FRAGMENTED WORK CAREERS?

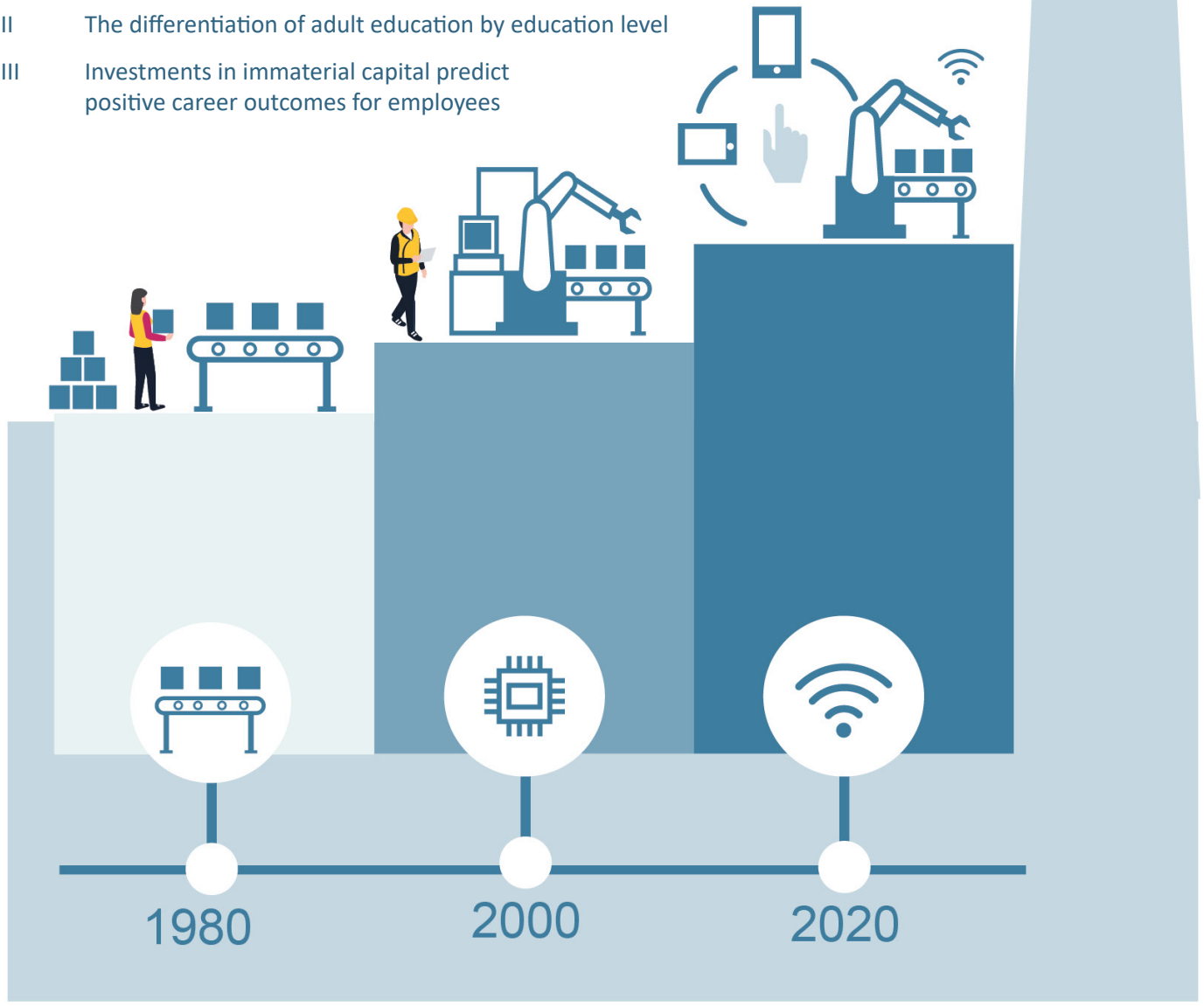
ARE WORK CAREERS BECOMING MORE FRAGMENTED? A BRIEF ANSWER

THREE KEY FINDINGS AND OUR RECOMMENDATIONS

I Lack of progress in career equality

II The differentiation of adult education by education level

III Investments in immaterial capital predict positive career outcomes for employees



FRAGMENTED WORK CAREERS?

Three key findings and recommendations for development. Summary and policy brief

Fragmented work careers?

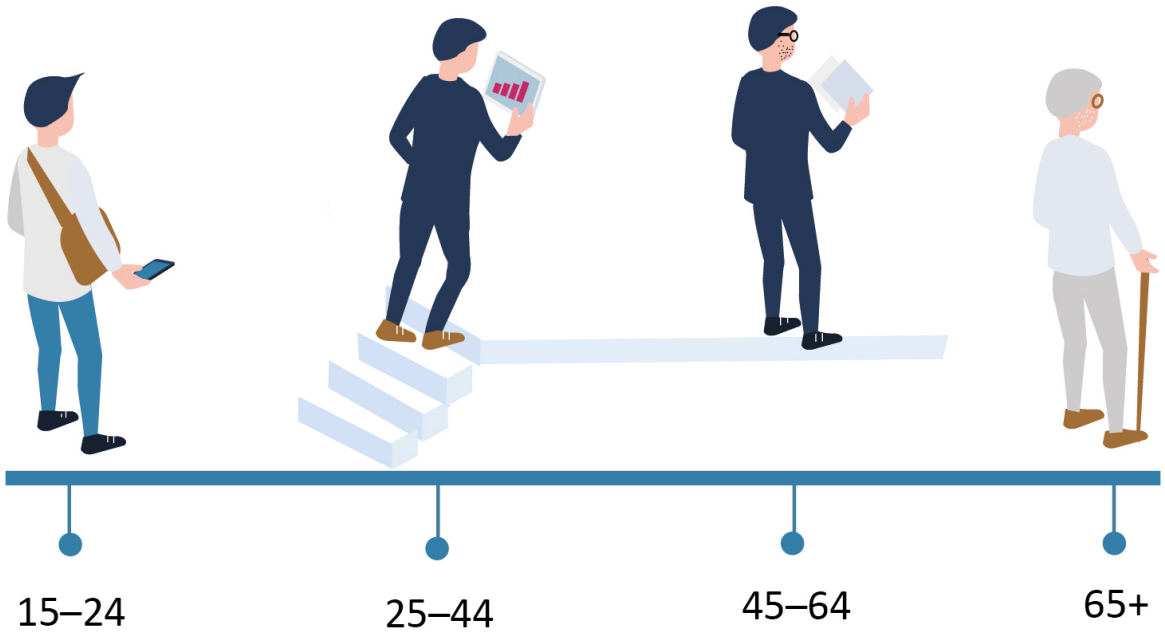
Työsuojelurahasto
Arbetarskyddsfonden
The Finnish Work Environment Fund

ARE WORK CAREERS BECOMING MORE FRAGMENTED? A BRIEF ANSWER

This project came about as a result of the lively debate that has been ongoing in recent years regarding the transformation of work. In this debate, concerns have been raised about technological unemployment and the need to re-educate the working population. Advancements in automation and artificial intelligence are feared to signify the erosion of the institutional status of wage labour. As a result of this transformation, the careers of young cohorts especially face the risk of fragmentation. However, technological change is ever present, which is true for the entire history of the industrial era. We are not going to run out of work (Autor 2015, 4). Rather, our work tasks and tools are under constant change. Employment is more directly impacted by economic fluctuations.

In a research project funded by the Finnish Work Environment Fund, we asked whether work careers in technology, chemical and forest industries especially are under risk of fragmentation. Our answer is that technological disruption does not necessarily mean the disruption of employment. When it comes to careers, while i. employment remains stable on average across different cohorts, ii. the career discrepancies between women and men, and between workers at lower and higher levels of education are significant and persist across cohorts.

I. In terms of employment stability, careers remain relatively unchanged: findings both from this study and from previous studies show that the employment stability of the working population has remained almost unchanged (Järvinen et al. 2020; Peutere et al. 2018; Rokkanen & Uusitalo 2010; Soininen 2015). **According to career tracking results, unemployment and being out of the labour force are low among industrial workers across different age groups.** In our tracking of 14 industrial worker cohorts (year of birth 1958–1971) between the ages of 30 and 44, nine out of ten workers had been continuously employed. Unemployment was highest among the cohorts who were followed through the recession of the 1990s. At the same time, more than one third had changed careers and well over two thirds had changed jobs during the time period examined. Overall, **the employment stability of employed adults is stable, but mobility across industries and workplaces is high.** Such flexible careers that combine stable employment with various career transitions are common in the Nordic labour market (Möhring 2016). This dynamic is also necessary for a well-functioning labour market because a lack of career mobility would also mean a lack of new job opportunities.



We also know from the Quality of Work Life Surveys conducted by Statistics Finland that there is nothing new about changing careers. The rate of career changers among employees is more or less the same as it was in the 1980s (Sutela et al. 2019, 40).

II. Career differences between various employee groups are significant and persist across cohorts. The employment stability of industry workers is at a high and stable level throughout. However, **women's employment and income levels are lower compared to men. The careers of lower-educated individuals involve more transitions to unemployment and time out of the labour force, whereas people with higher education move more often from one job to another** (Ojala et al. 2020). **Income trends vary significantly depending on one's degree.** Men with a university degree either in computer science or in ICT are the highest earners and have the most favourable income development. Degrees in technology and forestry have been the second most profitable, whereas a degree in the natural sciences has been less profitable. These findings are based on a standardised analysis on the development of annual taxable income across education levels (project book Chapter 6, Ojala & Pyöriä 2020). Technical degrees are often secondary level degrees, while degrees in the natural sciences are always university degrees.

There are also significant cross-sectoral differences. The chemical industry has the highest income levels according to a non-standardised comparison of different sectors (Figure 1). However, chemical industry employees also have the highest education levels on average. After standardising for education levels, the highest relative incomes are earned in the pulp, paper and paperboard industries. The income levels of 30-year-olds working in coke and oil refining, chemicals and chemical products, metal refining and the manufacturing of computers, electronic and electric equipment remained relatively good over a ten-year period. Income development was more modest in the manufacturing of basic pharmaceutical products, rubber and plastic products, metal products, machines and equipment, and motored and other vehicles. The weakest income development was observed among sawmill workers (Chapter 6, Ojala & Pyöriä 2020). As Table 1 shows, incomes are still better in industrial fields compared to other fields. The most significant contrast is found between those who were in work at age 30 and those who were not.

Having children affects women's careers both in terms of employment stability and income development. For men, such effects are limited. Instead, **stable relationships lead to higher employment and income levels** for both men and women (Chapter 6, Ojala & Pyöriä 2020; Järvinen et al. 2020). There are no major changes across cohorts regarding these findings. The younger the cohort, the more robust its relative income level. The highest earners were men born in the 1970s who were in a relationship and had a university education in either computer science or in the ICT field.

THREE KEY FINDINGS AND OUR RECOMMENDATIONS

I Lack of progress in career equality

Gender-based differences in career and income development and the reasons behind them are well understood (e.g. Kuitto et al. 2020; Peutere 2019). Finland has a highly segregated labour market, which means that there is a separation between typical women's and men's industries. This is also true in **industrial fields,** where **women comprise only about a fifth of employees.** One solution that has been suggested for undoing this segregation is to encourage young women to increasingly obtain degrees in technical fields. We examined the career progression of women who chose an education in STEM (Science, Technology, Engineering, Mathematics). Previous research has acknowledged that women face challenges due to their gender especially in male-dominated workplaces and in the private sector both in terms of pay, career advancement and the recognition of their expertise (Kauhanen & Riukula 2019, 80). **The divergence of women's careers already starts at the recruitment stage:** women are lower in the professional hierarchy in industrial fields (Kauhanen 2017; Kauhanen & Napari 2011).

We observed no positive developments in equality when we examined the income levels of women and men with degrees in STEM across four different cohorts, those born in 1960, 1965, 1970 and 1975, at the same age of 30–40 (Chapter 6, Ojala & Pyöriä 2020). In Figure 1 we present the development of median taxable income until 2017 among women and men who were born in 1975 and who were working in industrial fields at the age of 30.

For each age, the income gap between women and men is 6,000–10,000 euros. The income gap also grows slightly with age. The disparities in income observed in technical degrees and in the industrial field correspond to the country's median income distribution statistics regarding women's and men's incomes over their lifetimes (Kajantie 2020; Chapter 6, Ojala 2020). According to income distribution statistics, women earn 80 per cent of men's income level at the age of 30. The disparity remains the same far into old age (Kajantie 2020).

In addition to gender segregation and parental leaves (e.g. Kuitto et al. 2019), the disparity in income is explained by the fact that men work longer hours and are in higher positions within the professional hierarchy. This is also due to, for instance, the fact that percentage pay raises lead to an increase in absolute disparities in income (Riihelä & Tuomala 2019) and the fact that based on income distribution statistics, the capital gains of 40-year-old men have grown to more than double the size of women's gains (Kajantie 2020). While the causes of income disparities are mostly well understood, this is also a question of a social contract between the genders, lifetime income distribution, and whether known factors that cause disparities justify the current situation. Decades-long equality efforts (Suomaa 2018) should translate into improved relative gains for women.

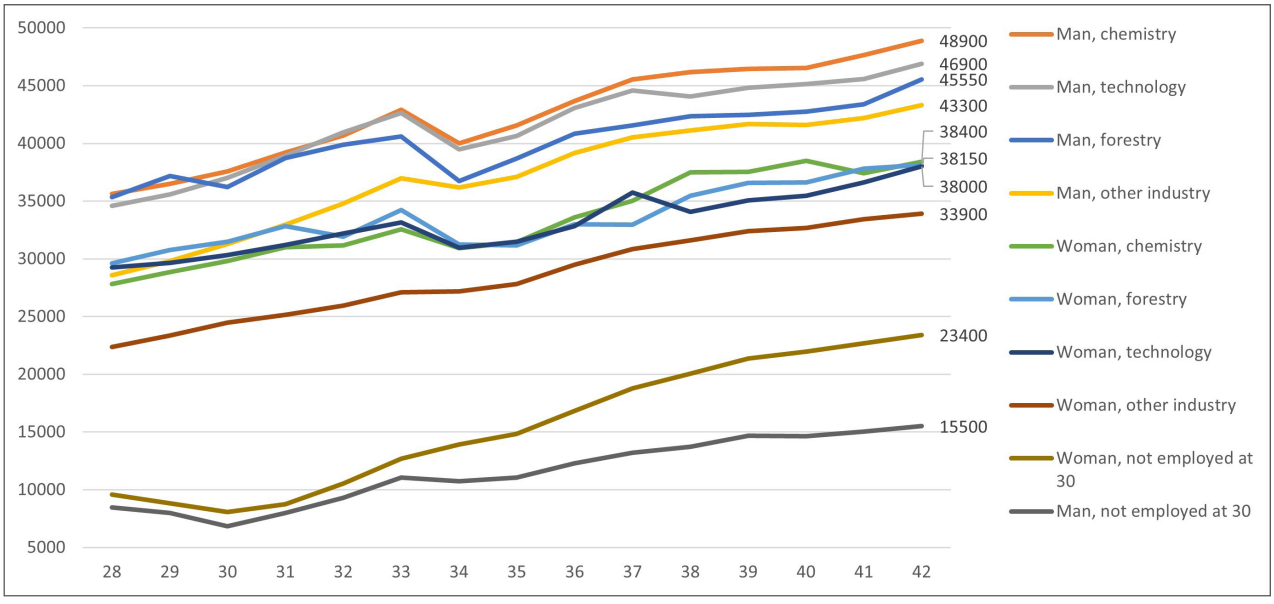
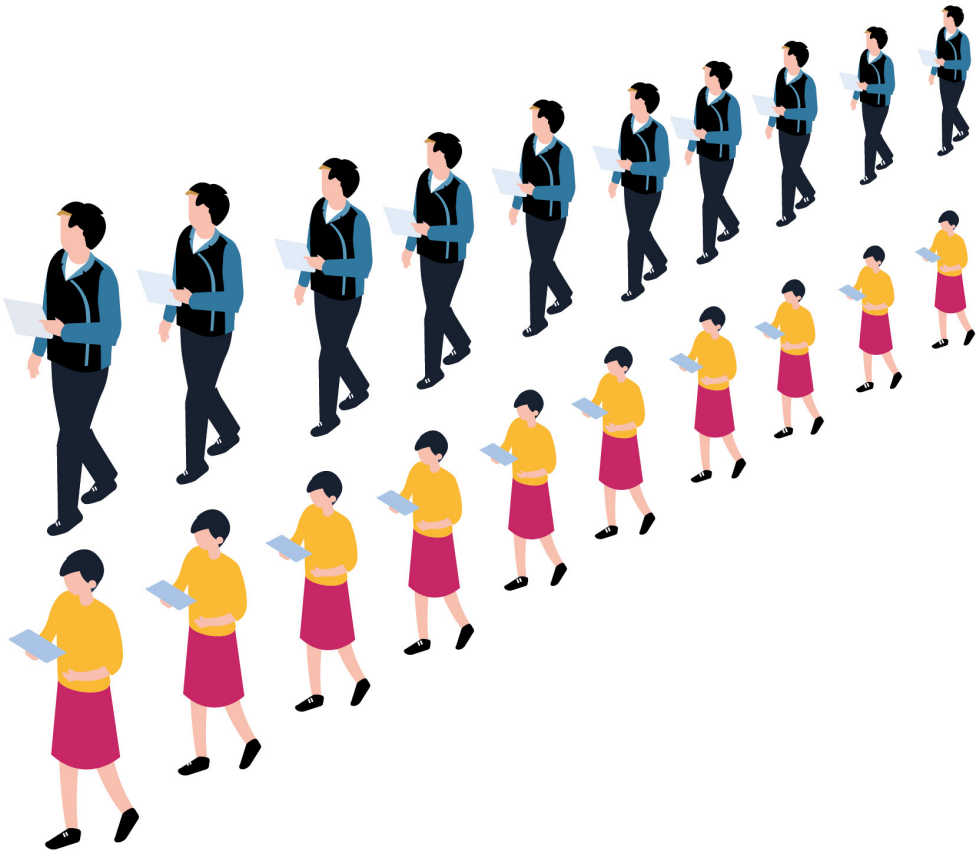


Figure 1. The taxable median income at specific ages among men and women born in 1975 who were working in chemical, technology and forest industries at the age of 30, and its development through the ages of 28 and 42. Non-standardised figures. Real incomes indexed to correspond with the situation in 2017. Data: FOLK 2003–2017, Statistics Finland.



There are several ways to promote equality and equal pay. **Positive examples such as the achievement of equal pay in workplaces as well as practices for highlighting and preventing discrimination and harassment** promote equality efforts also in other organisations. It is thus important that **good practices are shared and that key personnel are familiar with the principles of equality planning. Practices include systematic evaluation of and criteria for equality and job complexity, the evaluation of gendered effects upon drafting collective agreements, pay reviews and pay transparency as well as staff representatives' right to payroll information, and the legally mandated equalization of the gender distribution within the top management of organisations** (cf. Cassidy et al. 2016; Dawson 2014; Kauhanen 2017; Saari 2017; Suomaa 2018, 55, 71). Leo Suomaa, who conducted a recent evaluation of equal pay programmes (2018, 40), calls for the prompt establishment of **a preliminary research-based understanding of the key factors that enable or prevent the equality evaluation of cross-industry and cross-contract work.**

Milja Saari (2016), who did her PhD dissertation on the politics of equal pay, believes in **stricter and more binding regulation on the implementation of equal pay both in law and in collective agreements.** She also notes that **the principles of equality and fairness should govern labour legislation and its enforcement** (ibid., 94). Furthermore, **increasing fathers' use of family leave** (cf. Suomaa 2018, 64) would strengthen women's position in the labour market, which is why **overhauling family leave policies is important.** One reason for the discrimination that women face in recruitment and in their careers may lie in the cost of family leave to employers.

II The differentiation of adult education by education level

"We must be prepared to re-educate a million Finns", stated a recent McKinsey assessment on Finland (Koski & Husso 2018, 10). The calculations underlying the statement have been questioned and later specified as part of an ongoing parliamentary project on the continuous learning reform that is funded by the Ministry of Education and Culture. According to assessments, nearly half a million working-age individuals will require re-education or comprehensive continuing education. The goal of the parliamentary project is to promote skills development and, as a result, "meaningful careers, positive employment trends, a balanced public economy and the competitiveness and productivity of businesses" (OKM 2019).

In the *Fragmented work careers?* project we examined adult education within industrial fields from various perspectives. **Previous research shows that job descriptions may expand over time to involve expert interactions and consulting for client companies** (Chapter 1, Ojala & Pyöriä 2020). Our project explored the meanings assigned to learning from the perspectives of business organisations and employees on the basis of interview data on industry experts (Chapter 4). We asked what type of value is assigned to achieving new skills in daily life when there is at the same time a strong societal need to increase it. **Competence was regarded as important both from the perspective of strengthening the competitiveness and productivity of businesses and from the perspective of strengthening the skills and labour market position of employees.** However, **the interviews also revealed significant tensions** regarding the value that was assigned to continuing education during one's career. While in one workplace a manager was reported to have cursed at the thought of studying mathematics during working hours, **as a rule, companies in industrial fields are also actively training their employees themselves:**

"In our field, companies provide a lot of training themselves. (…) Vocational education is a good starting point. It's increasingly rare to recruit people who have no education. (…) The education is quite demanding, so the skills requirements are high. You should have mathematics, natural sciences (…). It's common (…) to receive training at the workplace. Competence-based qualifications are also very common." (Chemical industry, employer representative.)

This quote describes **the systematic efforts that large industrial companies especially are making to train employees.** Training includes both work-based learning under training agreements as part of vocational degrees, apprenticeships, as well as customised training provided by companies themselves. In addition to companies, **labour market organisations and regional employment and business actors, who act as business and employee representatives, have over the decades contributed to the development of industry-driven vocational education, degree structures, as well as recruitment and labour training.** The work also involves anticipating future labour needs together with responsible ministries and educational institutions. **Tensions have arisen regarding who should fund the training.** The recent reform of vocational education shifted more responsibility to companies over the supervision of internships as part of vocational degrees under so-called training agreements and without separate compensation. On the other hand, companies are compensated for the costs of the apprenticeship system, which was also deemed effective.

Secondly, we studied adult education participation in industrial fields in comparison to other fields and by gender (Chapter 7, Ojala & Pyöriä 2020). In our analyses, which were based on the Labour Force and Quality of Work Life Surveys conducted by Statistics Finland, we found that **as in many other fields, participation in adult education in industrial fields was the lowest among those with low education levels.** We found that **while women participate more in voluntary trainings which contribute towards a degree, they receive less workplace training compared to men.** Figure 2 presents the staff training days employees have attended in one year. **Female industry workers par-**

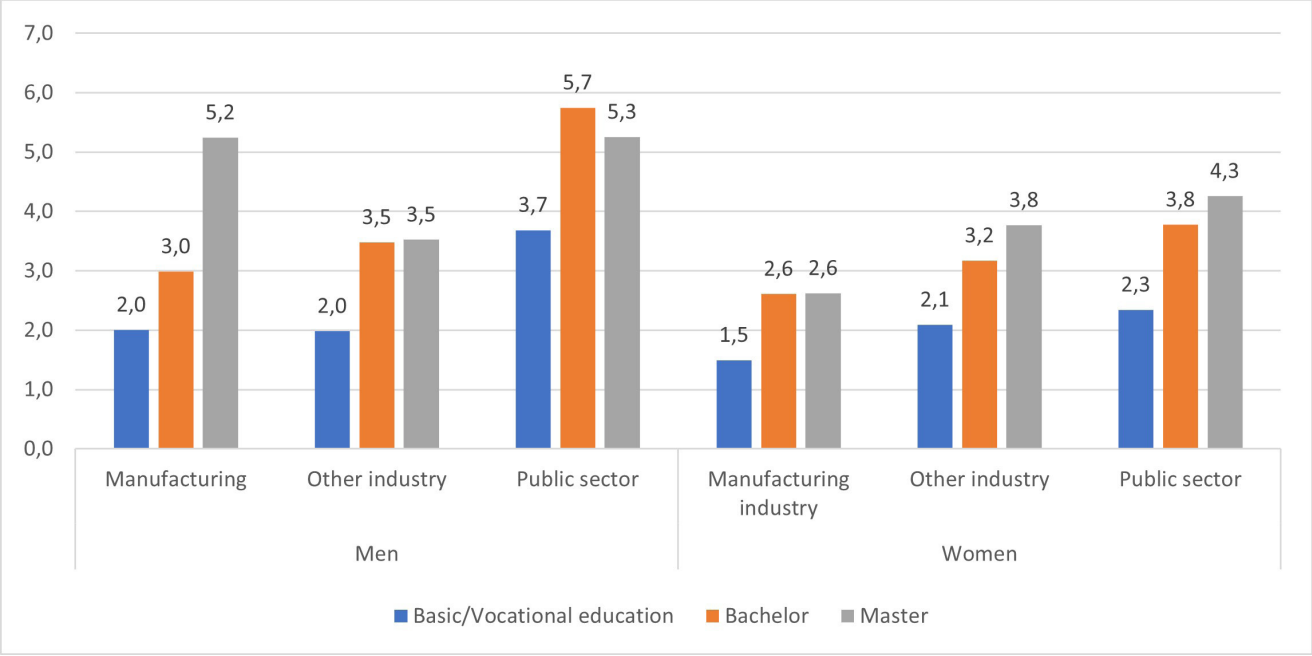


Figure 2. The number of paid training days over the past 12 months on average (no participation, zero days) among employees aged 16–68 by industry, gender and education level. Data: Quality of Work Life Survey 2018, Statistics Finland.

ticipated in staff training on two to three days per year, whereas male industry workers participated in training on two to five days per year. Can this gender discrepancy be due to employees' job positions within work organisations or is it the result of discrimination over access to education (cf. Koivunen et al. 2017)?

The adult education system will undergo changes as part of the continuous learning reform (Ministry of Education and Culture, OKM 2019). The reform concerns itself especially with the capability of low-educated individuals to face the changes introduced to employment by technological developments.

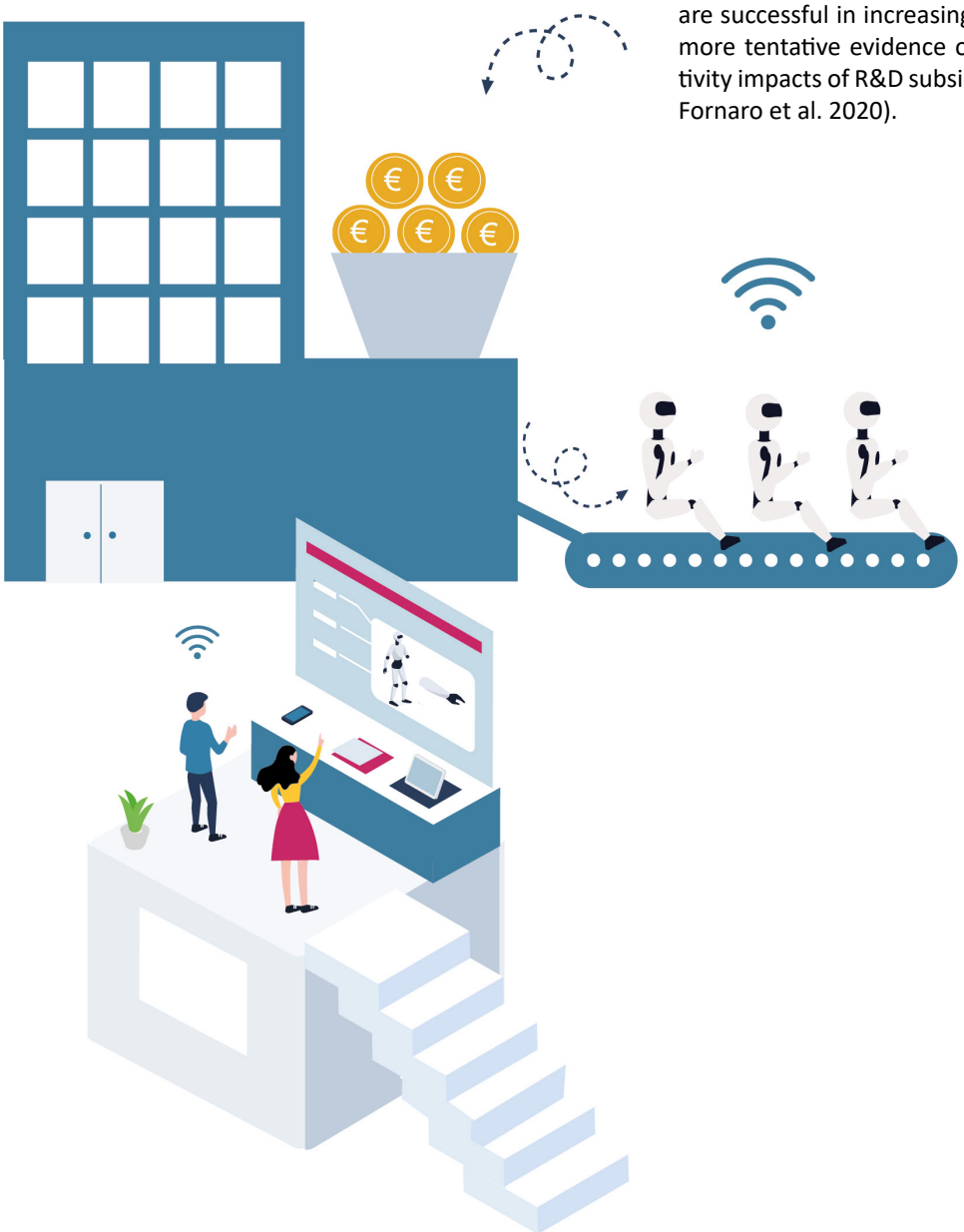
The goal is to improve the skills of specifically the most low-skilled employees. The steering group of the Fragmented work careers? project emphasised the importance of adult education at different stages of one's career so that it complements, increases and renews employees' knowledge and skills. **It also expressed the hope that basic studies should ensure that degrees provide students with sufficient basic skills and strengthen their digital and applied problem solving skills specifically.** Low-educated individuals may benefit from **short, customised training modules aimed at career transitions. Partnerships between workplaces, training providers and educational institutions and customised trainings** were seen as beneficial. **Educational institutions and workplaces could work in collaboration to produce new industry-specific learning modules without degree outcomes. At the same time, degree-based training paired with work-based learning involving, for instance, apprenticeships or on-the-job training, would promote both the goals of employment-driven education and individual learning paths.**

Engaging employees by recognising and acknowledging their activeness and skills is essential to improving the effectiveness of different forms of adult education. After all, a majority of learning takes place at work, not in formal training. It is possible to recognise and to enhance this learning, for example, by utilising work-based learning innovations such as the **master-apprentice model. Recognising employees' areas of competence** through career development discussions, for instance, could lead to an increased utilisation of their competence and to increased appreciation within work communities and industries. Employees could also be motivated by **financial incentives such as linking additional training with their company's remuneration scheme. It is also important to increase the opportunities of different staff groups to influence the drafting of learning outcomes. There is a need for dialogue between different staff groups regarding their continuing education needs and forms of participation. A low threshold for participation should be ensured.** What is important in this respect is **a work culture that is open to learning** and that employs approaches such as **encouragement from the employer, job rotation and the possibility to use working hours for studying.** Such practices would promote the accumulation of employees' competence and skills while at the same time enhancing the productivity of companies.

III Investments in immaterial capital predict positive career outcomes for employees

Considering the intensity of the impact that technology is expected to have on employment and jobs, few studies explore the direct impacts of companies' technological investments on their employees. The employment and unemployment impacts of technological development can be evaluated effectively only on datasets that enable the analysis of business functions and careers within the same company (cf. Böckerman et al. 2019; Jolkkonen et al. 2014; Maczulskij et al. 2016). **In Chapter 8 (Ojala & Pyöriä 2020), we examined the investments of industrial companies into immaterial capital, in other words, research and development activities and highly educated personnel, as well as material functions such as machines, equipment and buildings. We also considered information technology and software investments.** We studied the link between immaterial capital and employees' careers estimating their income from work, employment, unemployment and progress in occupational status in technology, forest and chemical industries. **According to the results, immaterial investments by companies predict positive income development and professional advancement for employees. Financial profitability and immaterial investments also protect staff members from unemployment. Company variables, on the other hand, are not linked to employment stability at later career stages,** which is the result of other factors.

A long-building problem of the Finnish economy is weak productivity growth. **According to economist Matti Pohjola (2020), while Finnish companies have a good profitability, the productivity problem stems from relatively weak investments in information-intensive services.** A prerequisite for improving productivity growth, Pohjola says, is **to significantly increase investment in research and development. It is important to increase both private and public investment.** There is strong evidence that R&D subsidies are successful in increasing companies' R&D activities, and more tentative evidence on the employment and productivity impacts of R&D subsidies (Ali-Yrkkö et al. 2017, 23–25; Fornaro et al. 2020).



The significant role of public R&D funding is especially important in relation to idea generation and risk sharing when developing and implementing new technologies. Public funding for research, development and innovation (RDI) activities contributes to companies' capabilities, growth and internationalisation (Fornaro et al. 2020).

RDI investments are also needed when companies' are adjusting to industry competition or conducting internal restructuring. Again, immaterial investments, such as RDI activities, create positive externalities, which spread the immaterial capital outside of the company,

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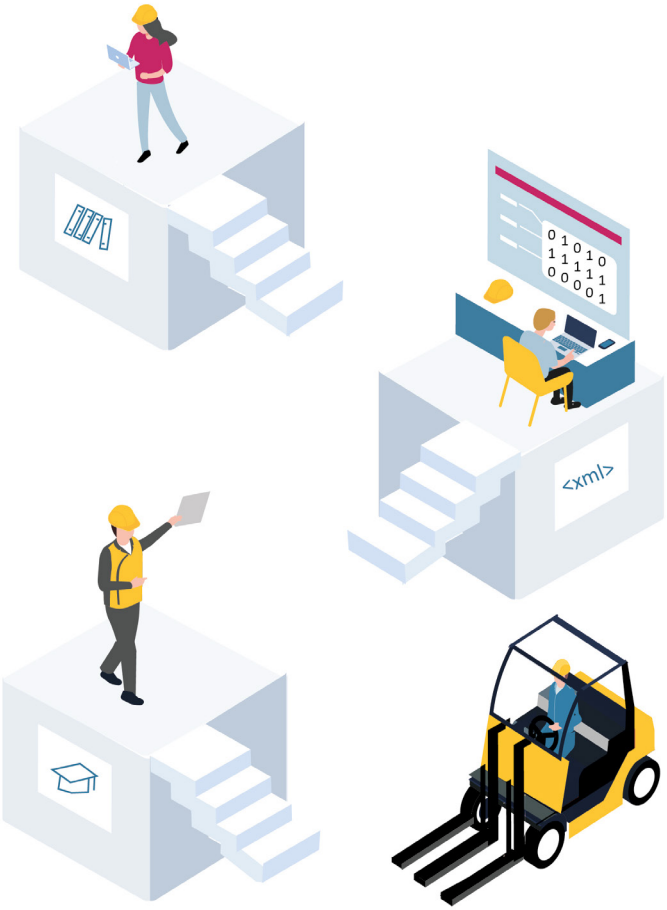
RDI investments are also needed when companies' are adjusting to industry competition or conducting internal restructuring. Again, immaterial investments, such as RDI activities, create positive externalities, which spread the immaterial capital outside of the company, creating benefits for others as well as the company that made the investment. Such dissemination of knowledge may occur, for instance, when employees change jobs or when companies learn from other companies' practices. Insofar as investments in research and development gradually improve productivity, they also grow the economy and over time, increase tax revenue for the public sector (Rantala 2008, 44; Ylhäinen et al. 2016).

According to Statistics Finland, research and development expenditures were 6,4 billion euros in 2018, in other words, 2,7 per cent of the Finnish gross domestic product. Companies covered about two thirds of R&D expenditures, the higher r education sector one fifth, and the public and non-profit sector about a tenth (Statistics Finland 2018). **Various measures should be pursued to increase the share of R&D expenditures to about 4 per cent of the GDP. More investment is needed especially in public R&D funding. Direct R&D subsidies and indirect subsidies created through tax reductions are some of the most effective innovation policy measures. In the future, immaterial capital will play an even more significant role in channelling ideas and investments into productivity and economic growth (cf. Pohjola 2020).** Strengthening RDI activities within companies would simultaneously promote their productivity growth and their employees' career stability.



An organisational culture that promotes ideation and innovation will also make working more meaningful in the long term.

We will finally note that careers are impacted by labour policy decisions. Although careers have so far declined only temporarily due to economic crises, it is impossible to know whether the situation will remain similar in the future. The implementation of new technologies will filter into employment impacts through negotiations and decisions that take place on various levels of society and organisations. In addition to organisations themselves, social conditions such as education and employment policy and employment legislation all contribute to change (Arntz et al. 2016). The labour market and career trends are in other words governed by several structures and mechanisms of decision-making. Jobs are not created or destroyed in a vacuum, and as new technologies are adopted, employees can be trained for new tasks through adult education. Meanwhile, demand for new technologies also creates new jobs and new tasks.

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