Automation in Shared Service Centres: implications for skills and autonomy

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Abstract

The offshoring-fuelled growth of the Central and Eastern European business services sector gave rise to shared service centres (SSCs) which are quasi-autonomous entities handling routine-intensive tasks for corporations. SSCs have created thousands of jobs in CEE, but emerging technologies like Intelligent Process Automation, Robotic Process Automation, and Artificial Intelligence jeopardise their employment model and change the demand for skills. This study challenges the deskilling hypothesis and reveals that automation in Polish SSCs facilitates upskilling and worker autonomy. Drawing on 32 in-depth interviews, we highlight the negotiated nature of automation processes shaped by the interactions between headquarters, SSCs, and workers. Workers actively participated in automation processes, eliminating the most mundane tasks. This resulted in upskilling, higher job satisfaction and empowerment. Yet, this phenomenon is largely driven by labour shortages that constrain SSCs expansion. These trigger automation and encourage firms to leverage the firm-specific expertise of their existing workforce. The findings highlight the importance of fostering employee-driven automation and upskilling initiatives to improve job quality and satisfaction.

Keywords: automation, Shared Service Centres, skills, job quality

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Introduction

The growing interest in offshoring services to low-cost locations has been a vital part of business strategies since the early 2000s. Multinationals sought cost-cutting opportunities, while the improvements in long-distance communication (ICT) enabled them to offshore increasingly advanced tasks and activities, such as accounting, human resources management, and R&D (Baldwin 2019). The drive for cost savings and service enhancements (Richter and Brühl 2017) created a specific organisational form, shared services centres (SSCs). SSCs are partly autonomous facilities which remain in companies' organisational structures (Mezihorak 2018). Central Eastern European (CEE) countries that joined the European Union in the 2000s soon became essential locations of SSCs.

Initially, SSCs were hubs of routine-intensive, highly modular (Hirst and Humphreys 2015) cognitive jobs. However, emerging technologies such as Robot Process Automation (RPA), Artificial Intelligence (AI), and Intelligent Process Automation (IPA) increasingly enable automation of such tasks. At the same time, demographically driven labour shortages, growing human capital, and rising wages are inducing SSCs located in the CEE region to shift towards more knowledge-intensive work. SSCs have undergone a structural change as a result. Little is known, however, about the drivers of cognitive work automation and its impact on worker skills and autonomy, especially in knowledge-intensive business services.

The study aims to fill this gap and assess whether automation of routine-intensive tasks in SSCs can increase workers' skills and autonomy. Building upon longstanding sociological and economic theories, we pay particular attention to shifts occurring in skill and competency prerequisites and evaluate their implications for power relations dynamics within firms. Additionally, we identify skills that rise or decline in value, as well as automation's influence on workers' independence and decision-making. We highlight the role of labour shortage as a trigger of automation that shapes its impact on skills and autonomy. We use four exploratory case studies based on 32 in-depth interviews conducted in Shared Services Centres in Poland in 2022.

The following research questions guide the study: *What is the relationship between this new wave of automation and the skills of workers in SSCs? How does automation impact workers' autonomy and decision-making in SSCs? What are the dominant approaches to automation in SSCs, and how do they shape workers' roles and job satisfaction?* Additionally, we examine the key factors driving automation in SSCs and how they relate to the specific conditions of the Polish labour market.

We start with Braverman's deskilling theory, which posits that jobs evolve primarily to boost efficiency within a capitalist framework as work becomes more standardised and automated. This results in 'deskilling', where workers are detached from the whole labour process and perform repetitive tasks dictated by mechanisation. As a result, autonomy suffers as deskilled and disempowered workers lose control over their tasks. Such erosion of workers' skills exploits labour towards capitalist interests.

We argue that the establishment of SSCs indeed resembled such a process. However, automation in the SSCs we studied actually facilitates increasing skill utilisation and autonomy. This finding contradicts Braverman's argument and may be called 'empowering automation'. The phenomenon emerges in a specific macroeconomic context in which managers' desire for growth is constrained by demographically driven labour shortages. Struggling to expand employment and facing higher hiring costs, firms embark on bottom-up automation. While Labour

Process Theory (LPT) offers insights into the genesis of SSCs, it falls short of explaining contemporary automation dynamics that respond to worker shortages. We found no substantiating evidence that automation causes deskilling, disempowerment, or reduction in employment within the SSCs.

On the contrary, our findings show that automation has improved job quality by removing tedious, repetitive tasks. Automating these tasks creates space for more creative or ambitious tasks, benefiting entry-level workers. It increases the need for skills such as critical thinking and creativity. In this regard, the push toward automation in business services resembles early-stage robotic automation in countries facing labour shortages due to ageing populations. Evidence from Japan shows that the shortage of unskilled factory workers was positively associated with robot adoption, while the shortage of skilled workers limited it (Deng et al 2023). The adoption of robots enabled productivity growth and had no negative effects on employment (Adachi et al 2022).

The first section of this article reviews perspectives on the interplay between technology and skills and sketches the conceptual framework. The second section outlines the Polish labour market context, which is crucial for understanding the outcome of automation in SSCs. The third section provides the research design, data collection, and analysis approach. The fourth section presents the findings from our case studies and the final section offers a discussion of those findings.

Conceptual framework

Perspectives on the interplay between skills, autonomy and automation

The interplay between technology and skills has long been studied in sociology and economics, particularly in the context of the advancement of automation. This dynamic was notably explored through the LPT introduced by Braverman (1974), which posits that automation and technological progress trigger deskilling within a capitalist framework. Automation and mass production, Braverman argued, displace traditional craftsmanship with standardised routines, with skilled artisans being substituted for machine operators following pre-established protocols. This phenomenon compels workers into specialised, repetitive roles, eroding their overall proficiency and independence. As workers become detached from their tasks due to the deepening influence of 'Taylorist' approaches and automation, they transform into mere components of a larger production mechanism, causing dissatisfaction and disengagement. Further, workers' control and autonomy over tasks diminish, as they are relegated to narrowly defined roles under stringent management. This lack of autonomy contributes to the deskilling of labour and a sense of detachment between workers and their outputs.

Braverman further argued that implementing automation and new technologies primarily serves capitalist interests, aiming to maximise profits (Braverman, 1974, p. 139). Although automation may enhance productivity, the lion's share of benefits favours the capitalist class, exacerbating income inequality and worker exploitation.

Though automation initially appeared to deepen worker subjugation, the rise of ICT and robotics has raised questions about technology's potential to enhance worker autonomy and skills. Since the 1980s, rapid progress in Information and Communication Technologies (ICT) and robotics has been the key technological force shaping the demand for labour and skills. This second industrial revolution was supposed to pave the way towards a more

flexible and decentralised system with greater autonomy. The deskilling theory was contrasted with the view that 'flexible specialisation' might enable more worker control over tasks and responsibilities (Piore and Sabel, 1984). This view argues that technology can provide advanced skills to professionals, granting them greater command over more specific knowledge (Barley 2006; Kornelakis et al 2022). Empirical studies have indeed provided evidence that computerisation increased autonomy (Menon,et al 2020). This shift in labour dynamics finds resonance in the routine-biased technical change (RBTC) hypothesis. The RBTC hypothesis predicts that ICT mainly replaced humans in routine tasks that are structured, repetitive, and easier to codify than non-routine tasks that require problem-solving, creativity, or interpersonal skills (Acemoglu and Autor 2011). Routine work can be either manual (for instance, work of assemblers or plant or machine operators) or cognitive (for instance, accountants or bank tellers) and usually requires a medium level of skills. Routine tasks are also easier to monitor remotely, which makes them easier to offshore (Blinder and Krueger 2013). Compared to earlier technological revolutions, ICT allowed automation and offshoring of cognitive work, extending the potential deskilling risk to office jobs. Simultaneously, job opportunities and wages increased within the realm of creative professions that benefited from the productivity-enhancing power of emerging technologies and capitalised on worldwide markets. Likewise, employment expanded in simple service jobs that require in-person interactions but usually pay low wages, rendering automation complex and financially unsound.

As a consequence of RBTC and offshoring in high-income countries, employment levels and relative earnings have declined in routine-intensive, middle-paying occupations, leading to job and wage polarisation (Autor et al 2003; Spitz-Oener 2006; Goos et al 2014). However, in middle-income and emerging economies that exhibit a lower supply of skills and lag behind in technology adoption, routine employment, especially routine cognitive employment, has been increasing (Hardy, Keister and Lewandowski, 2018). Consequently, low- and middle-income countries have increased their role as the dominant supplier of routine labour in the global division of work (Lewandowski et al 2023).

Shared services centres - the fragmentation and automation of back-office functions

SSCs are quasi-autonomous entities which offer services to a central organisation focused on its core business. They serve the same purpose as outsourcing, constituting a form of 'quasi-externalisation' (Flecker, Haidinger and Schönauer, 2013) aimed at reducing costs, improving processes, and reallocating peripheral activities from core activities (Herbert and Seal, 2012). SSCs typically perform administrative or supporting functions such as finance, human resources, customer support, and other similar tasks (Cooke, 2006). They are often located in countries where labour is cheaper, such as Central and Eastern Europe or South-East Asia. Establishing SSCs frequently involves organisational changes (such as introducing an Enterprise Resource Planning system or removing the least productive parts of the process), restructuring and reorganisation (Howcroft and Richardson, 2012), which can significantly impact the organisation's culture and employee attitudes.

SSCs first gained attention as a form of 'New Public Management' when used for the outsourcing of public services. They were seen as a promising way of gaining efficiency, but their potential has not always been realised (Janssen and Joha, 2006). SSCs have also been explored from the perspective of globalisation and their position in global value chains (Gereffi and Fernandez-Stark, 2010; Fernandez-Stark, Bamber and Gereffi, 2011), as well as the standardisation of tasks and roles (Hirst and Humphreys, 2015). SSCs were intended to improve efficiency and

facilitate the circulation of the workforce. They made it possible for roles to be fragmented and turned into tasks, making them more codifiable, easier to control, and relocate. The codification of back-office tasks paved the way for automation as soon as the necessary technology became available — a moment that has now arrived.

Polish labour market context

Key labour supply and demand trends

The Polish labour market has undergone significant changes since the EU accession in 2004. First, the labour market situation has improved over time, fuelled by fast economic growth and integration with global value chains (GVCs). The employment rate of the working-age population (15-64) increased from 51.4% in 2004 to 71.3% in 2022, while the unemployment rate declined from 19.4% in 2004 to 2.9% in 2022. However, real wage growth was sluggish at 3.3% per year on average in 2004-2022, accelerating only in the late 2010s. The labour share in GDP has remained among the lowest in the EU, at around 40%.

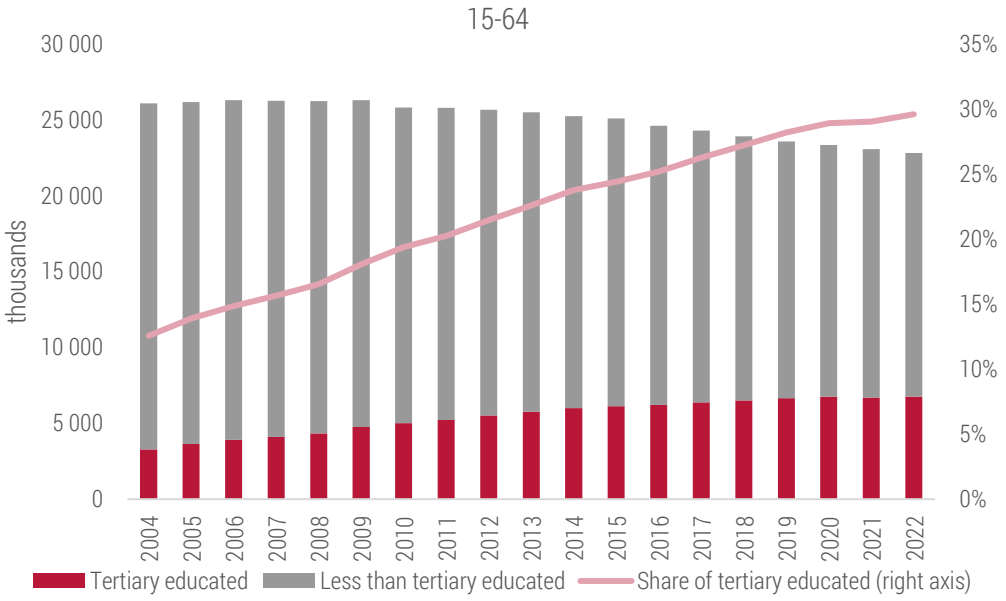
Second, Poland has recorded noticeable increased education, driven by rising tertiary enrolment rates. The share of tertiary educated people aged 15-64 more than doubled from 12.6% in 2004 to 29.6% in 2022 (Figure 1, top panel). The growth was more pronounced among women (14.2% to 35.6%) than men (10.9% to 23.7%). The pool of potential Business Service Centre (BSC) workers has exceeded 200,000 graduates annually, especially as studies related to BSCs, such as ICT, languages, business, and administration, have gained popularity (Kubacki *et al.*, 2023). Rapid improvements in education and the growth of ICT specialists contributed to the appeal of Poland and other CEE countries as business offshoring destinations (Bykova et al. 2021).

Third, demographic change has turned Poland from a country with abundant labour into one with a labour shortage. Until 2010, the working age (15-64) population grew, reaching 26.33 million people in 2009. Later, it shrank to 22.85 million (13.2% decline), mostly between 2015-2022 (Figure 1, top panel). The young adult population (aged 25-29) started declining as early as 2009, reflecting Poland's low fertility rates. Moreover, the education boom peaked in the mid-2010s, and tertiary enrolment rates have declined among the youngest cohorts. While the number of tertiary-educated young adults grew from 740,000 in 2004 to 1.22 million in 2012 (65% increase), it later declined by the same amount, reaching only 750,000 in 2021 (Figure 2, bottom panel). This reversal has particularly affected sectors that grew by hiring many graduates, such as SSCs. Recently, SSCs have faced labour shortages not experienced since their establishment in Poland.

Since the late 2010s, labour shortages have been partially eased by immigration. Statistics Poland data shows the number of foreigners aged 18 or more residing in Poland rose from 750,000 in 2016 to 2.2 million in 2019, just before the COVID-19 pandemic (GUS, 2022). Most immigrants came from Ukraine and could integrate well into the labour market. In 2022, foreigners accounted for about 6.5% of the total workforce (Mrugała and Tomczyk, 2022).

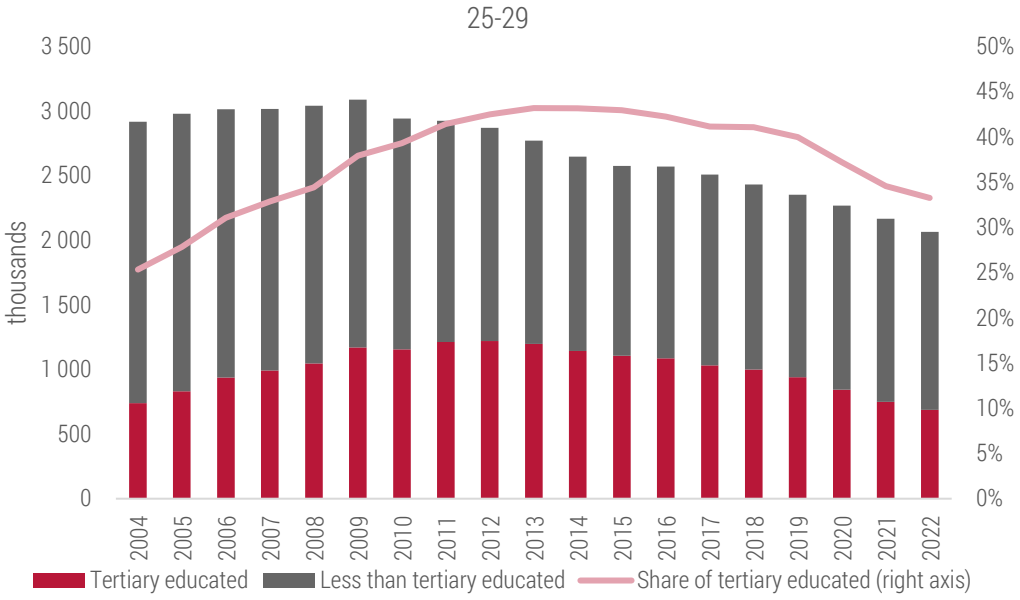
Nevertheless, the era of abundant labour and large graduate cohorts entering the Polish labour market is over. By 2040, Poland's total labour supply is expected to decrease by a further 10% and 17% among the prime-aged population (25-54). The pace of prospective population ageing and its negative impact on economic growth are expected to be one of the strongest among the OECD countries (Kotschy and Bloom, 2023).

Figure 1. Trends in educational attainment among the working-age population (15–64) in Poland, 2004–2022



Source: Own elaboration on Eurostat data.

Figure 2. Trends in educational attainment in the age group 25-29 in Poland, 2004–2022



Source: Own elaboration on Eurostat data.

Poland as an outsourcing destination

Poland is a vital outsourcing destination. BSCs, particularly SSCs, have substantially grown as Poland integrated into European and global value chains. Between 2008 and 2023, BSC employment increased by 630%, reaching 435,000 people employed in over 1,800 companies (Kubacki *et al.*, 2023). In 2023, BSCs accounted for 6.7% of total business sector employment and 2.6% of total employment in Poland (Statistics Poland, 2023). The sector grew

most dynamically between 2011 and 2020, when, on average, 80 centres were established annually. The industry is also highly concentrated. Three cities – Warsaw, Wrocław, and Kraków – constitute 47.8% of all entities (Popławski et al., 2021).

The BSCs are highly integrated into GVCs. In 2023, 69.5% of SSCs, accounting for 83.6% of SSC jobs, were foreign-owned. Investors in BSCs come predominantly from the US (28% of total employment), followed by large European economies: the UK (10%), France (9%), and Germany (7%) (Kubacki *et al.*, 2023). Factors attracting foreign investors to Poland include political and economic stability, transport accessibility, and proximity to Europe's economic core (Geodecki & Zawicki, 2021). As a semi-peripheral economy, Poland competes mainly on the cost margin, specifically labour costs (Suwandi 2019). Decentralised (enterprise or company level) wage bargaining and the minor role of trade unions in the private sector facilitated such competition in Poland and other CEE countries (WEF 2019). Despite some catching up, the wage gap between Poland and the Western European countries remains substantial.

Over time, the Polish BSC sector has upgraded in GVCs. The complexity and sophistication of business processes have gradually increased, requiring worker upskilling and intensified automation of repetitive tasks. In 2023, 56.9% of all SSCs' functions were considered knowledge-intensive, a 12.9 p.p. increase since 2019 (Kubacki *et al.*, 2023). In 2023, 58.2% of companies used solutions based on Intelligent Process Automation, and 30.3% planned to implement them, with the vital aim of optimising the costs (Kubacki *et al.*, 2023).

Multinationals' presence in CEE countries has been stabilised, in line with the growing investments' sunk costs and the development of specific, localised capabilities. Foreign capital has been eager to reinvest a larger share of its profits and to upgrade and diversify the scope of activities, which strengthened the region's competitive position, illustrated by higher labour productivity and share in global markets (Szent-Iványi, 2017; Domański and Gwosdz, 2009; Geodecki, 2021). Poland's improving institutional capacity (Bruszt et al 2020) and technological capabilities (Radosevicet al 2019; Hollanders et al 2021) also change the nature of competitiveness. Since the 2010s, exports from Poland and other CEE countries have been less vulnerable to rising wages, and employers show greater interest in enhancing and augmenting human capital (Grodzicki and Skrzypek, 2020; Gräbner et al 2020).

Research approach

Our research design follows the exploratory case study approach (George and Bennett 2005). An explanatory case study is a research design that explores and explains the underlying causes or mechanisms of a particular phenomenon or event. In an explanatory case study, the researcher goes beyond describing the surface-level features of a case and seeks to understand why a specific outcome occurred or what factors contributed to a particular situation. The focus is on providing insights into the causal relationships and understanding the deeper dynamics at play.

In selecting companies for the study, we applied several criteria. First, we focused on companies that were internally or externally described as Shared Services Centres in Poland. Secondly, we sought companies from various sectors and sizes (with over 250 employees) to examine the differences in adopting automation based on these variables. Thirdly, we included companies with different lifespans in Poland to seek differences in experience with automation.

Table 1. The summary of the studied companies

No.	1	2	3	4
Industry	Insurance	Technology	Industry	ICT
Location	Warsaw	Kraków	Kraków	Kraków
Employment	300	400	5000	2000
Country of origin	USA	Japan	UK	USA
Business functions	Shared services for brokers in Western Europe: issuing invoices, archiving documents, support with issued claims	Finances, taxes, internal audit, IT, data analysis	Finance, HR. customer operations, sales support, legal	Software engineering, R&D, customer experience, sales, HR
Established in Poland	2017	2007	2007	2012

Source: own elaboration

To collect data, we used a combination of semi-structured interviews with employees, managers, and CEOs of companies and aggregated data from Eurostat, Association of Business Services Leaders (ABSL), and CEE Business Services Summit & Awards 2022 video recordings uploaded to the YouTube channel CEE Business Media and Awards. The selection of companies was guided by accessibility and the opportunity to leverage existing partnerships between the Cracow University of Economics and the business sector. The interviewees were then selected according to their experience with automated tools or robots. We ensured diversity in seniority and experience levels, and included a representative from human resources and recruitment. We conducted 32 interviews between May and June 2022, recorded with permission, and lasting 45-60 minutes. The interviews followed a set of structured and open questions organised under themes. 13 interviews were conducted with managers, and 19 with non-managers (specialists, consultants, process owners, analysts, and experts).

We analysed the interview transcripts, notes, and primary sources, such as ABSL reports, using MAXQDA. The transcriptions were then coded with the literature themes and processed via a content analysis approach (Braun and Clarke 2006).

Our analytical approach was iterative—starting with a thorough examination of sector-specific documents we refined our framework through theoretical lenses— ensuring that our content analysis was both empirically grounded and theoretically informed. We began by clearly defining our first research question: *What is the relation between automation and the skills of workers in Shared Services Centres?* To address this, we initially conducted an in-depth analysis of desk research documents, such as the ABSL report, which provided us with a comprehensive overview of the sector.

From this analysis, we identified several key themes particularly pertinent to our research focus. One such theme was the concept of "knowledge-intensive processes", which emerged as central to understanding the dynamics within the sector. Recognising the importance of these data-driven insights, we then linked these themes to theoretical frameworks that could further illuminate the phenomena under study. To answer our second and third research questions: *How does automation impact workers' autonomy and decision-making in SSCs? What are the*

dominant approaches to automation in SSCs, and how do they shape workers' roles and job satisfaction?, we integrated elements from Labour Process Theory (LPT) and Routine-Biased Technological Change (RBTC), adding constructs such as autonomy, routine tasks, and job quality—all of which are also closely linked to the evolving structure of skills in the context of automation.

Results

The advancement of automation efforts has varied among the interviewed companies. IT companies with extensive experience in automation have the most expertise, while the insurance company remains less advanced. So far, the shift from Western European offices to Poland has focused more on centralisation and process streamlining than innovative automation. Apart from that, for many years, companies prioritised language skills over technical skills, limiting SSCs' automation capabilities due to a lack of skilled personnel, especially managers.

The most effective cost-saving solutions have been simple technologies like the 'paperless office' (digitising documents), OCR, Workflow, and custom platforms linking various data systems, rather than advanced robots. While many of these applications constitute digitisation rather than pure automation, they were sometimes conflated during the interviews. Visual Basic Applications, a relatively simple programming language used in Microsoft Excel, emerged as the most commonly used automation tool.

Management anticipates faster automation in the future, although readiness and skilled personnel availability vary. Despite interest in AI and automation, these technologies remain costly and have yet to deliver the expected savings. Often, even automated processes still require human oversight, and productivity gains have been mixed.

> *I'll be honest: previously, in our company, there was an external firm that created these bots, and unfortunately, the quality of their work was very low. The bots were poorly written, as well. So, there were many errors, and our current team had to make many corrections because we now have a new, in-house team. It consists of several people. And now, it is much better (...) It used to be that, unfortunately, these bots would break down every day, so it caused more problems than benefits. I was never sure whether I'd come to work and be able to complete the report, whether there would be errors, or if it wouldn't work at all.* (Technological_9)

Relation between automation and skills of SSC's workers

Skills in SSCs can be examined through two distinct lenses: organisational and worker perspectives. From the organisational standpoint, automation prompts a reassessment of the skills required to navigate increasingly digital environments. From the worker's viewpoint, automation raises concerns about skill relevance, opportunities for upskilling, and the level of employer support for professional development.

Organisational Perspective

Entry-level roles in SSCs traditionally involved repetitive, modular tasks with limited skill requirements. However, automation, especially within the 'citizen developer' framework, has shifted the focus toward creativity, critical thinking, and problem-solving. Alongside these 'hard skills,' managers continue to prioritise soft skills such as attention to detail, teamwork, client focus, and language proficiency. Formal education has become less critical, with a bachelor's degree and a positive attitude often considered sufficient.

> *I'd rather we focus on hiring someone with the right attitude and teaching them almost everything they need to do the job.* (Insurance_4)

The paradox for SSC managers lies in balancing two needs: hiring individuals comfortable with routine tasks yet adaptable enough to embrace change and enhance processes.

> *I seek individuals who can accept the repetitive nature of this work while also maintaining a proactive approach to it.* (Insurance_2)

The rise of automation has also increased demand for 'purple people,' specialists with dual expertise in IT (which is represented by red colour) and business domains (blue colour), such as finance. These individuals can handle automation tools, analyse data, and bring domain-specific knowledge to the table.

> *We call them 'purple people' (...) who understand the expectations of the business side, are knowledgeable about a specific domain, and can program or analyse big data sets.* (Industry_3)

Recruiting 'purple people' externally is challenging due to the diversity of systems and business processes across companies. Therefore, organisations increasingly focus on developing such talent internally, but as shown further, training programs often fall short of meeting this need.

Workers' Perspective

Automation has expanded to teams like HR, which are traditionally less engaged with programming or automation. This has prompted two approaches: upskilling existing employees or relying on IT professionals with an interest in business processes. However, IT experts frequently pursue better-paid opportunities elsewhere, leaving teams dependent on self-taught programmers.

> *So when it comes to skills, here I definitely have a lot of people who are... self-taught; they are individuals who have tinkered with things on their own and learned something somewhere.* (Industry_5)

While companies recognise the value of formalising these skills through certifications, training is often left to employees to pursue outside of working hours. Heavy workloads and understaffed teams further limit their ability to upskill.

> *All these skills that, for instance, I'm building for myself to develop happen outside of work, after work.* (Technological_4)

This gap highlights a contradiction: companies demand 'purple people' yet fail to provide sufficient or accessible training resources to develop such specialists. While some organisations claim to support upskilling, employees often remain unaware of available opportunities, such as internal VBA courses, probably due to poor communication.

> *We provide opportunities, we are open to suggestions, and if someone is interested in a certain training, we naturally discuss the possibility of participation, whether it's internal or external. However, we don't force anyone here to attend.* (Industry_7)

The lack of focused training on programming and analytical skills, combined with time constraints, underscores the need for SSCs to align training programs with evolving skill demands. Effective promotion and adequate time allocation for learning are critical to closing this gap, yet evidence of such concerted efforts remains scarce.

Autonomy and decision-making

Automation significantly influences Shared Service Centres by enhancing autonomy at both individual and organisational levels. This impact manifests through a process we describe as 'empowering automation,' which contrasts sharply with Braverman's argument that automation primarily disempowers workers. Instead, automation in SSCs fosters autonomy and growth for both employees and organisations, enabling them to assume more advanced roles and responsibilities.

Organisational Perspective

At the organisational level, automation-driven changes enable SSCs to upgrade their role within the broader company structure. By integrating sophisticated processes, SSCs position themselves as vital strategic partners rather than mere back-office operations.

As SSCs integrate increasingly sophisticated processes, the perception of their role in the organisational hierarchy transforms. For instance, automation allows SSCs to expand into higher-value functions such as process development planning, which was traditionally the domain of headquarters. In some cases, SSCs have even dropped the 'Shared Services Centre' label, adopting names that reflect their elevated status within the organisation.

> *We no longer go by that name. We're simply a business unit, a partnership unit.* (Industry_6)

However, local SSC managers often face resistance from headquarters when seeking to expand automation-related capabilities, such as building local robotics teams.

> *If I come up and say, 'I want five people for robotics,' they'll just tell me to go to India.* (Insurance_CEO)

Despite such limitations, SSCs strive to demonstrate their competence, delivering time and labour savings while improving process quality. They actively compete with other branches or headquarters to become recognised as hubs of excellence within their organisations.

Workers' Perspective

Historically, post-Marxist labour process theories viewed automation as a tool for de-skilling workers, reducing them to unskilled components in larger systems. However, the experience in Polish SSCs reveals a different narrative. Here, automation is a complement to human labour rather than a replacement. For example, tasks considered tedious, like 'click work,' have been automated, allowing workers to focus on more meaningful and creative tasks.

> *Automation eliminates 'click work,' those laborious tasks SSC workers generally find undesirable. Time saved can be redirected towards more creative endeavours.* (Technological_2)

Managers frequently emphasise that automation enables employees to grow professionally, fostering critical thinking, creativity, and autonomous decision-making.

> *We want to free their time to fill it with activities that will make workers more interested in things happening around them'* (Industry_4)

Automation also reduces 'educational waste' by ensuring that tertiary-educated workers use their skills for tasks aligned with their qualifications rather than mundane, repetitive activities.

> *Automation aims to alleviate tasks that educated individuals...let's be frank...shouldn't be doing. Graduates shouldn't be mindlessly clicking.* (Industry_7)

While automation's increased autonomy is empowering, it also comes with challenges. Workers are expected to display flexibility and adapt to frequent organisational changes. Some employees may view restructuring and promotions as superficial when job responsibilities remain unchanged.

Approaches to automation and their impact on workers

We identified two automation approaches: top-down and bottom-up. Top-down might involve employing an external expert team to build a platform consolidating data and automating tasks. It usually requires a well-prepared strategy and a significant amount of time and resources. Bottom-up, increasingly popular, enables workers to create small-scale solutions, like VBA (Visual Basic for Applications) macros, to streamline processes without advanced technical skills, addressing gaps left by top-down automation.

> *Many companies, including ours, are transitioning to a situation where some of this minor automation is being pushed onto users.* (IT_2)

Companies are increasingly pushing minor automation tasks onto workers, supported by tools that simplify bot creation through predefined actions. Initially, bottom-up automation involved informal assistance from tech-savvy employees. Over time, this evolved into formalised 'improvement/transformation teams' and hobby groups dedicated to automation. These initiatives allow operational staff to enhance their prospects and foster 'citizen developers'—non-IT employees who build tools like macros or bots to optimise tasks.

> *Part of us, at least, has predispositions for programming; here, they call us 'citizen developers'. (…) However, we are not programmers in any way, and most of us have never been trained as programmers in our education. (...) I don't know which came first, the chicken or the egg, but this whole process of transferring part of bot preparation to users is also associated with creating tools and automation programs that help with it.* (IT_1)

Although citizen developers often lack formal programming training, they leverage platforms designed for simplified automation. Their roles are typically informal and not embedded in corporate structures but are increasingly vital in bridging automation needs across teams.

Table 2. Summary of the selected representative quotes

Thematic Heading	Representative Quote	Interpretation
Automation and skills	*"I'd rather we focus on hiring someone with the right attitude and teaching them almost everything they need to do the job"* (Insurance_4)	Automation is shifting hiring priorities from predefined qualifications to adaptability and problem-solving ability.
	"We call them "purple people" (...) who understand the expectations of the business side, are knowledgeable about a specific domain, and can program or analyse big data sets" (Industry_3)	The emergence of "purple people" reflects the increasing need for cross-functional expertise in business and IT.
	*"All these skills that, for instance, I'm building for myself to develop happen outside of work, after work."(*Technological_4)	Workplace learning is often informal, with employees dedicating personal time to acquire new automation skills.
Autonomy and decision-making	*"We no longer go by that name. We're simply a business unit, a partnership unit"* (Industry_6)	Automation-driven role enhancement allows SSCs to move from back-office functions to strategic business units.
	"Automation aims to alleviate tasks that educated individuals...let's be frank...shouldn't be doing. Graduates shouldn't be mindlessly clicking" (Industry_7)	Removing repetitive tasks improves job quality and ensures that higher education is used effectively.
	"Automation eliminates 'click work,' those laborious tasks SSC workers generally find undesirable. Time saved can be redirected towards more creative endeavours."(Technological_2)	Automation reduces mundane tasks, allowing employees to choose to focus on more meaningful and complex activities.
	"We want to free their time to fill it with activities that will make workers more interested in things happening around them."(Industry_4)	Firms view automation as a tool to encourage employee engagement and professional growth rather than job displacement.
Approaches to automation	"*Many companies, including ours, are transitioning to a situation where some of this minor automation is being pushed onto users."*(IT_2)	Organisations are distributing automation responsibilities to employees rather than relying solely on IT departments.

Source: own elaboration

Conclusions and discussion

Since joining the EU in 2004, Poland has become a leading destination for Shared Services Centres, which streamline and standardise corporate processes. Initially, routine-intensive tasks were offshored, driven by a large, educated labour pool willing to perform them for moderate wages. However, demographic shifts, labour market tightness, and rising wages have created labour shortages, prompting a shift toward automation. Grassroots employee efforts to automate repetitive tasks are supported by managers aiming for greater efficiency.

As SSCs move up the global value chain, managers foresee a shift from routine, automated tasks to more complex responsibilities that demand higher skill levels and offer better wages. At this stage of SSC development in Poland and other CEE countries, the tasks being transferred within corporate structures are less monotonous and significantly more challenging compared to those introduced during the sector's early growth. This evolution in the scope and complexity of SSCs' responsibilities has led to a growing demand for skilled labour and a more diverse workforce. So far, automation has not reduced total employment or workers' workload in the SSCs. These centres are at a juncture where new tasks continue to emerge, and most individuals perceive no imminent threat from artificial intelligence.

We found that the implementation of bottom-up automation is profoundly significant for the processes of skill development and the rising autonomy of workers.

Automation and skills

From an organisational perspective, bottom-up automation highlights the importance of soft, technical skills, like the ability to use platforms to create bots, alongside domain-specific expertise. This shift has created the demand for 'purple people,' who combine IT and business knowledge, and for operational staff with the initiative to engage in automation-driven improvement teams. Employees increasingly need to go beyond performing tasks and envision better ways to complete them, using tools like VBA macros or simplified bot-building software. However, for workers, bottom-up automation presents both opportunities and challenges. While it allows them to upskill informally and potentially advance their careers, it also exposes gaps in employer-provided training. Many employees must learn automation tools independently, often in extra hours, as organisations struggle to align professional development programs with evolving skill requirements. This disconnect reinforces the need for SSCs to provide accessible, relevant training that empowers workers to embrace their roles as informal innovators. To some extent, firms free-ride on workers' drive to automate the most mundane tasks typical for the development stage they want to leave behind.

Autonomy & decision-making

Bottom-up automation in SSCs fosters autonomy among employees by empowering them to take control of their workflows and address inefficiencies directly. Unlike traditional top-down approaches that often disempower workers by centralising control, bottom-up automation has the potential to equip employees with tools and platforms to design bespoke solutions, thereby enhancing their sense of ownership and responsibility. For organisations, this empowerment translates into a more engaged workforce capable of taking the initiative. Automation-driven improvement teams and informal groups of 'citizen developers' serve as examples of how workers can formalise their innovative efforts into structured contributions. These initiatives also align with the

trend of SSCs evolving beyond transactional roles, allowing them to assume more strategic functions within the broader corporate hierarchy.

Theoretical Implications

The establishment of shared services in Poland aligns closely with the principles of LPT. This alignment is evident in the fragmentation of work, transitioning from roles traditionally defined by professional responsibilities to those organised around specific tasks. It also involves the intensification of work formalised through procedures, the introduction of standardised processes, and the adoption of technologies that enhance control and surveillance (Hirst and Humphreys 2015). Similar trends have been documented in other sectors, such as education (Ross and Savage 2021), further demonstrating the relevance of Braverman's theory in analysing changes to the labour process driven by technological advancements.

However, our results contradict Braverman's deskilling argument. Automation in SSCs does not lead to skill degradation, but it facilitates upskilling, particularly in IT-related competencies (e.g., Excel VBA, Power Automate, RPA tools). Unlike Braverman's view of automation as a top-down control mechanism, our findings highlight worker-driven automation, where employees themselves initiate and implement process improvements. Therefore, we introduce the concept of "bottom-up automation", with technological change increasing skill utilisation and decision making, consequently empowering workers.

To some extent, the 'citizen developer' approach contrasts with Braverman's observation that „where one engineer can direct fifty workers (...) there is no need for 'wasting' the resources of society in educating all to the engineering standard' (Braverman 1974, 427). In SSCs facing labour shortages, embracing automation with a workforce's involvement brings companies numerous advantages. Relying on external consultants instead would carry the inherent risk of detachment from the core operations and a lack of familiarity with internal processes. Moreover, attracting talent from the market might be costly and time-consuming. This makes in-house expertise an appealing alternative. Engaging workers in automation efforts provides a platform for their professional growth. Consequently, it presents a solution to the issue of high turnover, which is a widely recognised problem in jobs that include mainly routine-intensive tasks (Yuhong and Xiahai 2020).

Meanwhile, Routine-Biased Technological Change theory suggests that automation primarily replaces routine cognitive and manual tasks, upgrading workers into either higher-skilled, problem-solving roles or pushing them to lower-paid service jobs. Indeed, consistent with RBTC, routine transactional tasks in SSCs are being automated, reducing the need for repetitive cognitive work. However, our findings introduce a third trajectory: mid-skilled jobs evolve into hybrid analytical roles. Instead of disappearing, employees can oversee, improve, and implement automation solutions, particularly in cases of bottom-up automation.

At the same time, automation has not drastically changed the more general implications for skills inherent to the SSCs. The skills necessary for entry-level jobs are of lesser significance, as management still seeks people who are 'transplantable and replaceable...capable of performing highly diverse tasks (...) if necessary by reading up manuals and specific jobs in the general standard style' (Gellner 1996 102; Kallinikos 2003). Highly modular work enables assigning tasks to people with little or no acquaintance with specific organisations, which, as a result, contributes to the 'mobility and exchangeability of labour. (...) the content of work itself may be rendered increasingly standardised to become independent from those who are to be called upon to perform it.' (Braverman 1974).

Our findings align with the literature that argues that new technology might lead to a recombination of roles and tasks, which goes hand-in-hand with some increase in autonomy and discretion (Petrakaki and Kornelakis 2016; Barley 2020). Automation is recognised to have the potential to improve job quality, for instance, by removing mundane tasks thanks to bots (Kornelakis et al 2022), and there is empirical evidence that computerisation has indeed improved autonomy (Menon et al 2020). Significantly, this process could be facilitated by implementing strategies such as employee redeployment, job expansion, and redesign, resulting in the transformation of job responsibilities and the creation of new job profiles (Kornelakis et al 2022).

Practical Implications

The study's findings have important implications for multinational corporations, local SSCs, policymakers, and Polish employees, all of whom are directly affected by automation-driven transformations in the industry.

For multinational corporations, the evidence suggests a shift in the role of SSCs in Poland from back-office processing hubs to strategic business units that contribute to process development. This shift demands a rethink of talent strategies, with a growing demand for "purple people"—professionals combining business and automation skills. Companies that fail to invest in upskilling risk relying on a small group of self-taught specialists, which could limit the scalability of automation efforts.

For Polish SSCs, the study both the opportunities and limitations of bottom-up automation initiatives. Many employees already contribute to automation but often without formal recognition or support. Structured programs that encourage worker-led automation projects could maximise efficiency gains while improving employee engagement. Addressing the gap in formal training would ensure that expertise is spread across teams rather than concentrated among a few individuals.

For employees, automation brings both risks and opportunities. While reducing repetitive tasks might seem like a threat to job security, our findings suggest that automation enhances job satisfaction by freeing workers from the most mundane activities and expanding analytical and decision-making tasks. However, this shift depends on access to upskilling. Employees who develop automation skills will have better career prospects, while those who do not may find themselves confined to lower-value tasks.

Policymakers also have a role to play in shaping the future of SSC automation. On the one hand, the SSC experience illustrates that automation can compensate for labour shortages rather than reduce employment. Policymakers can apply this experience to other labour market segments dealing with labour shortages and promote context-specific automation of repetitive tasks as a way to improve productivity and job quality. On the other hand, the SSC experience highlights the need for systemic lifelong learning strategies as firms barely provide training. In 2022, only 24% of people aged 25-64 years participated in training, which was one of the lowest shares in EU (Eurostat data). As demographic change accelerates and new technologies such as Generative AI expand the scope of automation of cognitive work, policymakers should develop strategies to improve workers' access to training.

Local context and implications for further research

It is important to note that in our case study, such 'empowering automation' in SSCs emerges largely due to a specific macroeconomic context – a demographically-driven labour shortage that constrains firm growth. It is contingent on the continuous appetite for expansion and structural upgrades. SSCs in Poland actively vie with similar centres in other locations for tasks, positioning their evolution as a matter of prestige, including personal prestige for head managers. Currently, this progression hinges on undertaking new, advanced tasks, automating

processes, and showcasing the centre as a technological frontier. This mirrors the dynamic seen in workers who, as valuable contributors, are encouraged to 'challenge processes' by seeking improvements and identifying blind spots. Proactivity and the presentation of improvement ideas are essential for individual workers and the entire organisation. They are also a core driving force in shared services impacting workers, leaders, and entire units.

Further research could explore the nuanced relationship between automation and worker empowerment in different institutional and macroeconomic settings in the business services sector. For instance, automation introduced in the business services sector in call centres in South Africa accelerated the sectoral shift towards more complex roles. Still, the evidence on how it affected the content of existing jobs is limited (Whitehead, Asmal and Bhorat 2023). Moreover, comparing the impact of automation on skills and autonomy in shared services centres within one organisation but from different geographical contexts could provide valuable insights. Investigating the long-term effects of automation on skill development, job quality, and workers' engagement would contribute to a deeper understanding of how technology and human expertise intersect.

Finally, the implications of our research suggest that job autonomy perceived as a benefit of technology adoption should not be deemed automatic or self-evident. We claim that the impacts of technological change are not preordained or deterministic, and its outcomes result from negotiated processes that require our sustained attention and scrutiny. In some cases, the correlation between the rising skill intensity of the job and workers' autonomy is not particularly strong (Fraser 2010). Our research clearly emphasises that even though studied firms have enhanced job quality through automation, this enhancement is often peripheral to the core business objective. Companies had long overlooked job quality considerations until it became an indispensable strategy for overcoming the pressing issue of labour shortages. Paradoxically, they recognise the immense value of their workers — who are crucial for successful automation — yet their commitments to adequate workforce training and skill enhancement appear woefully inadequate. This discrepancy between the perceived value of labour and the actual investment in human capital can be traced to the conventional corporate practice of treating labour not as a prized asset but as a liability (Rani and Grimshaw 2019). This perspective potentially emboldens firms to evade the responsibility for worker education and skill development, effectively unloading the costs of these essential functions onto individuals. This unfortunate trend is not sustainable, especially given the increasing awareness of labour's investment value in an era of technological change and business transformation.

Indeed, automation within SSCs might effectively contribute to job quality, resourcefulness, and intrinsic worker satisfaction. Yet, it also calls into question the very nature of organisational labour dynamics, casting a light on enduring contradictions within prevailing investment practices in human labour. Further research into these dynamics across varying institutional and macroeconomic contexts will enrich the complex narrative of automation and the labour process.

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