



Newsletter Issue 4 / February 2022

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As the first year of UNTANGLED draws to a close, we're proud to present our first research paper: our colleagues found that the adoption of robots and other automation technologies in Europe in 2004-2018 were net positive for employment. We talk with the authors about their findings, and about how this and other research is challenging the common media narrative that "robots are stealing our jobs".

In our Get to Know Us section, we profile the two institutions that produced the report: the RWI Leibniz Institute for Economic Research and the Institute for Structural Research (IBS). This edition of the Newsletter also includes a report on a paper by our colleague Francesco Venturini, who found that in addition to the direct benefits for GDP and employment of adopting smart technologies, these inventions also boost productivity by spreading high-tech knowledge through the economy.

In the fourth quarter of UNTANGLED, November brought the first edition of our OpenVirtual Expert Café. We provide a recap of the event, and a look ahead to the next edition, scheduled for 3 February. We're convinced that this kind of informal structure is a great way to share ideas and build networks.

We're grateful to all the participants in the November Café, the readers of our Newsletter and everybody else who's helped make our first year a success. And we're looking forward to 2022, which promises to deliver a number of important new studies and events. Stay tuned!

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Upcoming events

3 February – Open Virtual Expert Café **25 March** – Vienna Stakeholder Workshop

Follow us on social media or check **projectuntangled.eu** to make sure you don't miss out!



ROBOTS ARE NOT WORKERS' ENEMIES

In their recent paper *The Impact of Robots on Labour Market Transitions in Europe*, UNTANGLED researchers Ronald Bachmann, Myrielle Gonschor, Piotr Lewandowski and Karol Madoń showed that the deployment of robots and other forms of automation increased employment in Europe by 1-2% between 2004 and 2018. We asked the authors about these findings.



Ronald Bachmann RWI Leibniz Institute for Economic Research



Myrielle Gonschor RWI Leibniz Institute for Economic Research

Almost every day we can read a story about how robots will replace humans at low-paid, repetitive tasks such as assembly-line work. Many of these stories have alarming headlines, shouting that robots are stealing our jobs. Will your research put an end to this narrative?

Ronald Bachmann: It won't end the debate, but it should help change it, at least in Europe, by building on earlier research with similar findings. Our study analysed how the deployment of robots affected layoffs and job finding in the European Union, and it turned out that robot adoption slightly increased employment. And we looked at a decade when the number of robots in Europe quadrupled, so I think we have strong evidence that robots and other forms of automation are not a threat to employees.

But the positive effects of robot adoption aren't the same for each country. Why are these effects stronger in some countries than in others?

Piotr Lewandowski: The situation varies between countries because of labour costs. The higher the labour costs, the smaller the positive effect. So in Central and Eastern European countries, where these costs are lower, robot adoption did not lead to massive layoffs, but investments in automation created new jobs. However, in Western European economies, where labour costs are higher, the effect was neutral. The deployment of robots didn't result in layoffs, but it didn't translate into new jobs either.

So robots are taking some jobs, but new jobs are also created?

Myrielle Gonschor: I would rather say that robots are performing some of our tasks. For instance, automation of production lines will reduce the number of workers on the shop floor, but these people will not be unemployed, as they're needed in other segments of the industry. Our colleagues showed that in Germany the decline in manufacturing employment caused by robotisation was counterbalanced by an increase in employment in the service sector.

From what you say, robotisation creates new challenges for employees.

Ronald Bachmann: That's true. Robots are changing the way we work, and we need to adjust to this new reality. This requires training and reskilling. In that sense, our research has important policy implications. Public and private actors that shape economic policies will need to ensure robotisation will be an opportunity for better jobs. And for that, each country has to create its own tools, as a one-size-fits-all model won't work for countries with different labour costs.

> ROBOTS ARE NOT WORKERS' ENEMIES



Piotr Lewandowski The Institute for Structural Research (IBS)



Karol Madoń The Institute for Structural Research (IBS)

Are workers equally immune to robot adoption?

Karol Madoń: Since machines are ideal for predictable and repetitive tasks, many have feared that people who perform such tasks, for instance workers on production lines, are most vulnerable to automation. Surprisingly, we found that those workers benefit most from automation. In most European countries, except for the richest ones, robot exposure increased the likelihood of job finding among workers in routine occupations. Another surprising finding is that automation does not pose a greater threat to older or younger workers, who are usually seen as the most vulnerable groups of the working population.

You based your analysis on data for 2000-2017, but what if robot adoption accelerates? Can we expect similar positive effects on the job market?

Piotr Lewandowski: European countries are in a unique position to take advantage of automation to maximise economic gains and minimise the social risks, for two reasons. First, many countries are facing and will face worker shortages because of population ageing. Robots can ease these shortages and improve productivity in many sectors. Second, EU countries have stronger social safety nets, as well aseducation and training systems that can be adapted to assist some groups of workers or regions who struggle because of automation. Nevertheless, we need to monitor these developments and target our policies to these workers and regions.

The Impact of Robots on Labour Market Transitions in Europe can be downloaded from the UNTANGLED **website www.projectuntangled.eu**.



SMART TECHNOLOGIES TRIGGER DIFFUSION OF TECH KNOWLEDGE, BOOST PRODUCTIVITY

Francesco Venturini



Francesco Venturini Associate Professor of Economics at the University of Perugia and a fellow at the National Institute of Economic and Social Research

new study has found that in addition to the benefits for GDP and employment that come directly from the adoption of smart technologies, these inventions also boost productivity by spreading high-tech knowledge through the economy.

Smart technologies such as artificial intelligence (AI), the Internet of Things (IoT) and 3D printing are disrupting almost every industry and changing the way we live and work. So it's no surprise that these inventions, all of which are part of the Fourth Industrial Revolution (4IR), have been attracting a great deal of attention from scholars.

Researchers have focused primarily on investigating and measuring the impact of 4IR on the labour market, i.e. to what extent the new technologies are changing employment, and on the impact on economic growth, or how much the adoption of intelligent technologies increases the rate of GDP growth and labour productivity. But until now, little has been known about the effects associated with the development of technological knowledge that comes from the adoption of these inventions. In a recent paper, UNTANGLED researcher Francesco Venturini showed that intelligent technologies lead to the diffusion of knowledge and result in significant productivity gains.

Venturini asked two questions. First, do intelligent technologies trigger knowledge spillovers at the country level? Second, do these new technologies behave similarly to the greatest inventions of the past (e.g. the steam engine, electricity, semiconductors)? Using patent application data as a proxy, Venturini showed that knowledge related to intelligent technologies accounts for a 3-8% gain in productivity. He also found that similarly to the great inventions, smart technologies produce sizable productivity gains long after their arrival.

Francesco Venturini, "Intelligent technologies and productivity spillovers: Evidence from the Fourth Industrial Revolution", *Journal of Economic Behavior & Organization*, Volume 194, 2022, pp. 220-243.

VIRTUAL CAFÉ KEEPS THE UNTANGLED TEAM IN TOUCH WITH STAKEHOLDERS



UNTANGLED has launched its Open Virtual Expert Café, a platform to connect people who work on labour issues and deal with digitalisation, globalisation, skills, migration and more. The first meet-up took place on 18 November, and the next one is scheduled for 3 February at 2 pm CET.

"We believe a less formal, more intimate space for discussion is just as important as big official conferences," says Virtual Cafe organiser Ursula Holtgrewe. "In this more casual setting we've developed, new ideas can be tested, networks expanded, and alliances built."

The November meeting provided an opportunity to discuss hypotheses and ongoing projects with experts from the fields of globalisation, digitalisation, demographic change, work and employment. Holtgrewe, who leads the Work and Equal Opportunities Unit at the Centre for Social Innovation GmbH (ZSI), introduced UNTANGLED and the concept of the Virtual Café, while three presenters talked about their projects:

- Vassil Kirov presented the H2020 project BEYOND 4.0, which takes a closer look at the impact of new technologies on the future of jobs, business models and welfare with a focus on emerging new jobs and workplace innovations.
- Ursula Holtgrewe introduced INCODING, a project that looks at ways of shaping algorithmic management through social dialogue to retain or improve workplace democracy and job quality.
- Ludivine Martin presented insights from the DIGITUP project, which focuses on the impact of the first COVID-19 lockdown on the use of digital tools among teleworkers in Luxembourg.

> VIRTUAL CAFÉ KEEPS THE UNTANGLED TEAM IN TOUCH WITH STAKEHOLDERS

Participants discussed the impact of homeworking during the pandemic and beyond. It appears that previous experience with homeworking and remote working helped both companies and employees. Variation in working hours and time saved on commuting may be favourable for workers – unless these hours are just added to working time, or eaten up by increased workloads for childcare or elder care. However, remote collaboration and leadership remain challenging, especially where co-workers and collaborators do not know each other personally.

If you are working on labour market issues, please join our second meet-up! Participants who wish to present will be given 3-5 minutes to:

- share information on their current research, project, or results;
- announce an event or call for action;
- ask questions, seek advice, comment;

Or feel free to just listen in and expand your network. To register: https://survey3.zsi.at/index.php/566899?lang=en

GET TO KNOW US

. I : I D S institute for structural research

THE INSTITUTE FOR STRUCTURAL RESEARCH

The Institute for Structural Research (IBS) is a not-for-profit independent research foundation based in Warsaw. IBS is committed to policy-relevant research in economics and other social sciences.

Expertise

The Institute's main areas of interest include the labour market, demography, energy and applied quantitative methods. Its work explores occupations; labour market effects of technological change and globalisation; skills; gender equality; and interactions between labour markets and demographic developments. IBS pays particular attention to the societal relevance and policy implications of its work. Its researchers are also associated with leading Polish academic institutions: the University of Warsaw and the Warsaw School of Economics.

At UNTANGLED, IBS is leader of WP 3: Macro-level analysis, and is involved in all WPs.

The IBS's team in UNTANGLED



Piotr Lewandowski President of the board



Maciej Albinowski Economist



Iga Magda Vice president of the board



Marek Antosiewicz Economist



Karol Madoń Economist



Zuzanna Kowalik Researcher

GET TO KNOW US

RWI LEIBNIZ INSTITUTE FOR ECONOMIC RESEARCH

RWI is a leading centre for economic research and evidence-based policy advice in Germany. Through its research, RWI provides information on economic development, assists economic policy decision-making and fosters economic literacy among the wider public.

Expertise

RWI explores a wide array of topics, such as labour markets, education, migration, health, the environment, development and the macroeconomy. The Labour Markets, Education, Population research unit studies labour economics and labour market policies. The determinants of the labour market outcomes (employment, wages, etc.) of individuals are of particular interest, and include factors such as technological change, labour market institutions and policies.

At UNTANGLED, RWI is involved in WPs 1, 2, 4, 5, 7, 8 and 9.

RWI's team in UNTANGLED



Ronald Bachman Head of the Labour Markets, Education, Population research unit



Myrielle Gonschor Economist



Sandra Schaffner Economist



UNTANGLED is a three-year interdisciplinary Horizon 2020 research project that seeks to examine the interconnected trends of globalisation, demographic change and technological transformation, and their effects on labour markets in the European Union and beyond. By engaging a broad range of stakeholders, including companies and civil society organisations, we will develop practical policy proposals to help governments cushion the negative impacts of these trends and ensure their benefits are enjoyed fairly across regions and sectors.

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