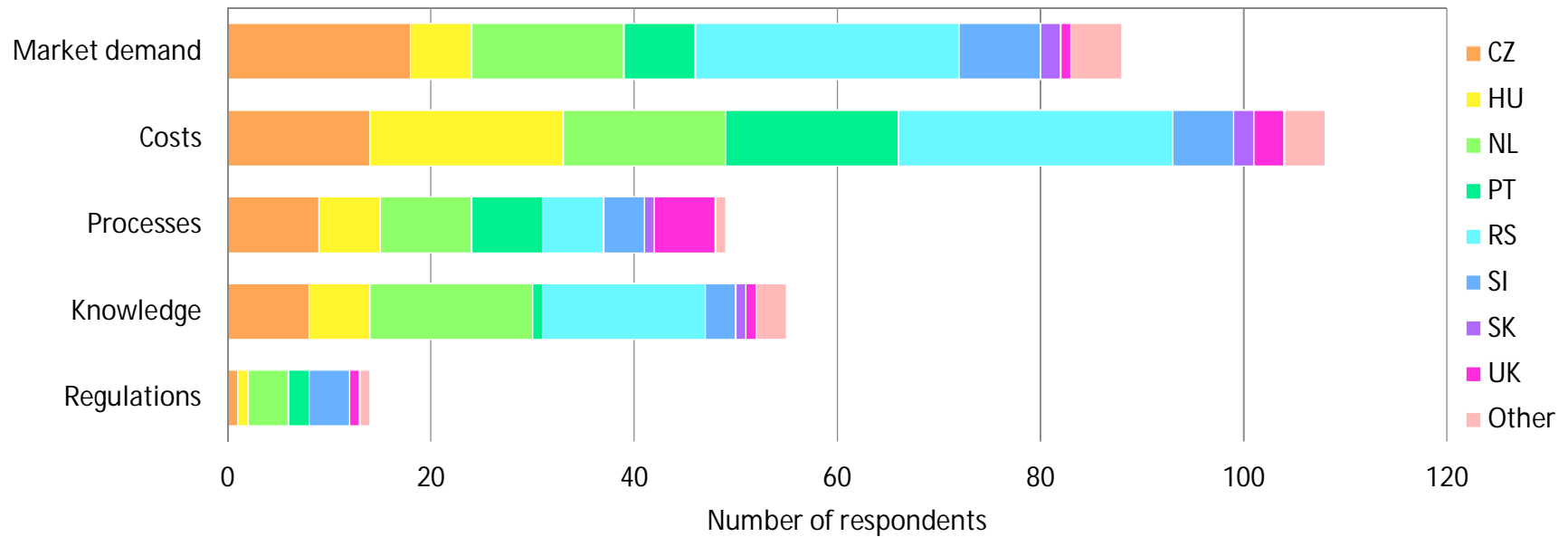
Are you involved in innovative printing?

Respondents



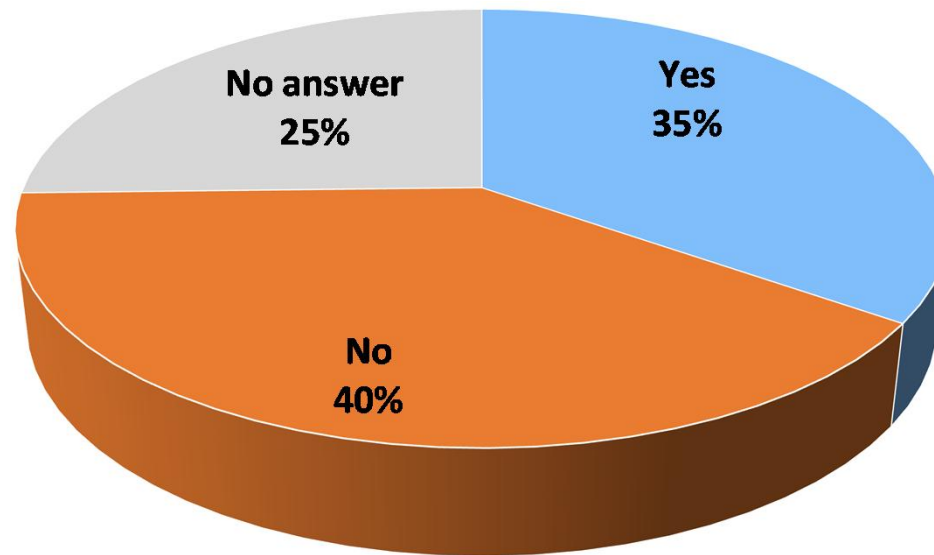
Results – innovation

Limitations to use innovative printing



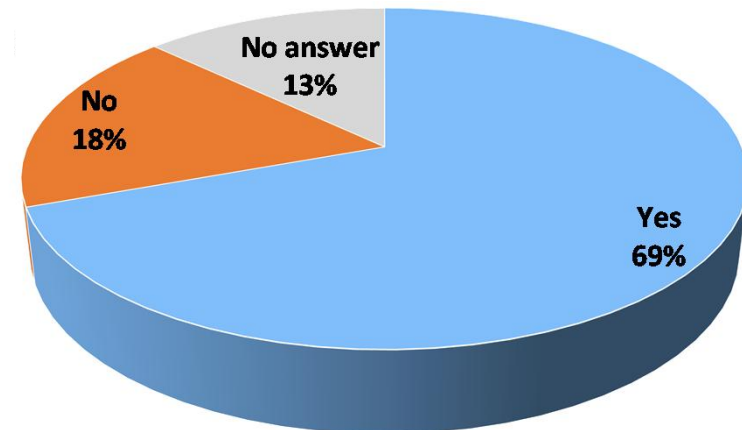
Results – innovation

Gained competitive advantage and increased margins?

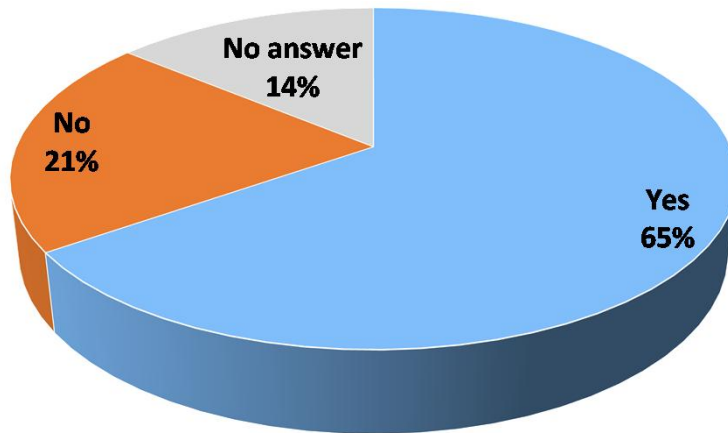


Results – academia

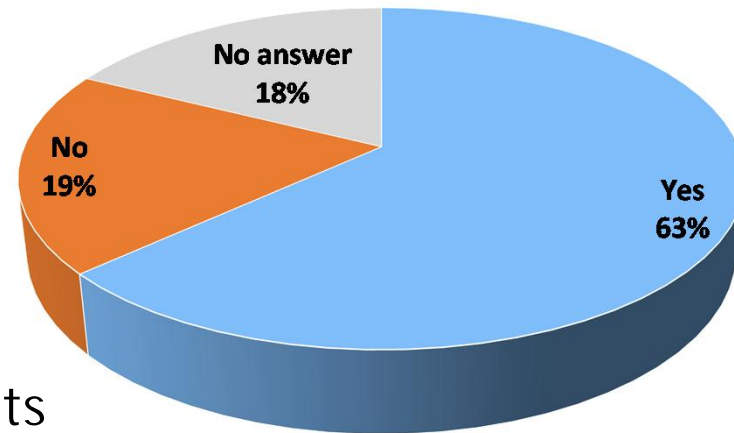
Training seminars and short courses



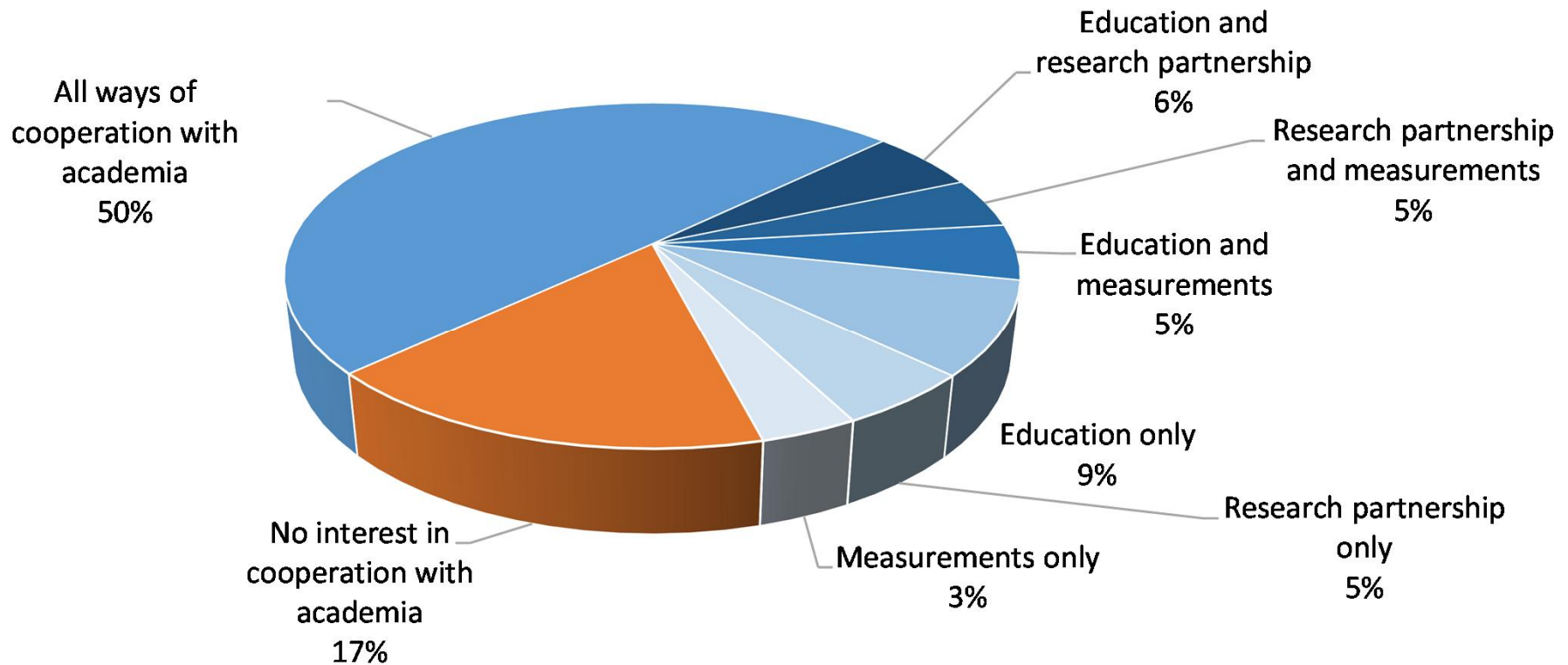
Research partnership



Measurements



Results – academia



Results – reliability

- » Total amount of responses considered as sufficient for quantitative analysis was not reached
- » Expected to be impossible to reach per individual country
- » Monitoring the survey progress suggests that it would give very similar results
 - » Patterns in current results for almost 200 respondents are very close to those obtained with half of this number
- » Survey results believed to be a fair representation of the printing industry throughout Europe

Conclusions

- :(Lack of market demand + considering innovative printing as expensive and complex prevent investment in this area
- :(Obstacles identified in literature on diffusion of innovations confirmed as valid in today's printing
 - » Uncertainty and risk perceived due to unclear benefits, advantage to the existing production, and consequences for potential adopters
 - » Resistance to change on the side of customers as well as end users
- » Need to create more knowledge amongst both groups

Conclusions

- ;-) Nearly 200 industrial respondents took the time to reply, showing commitment to the subject and innovation in general
- ;-) Targeted innovations are considered also by some traditional printers belonging to SMEs (not only by the specialized agile companies outside printing sector or the strongest and flexible printers)

Conclusions

- ;-) Companies are manifesting their interest in education in this area and willingness to take part in research partnerships
- ;-) This might work in favour of innovative printing (although in the long term)

- ;-) Since most of the respondents use paper and board as a substrate, it is good news for the European paper and board industry and the future of the graphical industry overall

Conclusions

- » Countries differ in the progress in innovation or technology, but the approach and vision of the industry is similar across Europe
- » New technology is not the bottleneck
- » The challenge is to fit new technology to future requirements and business concepts
- » R&D and cooperation between different partners is needed to reach future goals

Outlook

COST Action FP1104

- » Strengthening the co-operation between printing industry and academia
- » Gathering in depth feedback on the survey results

COST Action FP1405 (towards active and intelligent packaging)

- » Continuously motivating industry to invest and develop
- » Revisiting the current studies
- » Getting more in-depth feedback on drivers for change
- » Focusing on patterns, relations or discrepancies among the results

Affiliations

- » University of Pardubice, Czech Republic
- » Bumaga BV, Netherlands
- » IADIS, Portugal
- » University of Novi Sad, Serbia
- » Óbuda University, Hungary
- » University of Ljubljana, Slovenia
- » VTT Technical Research Centre, Finland
- » LEMNA, University of Nantes, France

Acknowledgments

COST Action FP1104
New possibilities for print media and
packaging – combining print with digital



Janet Preston (Imerys Minerals Ltd., United Kingdom)

Beatrice Klose (Intergraf)

John Charnock (Print Research International Ltd., United Kingdom)

Tim Claypole (WCPC, United Kingdom)

Regina Connolly (Dublin City University, Ireland)

All industry representatives who took part in the survey



"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."

https://farm9.staticflickr.com/8720/16827680108_e2ea9b18b3_o_d.jpg

Thank you for your attention

marketa.drzkova@upce.cz
s.tiekstra@bumaga.nl

