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Fostering skills use for sustained business performance

Evidence from the European Company Survey



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Contents

Executive summary	4
1. Human resources and organisation success	7
1.1. Policy context	7
1.2. Theoretical framework	8
2. Data and analytical approach	12
2.1. Data: European Company Survey	12
2.1.1. European Company Survey 2019	12
2.1.2. European Company Survey COVID-19 follow-up	12
2.2. Operationalisation and model specification	12
2.2.1. Establishment performance	12
2.2.2. Specifying the structural equation model	13
2.2.3. Comparing different business environments	16
2.2.4. Replicating the analysis using the results from the ECS 2020 COVID-19 follow-up survey	17
3. Measuring skills use and organisational culture	18
3.1. Culture: people-centred orientation	18
3.2. Ability: fostering skills development	19
3.3. Motivation: encouraging employees to utilise their skills	20
3.4. Opportunity: supporting skills utilisation	21
4. Skills use and establishment performance	23
4.1. Linking the latent variables to establishment performance: the structural model	23
4.2. Skills use in different business environments	23
4.2.1. Competitive strategy	24
4.2.2. Predictability of demand	26
4.2.3. Workplace wellbeing	28
4.2.4. Investment in human capital: paid training and on-the-job training	29
4.2.5. Employee influence on decision-making	31
5. Skills use, establishment performance and COVID-19	33
5.1. Changes in performance: spring 2019 and autumn 2020	33
5.2. Associating ability, motivation and opportunity and establishment performance before and during COVID-19	35
6. Discussion and policy implications	37
6.1. Linking human capital and establishment performance	37
6.2. Main findings: how EU establishments utilise worker skills	38
6.3. Policy pointers: workplace wellbeing and managerial skills	39
Acronyms	41
References	42
Annex 1: Operationalisation of the observed variables	47
Annex 2: Structural equation models (SEM)	49
Annex 3: Structural model estimates in subpopulations	54

Tables and figures

Tables

1.	Factor loadings	15
2.	Standardised regression coefficients of ability, motivation and opportunity on establishment performance	35
3.	Measurement model, with and without covariates (N = 18,839)	50
4.	Full model, without covariates, with covariates, and with covariates and controls (country, sector of activity, establishment size; N = 18,814)	51
5.	Measurement invariance for different groups	52
6.	Partial correlations included in the model (N = 18,839)	53
7.	Associations between ability, motivation and opportunity and establishment performance, by subgroup	55

Figures

1.	Conceptual model: linking organisational culture, AMO (ability, motivation, opportunity) and business outcomes	11
2.	Full final model	13
3.	Empirical approach to compare business environments	16
4.	Measuring culture	18
5.	Culture, average scores by sector of activity and establishment size	19
6.	Measuring ability	19
7.	Ability, average scores by sector of activity and establishment size	20
8.	Measuring motivation	20
9.	Motivation, by sector of activity and establishment size	21
10.	Measuring opportunity	21
11.	Opportunity, by sector of activity and establishment size	22
12.	Estimation of the structural model	23
13.	Differences in establishment performance by business environment (performance index)	24
14.	Distribution of ability, motivation and opportunity, by price orientation	25
15.	Associations between ability, motivation and opportunity and establishment performance, by price orientation	26
16.	Distribution of ability, motivation and opportunity, by predictability of demand	27
17.	Associations between ability, motivation and opportunity and establishment performance, by predictability of demand	27
18.	Distribution of ability, motivation and opportunity, by workplace wellbeing	28
19.	Associations between ability, motivation and opportunity and establishment performance, by workplace wellbeing	29
20.	Distribution of ability, motivation and opportunity, by provision of paid training	29
21.	Distribution of ability, motivation and opportunity, by provision of on-the-job training	30
22.	Associations between ability, motivation and opportunity and establishment performance, by training provision	30
23.	Distribution of ability, motivation and opportunity, by level of employee influence on decision-making	31

24.	Associations between ability, motivation and opportunity and establishment performance, by level of employee influence on decision-making	32
25.	Establishment performance in 2019 and 2020, by country	33
26.	Change in performance between spring 2019 and autumn 2020, by country	34
27.	Establishment performance in 2019 and 2020, by sector of activity and establishment size	34
28.	Change in performance between spring 2019 and autumn 2020, by sector of activity and establishment size	35

Executive summary

Introduction

This report investigates how organisations can harness the skills of their employees to sustain their performance in terms of profitability, volume of production or service delivery, and employment level. The analyses are based on the fourth European Company Survey (ECS), carried out in 2019, and its 2020 COVID-19 follow-up. Both surveys were carried out jointly by Eurofound and Cedefop. The aim of the ECS is to map, assess and quantify company policies and practices across Europe in a harmonised manner. The 2019 survey collected information from around 22,000 managers in the 27 EU Member States and the United Kingdom. The unit of enquiry for the survey is the establishment: the local unit or site. The 2020 follow-up survey among those managers who agreed to be contacted again focused on how establishments coped with the COVID-19 pandemic.

Policy context

2023 is the *European Year of Skills*. This provides the opportunity to start paying more attention to demand side policies and practices to complement supply side policy measures aimed at increasing the level and relevance of skills in the workforce; the latter are central to the current policy focus. Education and training, employment and skills strategies and policies have often focused on increasing the inflow of young skilled workers to the labour market, upskilling and reskilling adult workers, and making improvements to matching, the process through which organisations looking for skilled staff and jobseekers with the right skills find each other. There is much public support for training unemployed workers. Policy-makers stimulate training activities in companies through training subsidies, funds and other incentives targeting employers or their staff.

Policies aimed at the workplace tend to stress the importance of social dialogue, which shapes working conditions and working relations, and, when effective, can help align the interests of workers and employers. There is less, but growing, attention to what happens within companies. The idea that management plays a crucial role in creating conditions that give workers opportunities to make use of their skills, and that this improves the efficiency, innovativeness, and adaptability of companies, is gaining ground.

Policies aimed at influencing organisational practices, i.e. focused on the demand side of the labour market, to foster effective skills utilisation have traditionally been less developed than supply side policies (Lloyd and Payne, 2003; Payne and Keep, 2003; Payne, 2012). Corporate efficiency, innovativeness and adaptability can benefit substantially, if supply side policies aimed at reinforcing the skills base in the labour force are more systematically complemented by demand side policies aimed at stimulating skills utilisation in organisations. By advancing

understanding of the links between managerial practices and skills utilisation in workplaces, this report contributes to making the case for corporate HR strategies that unleash the potential of staff and policies that encourage enterprises to pursue them.

Theoretical background

The theoretical approach used for this report incorporates the notion that organisations can choose and influence how and to what extent they utilise their employees' skills (Kim, 2015; Sung and Ashton, 2015). The departure point is that employees contribute to organisational success using their skills and that workplace wellbeing practices are instrumental for effective skills utilisation.

It is possible that the positive relationship works the other way around: successful organisations have more resources at their disposal that can be invested in the skill of their employees. It could also be that the two interact and create a virtuous cycle of performance leading to investments in skills, fuelling performance, which again induces investments in skills.

While the second and third possibilities are theoretically plausible, the ability, motivation, opportunity (AMO) framework (Appelbaum et al., 2000; Kellner et al., 2020) clearly focuses on the first relationship, which sees employee skills as a driver of organisational success. The AMO model assumes that employee contributions to organisational success depend on their abilities (knowledges, skills, attitudes), on their motivation to use their skills, and on the opportunities to do so.

Organisations can incentivise skills utilisation at work via managerial approaches aimed at fostering the three components of the AMO model. They can support skills development, use motivational levers, and provide employees with opportunities for skills utilisation. Job design plays a central role in this. Jobs that include continuous training and allow employees to learn new things will sustain their skills development (A). Jobs that grant employees autonomy and empower them to find solutions to problems in the production process give employees the opportunity to use their skills (O). These jobs tend to be 'active' jobs in which employees are stimulated by a combination of high job demands (or skills requirements) and high autonomy (Karasek, 1979; Karasek 2020). Finally, organisations can motivate workers to draw on their skills by using monetary incentives, such as salary increases or a bonus, and non-monetary incentives, such as making work interesting and offering opportunities for professional growth (M).

Managerial approaches fostering one or more of the three AMO model components incentivise workers to use and develop their skills. Some of the tasks employees draw on while carrying out their roles are included in their job description, while others are not. Organisations greatly benefit when employees 'go the extra mile' or

‘go beyond the call of duty’ and engage with tasks that are not explicit in their job description but create value for the organisation. In organisations these idioms have precise meanings. They include voluntary behaviours that contribute to the smooth operation of the organisation, such as helping colleagues, teaching less experienced colleagues the tricks of the trade, making suggestions to improve efficiency, sharing knowledge with colleagues, working longer or outside standard hours when needed, and replacing colleagues who cannot come to work. The importance of these behaviours for organisations is recognised and often referred to as organisational citizenship behaviour, contextual performance, or extra role behaviours. When employees display these behaviours, they actively contribute to improving the efficiency of operations; this exemplifies organisations using their workers’ skills effectively.

Organisations committing to supporting skills utilisation must first understand the value of human resources for their success. Those that recognise their human resources as a source of competitive advantage and that have an organisational culture centred around the importance of (the skills of) their employees are likely to also have managerial approaches that foster the three AMO model components.

Results

The analyses in this report capture managerial approaches – which are not directly observable – as latent variables, which are inferred from observable characteristics. Managerial approaches that foster skills development (A) and the provision of opportunities (O) have been derived from several observable organisational characteristics, such as job design features and other workplace practices. Managerial approaches fostering employee motivation (M) have been derived from the frequency with which monetary and non-monetary policy levers are used. Organisational culture is captured by the perceived importance of human resources as a source of competitive advantage and of training for skills development and morale. A structural equation model is used to link organisational culture to managerial approaches fostering the three AMO model components and to relate ability, motivation and opportunity to establishment performance. Recent profitability, alignment of profitability with expectation, recent changes in the volume of production or service delivery, and anticipated changes in employment levels are used to approximate establishment performance.

The analysis in this report shows that:

- (a) managerial approaches fostering ability, motivation and opportunity are positively associated with establishment performance. This finding holds across different countries, sectors, and organisations of different sizes. This means that organisations that foster utilisation of employee skills generally have better economic outcomes. The link between managerial approaches that foster motivation and establishment performance is most pronounced, suggesting that motivation is a particularly important

driver of skills utilisation to the benefit of economic outcomes;

- (b) managerial approaches that foster ability, motivation and opportunity are positively related to the importance of human capital in the organisational culture;
- (c) while the positive associations between managerial approaches cultivating optimal skills utilisation and performance hold regardless of the size or sector of activity of an establishment, they are affected by other environmental factors, such as the corporate competitive strategy and the predictability of the market.

Another important finding is that businesses that invest more in their employees in other domains – e.g. via elaborate training practices and effective mechanisms for employee voice and by promoting high workplace wellbeing – have in place more extensive practices with regard to ability, motivation and opportunity. They also perform better – at least in part thanks to having these more extensive practices in place. Among businesses promoting workplace wellbeing, managerial approaches promoting motivation are particularly positively linked to establishment performance. Among businesses that are less employee-centred, ability, in particular, tends to be positively associated with corporate performance. These findings suggest that people-centred managerial approaches harnessing workplace wellbeing underlie the mechanism linking human capital utilisation to business outcomes. Promoting workplace wellbeing is not only in the interest of employees but should be seen as an important component of the process that transforms employee skills into favourable economic outcomes at establishment level.

The COVID-19 pandemic injected much uncertainty into the business environment in which EU establishments operate. The empirical model used with the original ECS 2019 was applied to the dataset collected during the COVID-19 crisis in 2020 to uncover the impact of increased uncertainty. The analyses suggest that managerial approaches fostering opportunity (autonomy and involvement) have a particularly strong link with establishment performance when there is much uncertainty in the business environment; this was the case during the COVID-19 pandemic. In these circumstances, managerial approaches that cultivate opportunity helped organisations counteract the negative effects of the crisis on their economic performance.

Policy pointers

The conclusions of this report suggest that EU-level policy should push for better use of human resources in organisations. This not only benefits establishment performance, but also strengthens the ability of businesses to survive shocks.

More importantly, the results suggest supply side policies aimed at improving employees’ skills and demand side policies supporting effective skills utilisation in workplaces complement one another. Supply side policies benefit

employees because better human capital produces positive outcomes. Businesses need to make optimal use of the skills of their employees, so that policy efforts aimed at increasing the skills base of the labour force have maximum impact. Without demand side policies in place, the benefits generated by supply side policies accruing through improved business performance do not fully materialise.

The importance of investments in employee autonomy, skills development, and employee involvement should be emphasised. A stronger focus on strengthening skills utilisation increases the benefits from investments in human capital accruing to individuals, organisations, and countries; it widens the channels through which skills formation can influence organisational and – ultimately – societal outcomes. Optimising skills utilisation in workplaces increases productivity, wages, and the returns to education. It is associated with better workplace wellbeing and so contributes to reducing stress and to better health outcomes (thus alleviating the burden on health systems). Optimising skills utilisation also channels worker voices, contributing to improved workplace democracy. This policy conclusion is well aligned with the view of experts, who have for a long time pointed towards underdeveloped demand side policies supporting effective skills utilisation in organisations, suggesting they need to be strengthened (Payne and Keep, 2003; Payne, 2006; Lloyd and Payne, 2010; Payne, 2012).

Given the lack of hard evidence on the returns to education and training, some managers may face difficulties in understanding and benefitting practically from the links between human capital and organisational success, i.e. fully grasping how human capital can become a source of competitive advantage. Managers with good people skills may find it easier to understand what organisational goals can be achieved through people and how. They may also be in a good position to express how they would like their employees to work in terms of desirable workplace behaviours. Consequently, investing in the skills base of general and line managers, who perform much of the day-to-day human resources functions (Hunt and Baruch, 2003; Levasseur, 2013; Bedwell et al., 2014; Hoffman and Tadelis, 2018) could be an important policy priority.

Another more structural approach to improve managers' ability to understand how human resources can become a source of competitive advantage and how to translate this into desirable workplace behaviours would be to pay more attention to the development of interpersonal skills in managerial education, e.g. by including dedicated modules in curricula (Bedwell et al., 2014). This would give the next generation of managers the expertise they need to understand the importance of optimal skills utilisation for business success, and to integrate a skills utilisation perspective into their leadership style, in work design and in workplaces.

While supply side policies aiming at increasing the skills base in the workforce will remain crucial for the success of European business, and deserve continued attention from policy-makers, there are promising opportunities to expand policies focused on skills demand. The benefits from human capital investment only fully materialise (and thus contribute to the overall benefits to society) if organisations utilise these skills. This report clearly shows that demand side policies, aimed at increasing skills utilisation in enterprises, generate benefits for organisations and workers (through increased workplace wellbeing). Going forward, by taking action to ensure these benefits can cumulate with those arising from supply side policies, policy-makers can make human capital investment more worthwhile.

1. Human resources and organisation success

1.1. Policy context

Skills drive the performance of modern economies. They contribute to sustainable economic performance, productivity, and a high standard of living. The availability of a skilled workforce is also associated with the ability to attract and retain smart business- and knowledge-intensive industries, and to avoid falling into low wage/bad jobs equilibria.

Recognising the importance of skills, Member State governments and the European Union have put in place policies to support the steady supply of skills needed by companies in facing rapid change in their work. There are also claims that many organisations face difficulties in finding the skills they need (Cappelli, 2015). While not all recruitment problems reflect lack of skills, pre-COVID-19 ECS 2019 data show that around three quarters of EU establishments found that securing employees with the right skills was very or fairly difficult. This means that demand/supply imbalances are pervasive.

Supply side policies aim at increasing the inflow of skilled workers into the labour market and simplifying and improving the process through which organisations looking for skilled workers, and jobseekers with the right skills, find each other. In the past decade, there has been growing attention to the way skills are utilised within organisations and a call to complement supply side policies with others promoting and sustaining skills use (Buchanan et al., 2010; Payne, 2010; Payne, 2012).

Human capital benefits to individuals and companies only materialise fully when skills are effectively utilised. It has been long known that perceived skills use at work increases job satisfaction and commitment, and that employees whose skills are underutilised are more likely to suffer from depression and low self-esteem (O'Brien, 1982; O'Brien, 1983; O'Brien and Feather, 1990; Warr, 1990; Parker, 2003 a and b; Morrison et al., 2005; Maynard and Feldman, 2011). It has also become obvious that many of the effects induced by the adoption of high-performance work practices (HPWP) and high-involvement work practices (HIWP) are mediated by skills use (Boxall et al., 2015; Boxall and Winterton, 2015; Boxall et al., 2019). The cost of prolonged periods of skill underutilisation, leading to skills obsolescence, has also been highlighted in research (De Grip and Van Loo, 2002; Cedefop, 2012).

Investment in skills takes centre stage in the European policy framework and it is one of the key components of the European social model. For example, guideline 6 of the European Council's *Guidelines for the employment policies of the Member States* (European Council, 2022) identifies the development of workers' knowledge, skills, and competences as the means to meet the challenges

of technological, environmental, and demographic change. Principle 1 of the *European pillar of social rights* emphasises the right to quality education and training (European Commission, 2017). Principle 5 reiterates the same concept for adults in and out of employment.

Building on the *2016 new skills agenda for Europe*, the *European skills agenda* launched in July 2020 aims at making the right training, skills, and support available to people in the EU (European Commission, 2020). Its aim is broad: providing equal and lifelong access to skills development opportunities for everyone; applying skills intelligence to improve the relevance of training and other ways of acquiring skills and to give young people, adults, employers, and policy-makers insight into skills trends and needs; building a broad coalition in support of skill formation; involving the social partners, civil society, and education, training and labour market stakeholders operating under existing national skills strategies; and making skills more visible and comparable.

In organisational settings, policy measures supporting skills investment interact with those aimed at supporting social dialogue: another principle of the *European pillar of social rights*. Principle 8 encourages social partners 'to negotiate and conclude collective agreements in matters relevant to them, while respecting their autonomy and the right to collective action' (European Commission, 2017). The interaction of policy supporting skills investment and policy supporting social dialogue drives 'workplace innovation': innovations in enterprise structure, human resources management, the formulation of decision-making and innovation processes, the way relationships with clients or suppliers are organised, and the design of the work environment and internal support systems.

Several EU initiatives have been undertaken to identify and stimulate the adoption of policies and organisational strategies that have been effective in enhancing innovativeness through investment in skills. The [European Workplace Innovation Network](#) (EUWIN) was established by the European Commission in 2013 to learn about and encourage workplace innovation in Europe. The [Horizon 2020 INNOSUP programme](#), which aims at easing the adoption of workplace innovation in small and medium-sized enterprises (SMEs), offers support to regional and national agencies that design or implement innovation-support programmes for SMEs. Another current initiative foresees the development of digital tools that SMEs could adopt to manage better the skills needs and skills development in their workforce and to benchmark their human resource management (HRM) practices (European Commission, 2022).

The European Commission has designated 2023 as the *European Year of Skills*. The aim of the initiative is to promote attaining a workforce with skills that are in

demand and can support growth and the competitiveness of the business sector. This report contributes to the European year by providing evidence that investment in skills needs to be complemented with skills utilisation if it is to become a strong driver of growth and competitiveness. In the context of much prominence being given in the current policy paradigm to supply side policy measures aimed at increasing the level and relevance of skills in the workforce, the analyses in the report suggest more attention should be paid to the development of demand side policy measures. Examples of such measures include promoting organisational culture that recognises the importance of employees for the success of the organisation, encouraging the design of a motivating workplace context in which employees have opportunities to use their skills optimally to contribute to value creation for the organisation, and endorsing the notion that workplace wellbeing is instrumental for converting better skills utilisation into business performance.

1.2. Theoretical framework

Investment in skills and human capital ⁽¹⁾ contributes to organisational success if skills and human capital are utilised in the production process. Organisations have different ways to achieve success (Bosworth, 2005). The resource-based view of the organisation recognises that human capital can be a strategic resource that can confer a sustainable competitive advantage (Wright et al., 2001) and some organisations leverage this resource to remain competitive (Combs et al., 2006; Liu et al., 2007; Crook et al., 2008; Crook et al., 2011; Garavan et al., 2020). Not every organisation would rely on human capital as a source of competitive advantage, as the link between human capital and business success is not immediately clear to all managers. Research acknowledges that managers have difficulties in expressing the value of human capital for their organisation (Smithey Fulmer and Ployhart, 2014) this might be linked to lacking evidence on the returns on the investment in human capital. A Portuguese survey among SMEs found that the third most common reason for not providing training was ‘the lack of perception of the benefits for training for the organisation’ (Ferreira and Velinças, 2016). Perception is an appropriate term since organisations seldom assess the financial impact of training programmes (Aguinis and Kraiger, 2009; Haelermans and Borghans, 2012). Training impact evaluation is used relatively scarcely in European enterprises. The 2015 continuing vocational training survey (CVTS) showed that only 24% of EU companies which trained at least some employees performed such impact assessments. Among companies that used training impact assessments, one third (34%) used satisfaction surveys among training participants, which only provide a rough idea of the effectiveness of training.

Consequently, many managers may not have the hard evidence needed to build factual knowledge about the

impact of investments in human capital immediately available to them. In practice, HR managers do not help general managers in developing insight into the importance of human resources for the organisation as they tend to use abstract concepts such as ‘commitment and employee morale’ to illustrate how training activities contribute to the success of the organisation (Ulrich, 1997). If information about the value of human capital for organisations is not easily accessible to general managers, they will act upon their beliefs when they have to decide on human capital investment.

These beliefs are influenced by managers’ skills sets. Managers with good people skills quickly realise what can be achieved through people, and how to leverage employee initiative. They acknowledge and understand the links between human capital and organisational success and appreciate the returns to human capital investment in ways that managers with poor people skills do not. Managers’ people skills influence their perception of the returns on the adoption of human resource practices, skills use, and on the investment in human resources, since they reflect the degree of perceived complementarity between human capital and other organisational assets for value creation in the product market (Adegbesan, 2009; Esho and Verhoef, 2020). The value of social skills ⁽²⁾ is recognised in the workplace, as they are becoming increasingly valuable (Borghans et al., 2014; Weinberger, 2014; Deming, 2017; Edin et al., 2022) and this is true also for managers (Hoffman and Tadelis, 2018).

An organisational culture valuing the contribution of human capital may emerge when managers with people skills hire colleagues with similar skills and convictions (Rivera, 2012; Håkanson et al., 2021). Shared beliefs coalesce to form the core of corporate culture (Van den Steen, 2005; Ravasi and Schultz, 2006), which then influences how human resources contribute to organisational success (Rocha et al., 2018). Organisations recognising that human resources are a source of competitive advantage see the value of human resources and understand how they contribute to organisational success. These organisations leverage their human capital.

The way in which organisations leverage their workers’ skills is expressed in terms of what they require from their workers: some organisations require their workers to carry out the tasks in their job description, others encourage their employers to ‘go the extra mile’ or to ‘go beyond the call of duty’ (Borman and Motowildo, 1997; Stone-Romero et al., 2009; Demerouti et al., 2014). In the first case, employees exert themselves with a focus on their job tasks. In the second case, employees are encouraged to draw on their skills to do their job tasks but also to go beyond that, to engage in behaviours that contribute to the smooth functioning of the organisation. Examples of these behaviours include spontaneously helping colleagues, providing ideas on how to improve operations, suggesting improvements in product design or

1 In the report the term ‘skills’ refers to skills, competences, knowledge, and abilities. The terms ‘skills development’ and ‘investment in human capital’ are used interchangeably. Similarly, the terms ‘skills’ and ‘human capital’ are also used interchangeably.

2 The terms ‘soft skills’, ‘people skills’, and ‘interpersonal skills’ are used interchangeably throughout the report.

service delivery, sharing ideas or information, suggesting improvements to make the production process more efficient, providing cost-saving solutions, offering advice on how to improve client satisfaction, supporting the induction of new colleagues, and maintaining machines leading to reduced machine downtime. When employees have these behaviours, they draw on their skills, and might even seek to improve them, to contribute to improving the efficiency of the production process and of the functioning of the workplace (contextual performance). When organisations create an environment that supports these desired behaviours, they are utilising their workers' skills effectively.

These helpful behaviours can be grouped into five categories: consciousness, altruism, civic virtue, sportsmanship, and courtesy (Podsakoff et al., 1990). Behaving in desirable ways is predicated on workers' willingness to draw on their skills. Altruistic behaviour requires employees to draw on their knowledge and skills to help others and to facilitate the informal learning of colleagues. To display consciousness requires employees to draw on their skills to do their tasks very well, to achieve consummate performance. To display sportsmanship and courtesy, employees use their skills to facilitate cooperation and to reduce potential frictions in the workplace. The display of civic virtue requires employees to draw on their skills to display innovative work behaviour. These behaviours are sometimes referred to as extra role behaviour (Van Dyne et al., 1995; Miles et al., 2002; Erdogan et al., 2020) or organisational citizenship behaviour (Dalal, 2005; Podsakoff et al., 2009; Kizilos et al., 2013).

The deployment of these voluntary citizenship behaviours is valuable for organisations as they have an impact on their ability to sustain organisational success in many different ways: they enhance worker and managerial productivity; free up resources so they can be used for more productive purposes; reduce the need to devote scarce resources to purely maintenance functions; help to coordinate the activities within and across work groups; strengthen the organisation's ability to attract and retain the best employees; and enable the organisation to adapt more effectively to changes in the business environment (Podsakoff and MacKenzie, 1997; Podsakoff et al., 2009).

Organisations which view human capital as a source of competitive advantage have higher expectations regarding the desirable behaviours subsumed by contextual performance and are likely to have to put in place incentives that would help their employees consistently display desired behaviours. Such behaviours are voluntary and cannot be mandated by the organisation by enforcing the labour contract; they need to be appropriately encouraged, by providing a context that facilitates their expression (Tsui et al., 1997; Rousseau, 2001; Baker et al., 2002; Shore et al., 2004; Bird, 2005; Jensen et al., 2010; Gibbons and Henderson, 2012; Halac, 2012; Helper and Henderson, 2014; Blader et al., 2015; Malcomson, 2015; Schalk and Rousseau, 2017; Audenaert et al., 2018; Baruch and Rousseau, 2018). Drawing on one's skills requires effort and employees need support in terms of additional resources that can help them sustain their efforts without

depleting their energy (Karasek, 1979; de Lange et al., 2003; Witte et al., 2007; Lesener et al., 2018). Without appropriate support, the energy exerted to support skills utilisation can result in stress and, ultimately, in burn-out (Korunka et al., 2009; Van Beek et al., 2013; Mazzetti et al., 2016).

Consequently, workplaces in which skills are to be effectively utilised must be designed so that they provide adequate support for workers, allowing them to display desired citizenship behaviours (task and contextual performance), which would then influence organisational outcomes.

The ability, motivation, opportunity (AMO) framework provides a useful and intuitive way to model and understand what drives employee behaviour at work (Lepak et al., 2006; Boon et al., 2018; Kellner et al., 2020). The framework details that human resources' contribution to organisational performance depends on three factors: employee skills, the opportunity to use them, and the motivation to do so.

For example, skilled workers can attain better performance in their tasks (task performance) but they also have a wider set of skills which they can draw on when enacting organisational citizenship behaviours. This results in a broader display of behaviours and in better outcomes from these behaviours (contextual performance).

Motivated employees will draw on their skills to deliver and to go the extra mile (motivation is particularly important for the enactment of citizenship behaviours since these are voluntary acts). Skilled and motivated employees then need to have the opportunities to display these behaviours: there must be colleagues to help, and situations in which information is shared among colleagues. Also, there must be channels through which the outcomes of citizenship behaviours (for example suggestions to increase the efficiency of operations) can reach management. Citizenship behaviours may be impeded when there is little opportunity, for example when the pace of work is so high that employees do not have the time to take time off their duties to help a colleague. Workers may not be motivated to display citizenship behaviours if, for example, there is an individualistic organisational culture incentivising productivity by rewarding employees based on relative rank in individual or team performance. Citizenship behaviours could also be impeded if jobs are designed in such a way that even newcomers do not need help to become proficient in their job.

The AMO framework can be helpful for organisations that wish to harness the skills of their employees, as it helps in understanding different aspects that encourage employees to draw on their skills, so the workplace can be shaped accordingly. Such understanding can be used to set up a work environment that sustains skills development, stimulates employees to draw on their skills, and gives them the opportunity to do so. By adopting managerial practices cultivating the three AMO model components, organisations put in place a

mechanism that ensures their human capital (employees' skills) can fully contribute to desirable outcomes.

This idea is also central in the literature on high-performance work practices (HPWP). In HPWP, the contribution of human resource practices to organisational success is mediated by their ability to enhance the three components of the AMO model. HPWP foster employee skills and motivation, and they provide opportunities to contribute. Organisations can channel the benefit from seized opportunities to contribute to improving their performance and in this way, they can capitalise on their human resources (Demortier et al., 2014; Haar et al., 2021; Wang et al., 2022).

Organisational practices may sometimes impact more than one component of the AMO model simultaneously. For example, workplace features creating opportunities for the use of skills (delegation of decision-making) also have a motivational component and create learning opportunities fostering skills development (Morrison et al., 2005; Oldham and Hackman, 2010; Grant et al., 2011). Therefore, organisations have some degree of flexibility in how they combine and package the AMO-enhancing practices they decide to adopt.

This flexibility results in different configurations of human resource practices, approaches to job design, and workplace relations supporting the development of skills and knowledge (ability), the motivation of employees to use their skills and knowledge (motivation) and offering opportunities to employees to deploy their skills and knowledge (opportunity).

Approaches discussed in the academic discourse illustrate the degree of heterogeneity in workplace design that may emerge. Organisations can provide opportunities to contribute via channels through which employee behaviours can produce organisational outcomes, for example, by encouraging employee involvement (Riordan et al., 2005; Pot, 2011; Kizilos et al., 2013). Organisations can also provide employees with opportunities to contribute by delegating decision-making. Autonomy in deciding how to do their jobs and in finding solutions to problems gives employees the opportunity to use their knowledge and ability to suggest improved results that could benefit the organisation (Evans and Fischer, 1992; Zábajník, 2002; Morgeson et al., 2005; Vidal, 2013; Wu et al., 2015; Barrenechea-Méndez et al., 2016). Different job design decisions also affect the requirements, use, and development of skills. For example, job design incorporating continuous training directly supports the development of skills and knowledge. A similar outcome can be obtained in complex jobs requiring problem solving. Complex jobs are mentally demanding and challenging to perform (Campion, 1988) and have higher skills requirements than simple jobs (Pouliakas and Russo, 2015). Job complexity is also associated with skills development (Wielenga-Meijer et al., 2012; Russo, 2017). Alternatively, organisations can provide or sponsor widespread formal training or encourage informal learning activities, such as on-the-job training. Any combination of these strategies is possible. Organisations may also rely on extrinsic means to motivate their workers (monetary incentives and promotion opportunities) or may leverage

intrinsic motivation via job design, such as through the provision of challenging and interesting jobs, and opportunities for development (Morgeson and Campion, 2002; Humphrey et al., 2007; Oldham and Hackman, 2010; Parker et al., 2017).

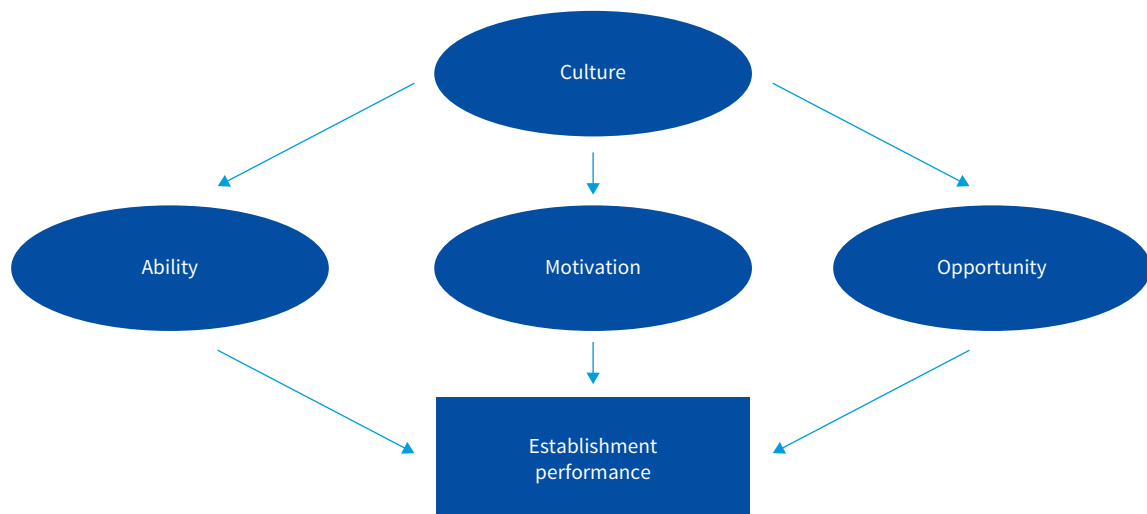
The purpose of this study is to investigate how skills use contributes to the economic performance of EU establishments (productivity, sales, and profits). Its focus is on the mechanisms transforming skills utilisation into establishment performance, and particularly on the adoption of organisational practices promoting ability, motivation and opportunity.

The analysis, however, also indirectly highlights the importance of workplace wellbeing and its relationship with establishment performance. Job design features associated with high skills requirements and with the provision of opportunities to contribute are also associated with high motivation. Similarly, an organisational culture that provides challenging jobs reduces employee absenteeism and lowers withdrawal intentions (Carmeli, 2005). Organisational practices increasing skills requirements (autonomy and problem solving, opportunities to contribute) are associated with higher commitment and job satisfaction and lower turnover and withdrawal behaviours (Podsakoff et al., 2007). Many organisational practices aimed at fostering the three AMO model components bring about improvements in workplace wellbeing and establishment performance. This suggests that the two objectives may be mutually reinforcing rather than mutually exclusive (Oeij et al., 2017; Eurofound and Cedefop, 2020). Previous analysis based on the same dataset shows this is the case: it found a positive association between outcomes for workplace wellbeing and establishment performance, implying that these two objectives do not oppose one another and that it is possible to achieve both, or neither (Eurofound and Cedefop, 2020).

There are several explanations for the coexistence of economic performance and workplace wellbeing. Organisations with good economic performance have the resources to implement extensive workplace wellbeing practices. However, the literature discussed in this chapter and the analyses presented in the empirical part of this report are also consistent with a story that sees effective skills utilisation as an antecedent of organisational success (Jiang et al., 2012). In addition, the resource-based view of the firm posits that human capital is one of the resources that can confer competitive advantage (Wright et al., 2001). Economists stress that labour market frictions allow organisations to recoup the investment in human capital, suggesting that such investments have a larger impact on organisational performance than on its costs (Acemoglu and Pischke, 1998; Acemoglu and Pischke, 1999b).

This report argues that workplace wellbeing not only tends to coexist with establishment economic performance, but that it (or some of its constitutive elements) can be expected to be instrumental in the attainment of economic performance through effective skills utilisation: it is instrumental in the effective conversion of employee skills and knowledge into economic outcomes. It is not

Figure 1. Conceptual model: linking organisational culture, AMO (ability, motivation, opportunity) and business outcomes



Source: Authors.

a pleasant bonus that organisations may enjoy, or a gift to its employees offered as an act of generosity. Rather, workplace wellbeing is a necessary, not renounceable, fundamental component of managerial approaches leveraging human capital via effective skills utilisation as a resource for sustained competitive advantage. The entire organisation stands to benefit when workers invest themselves, their skills and their knowledge in their work (Rich et al., 2010).

The conceptual model underpinning the analysis in this report is illustrated in Figure 1. To the extent that organisational culture influences the various aspects of the AMO model in the same direction, our approach suggests the presence of a mechanism leading to an accumulation of resources. However, there may be some variation in how organisational efforts are distributed across the three AMO model components. Some organisations may focus their efforts on one or two components while others may distribute their efforts evenly across the three.

The AMO model is not prescriptive as to the ways in which its three components operate. An assumption in this report is that they operate independently from each other, but that organisational culture affects all of them ⁽³⁾.

The model presented in Figure 1 is general and could apply across countries, sectors and organisations of different sizes. Some organisations, however, may find it difficult to embrace this model since their specific circumstances make investments in human resources particularly challenging. For example, organisations competing on their ability to offer a product or service at a price lower than the competition may not have the slack to invest in human resources; so when they do, the investments in human capital are expected to result in rapid productivity gains. The model may also work differently for organisations facing a volatile demand for their

product, as this complicates human resource planning and investment. At the same time, in environments that are characterised by high predictability, routines are effective to organise production, but in environments in which product demand is not predictable organisations must react to fluctuations. Skilled employees, working autonomously and with some decision-making power, are particularly useful in uncertain circumstances since they help the organisation to adapt quickly to changing circumstances. Volatile product demand is not the only cause of uncertainty that organisations face. For example, the disruptive effects of the COVID-19 pandemic have increased the degree of uncertainty in the economic environment in which organisations operate.

The model may work differently when managerial approaches to fostering ability, motivation and opportunity are implemented successfully. This cannot be taken for granted because organisational plans can, and do, derail (Kerr, 1975; Manzoni, 2005; Ethiraj and Levinthal, 2009). For example, it is reasonable to assume that different AMO model components work differently when organisations also provide training and other learning opportunities, when workplace morale is high, and when employees have at least some influence on workplace matters. These considerations are further explored in Chapter 4.

³ Another approach would be to introduce a full moderation model that would allow the three components to interact (multiplicatively) to influence establishment performance. While this possibility is not excluded, currently there is no empirical evidence supporting this more complex structure (Wang et al., 2022). Consequently, the interaction between the elements of the AMO model is not investigated here but left for future research.

2. | Data and analytical approach

2.1. Data: European Company Survey

The conceptual model described in the previous section is applied to data collected as part of the fourth European Company Survey (ECS 2019) and the 2020 ECS COVID-19 follow-up (ECS 2020).

2.1.1. European Company Survey 2019

The ECS 2019, conducted jointly by Eurofound and Cedefop, gathered data from human resources managers and, where available, employee representatives. Fieldwork for the ECS 2019 took place between January and July 2019, so before the COVID-19 pandemic. The survey investigated workplace practices on work organisation, human resource management, skills use and skills strategies, direct and indirect employee participation, as well as digitalisation, innovation, and business marketing strategies. The survey also covers business outcomes.

The unit of enquiry for the survey, as in previous waves, is the establishment, the local unit or site. Most businesses are single-establishment companies but, for those comprising multiple sites or plants, one or more local units were selected for the survey. The target population was all establishments with 10 or more employees in economic sectors engaged in what are termed ‘market activities’ in all 27 EU Member States and the United Kingdom.

The ECS 2019 is the first pan-European, push-to-web establishment survey. This methodology comprised two phases: a telephone screener with the twofold purpose of establishing eligibility and identifying respondents for the manager questionnaire (the most senior manager in charge of personnel matters) and for the employee representative questionnaire (in those establishments with employee representation). During the screener, the email addresses of the respondents were collected. A link to the survey was sent subsequently to the respondents, who completed the questionnaire online ⁽⁴⁾.

The analyses of the ECS 2019 data are based on 21,869 completed management interviews, ranging from 122 in Cyprus to 1,498 in Italy: the ultimate number of cases in the analysis varies due to item non-response. Weighting is applied to correct for the survey design and for any remaining discrepancies between the survey sample and the target population in terms of the distribution across countries, sectors of activity, and size classes.

2.1.2. European Company Survey COVID-19 follow-up

To assess the impact of the COVID-19 pandemic on organisational issues, managers who agreed to be recontacted during the fieldwork of the ECS 2019 were asked to complete a follow-up questionnaire. Fieldwork for this ECS COVID-19 follow-up was carried out in November 2020. After translation into 21 languages and language verification, invitations containing a link to the questionnaire were sent via email to 5,134 managers in the EU-27 and the United Kingdom; 1,289 of them answered the questionnaire.

The analyses for this report are based on 1,277 cases in the EU-27 (ranging between seven in Malta and 92 in Finland). The small sample size implies that country estimates cannot be provided for all countries; in some analyses some of the smallest countries are excluded. The data were weighted to correct for any discrepancies between the sub-sample that participated in the ECS 2020 and the weighted sample of the ECS 2019 (Van Loo et al., 2021).

2.2. Operationalisation and model specification

This section discusses the technical aspects of the models that were developed to capture the theoretically well-defined, but practically hard-to-measure, concepts that are central in this report: organisational culture, ability, motivation and opportunity. It also explains how to estimate the associations between these concepts and establishment performance and how to assess to what extent these associations differ across different business environments. Finally, it describes the approach used to assess how these associations were affected by the COVID-19 pandemic.

2.2.1. Establishment performance

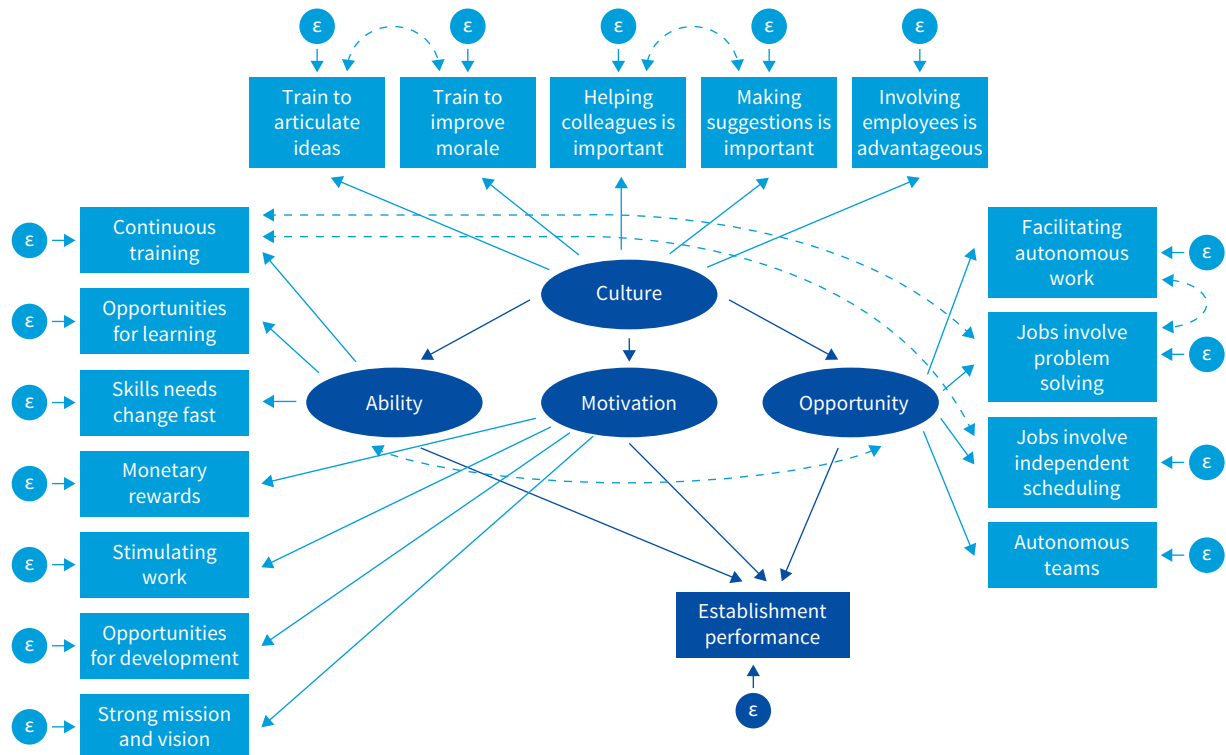
For the analysis of ECS 2019 data, establishment performance is captured by four indicators: whether the establishment made a profit or a loss or broke even in the year preceding the survey, profit expectation (whether the financial result was in line with expectations), the change in production volume over the three years prior to the survey, and the expected change in the number of employees for the three years following the survey. Each of the component variables was given the same weight. The scores of the resulting variable were transformed, such that they could theoretically range between 0 and 100.

⁴ [European Company Survey 2019: online questionnaire for management respondents](#). A second, shorter questionnaire was developed for employee representatives in those establishments where one was present and willing to complete the questionnaire. However, the data collected in this questionnaire were not used for the analyses in this report.

[European Company Survey 2019: technical and fieldwork report](#).

An external data quality assessment was carried out, covered in the related report: [European Company Survey 2019: data quality assessment](#).

Figure 2. Full final model



Source: Authors.

NB: ϵ indicates the residual error.

A higher value on the index signals better establishment performance⁽⁵⁾.

For the analysis of the ECS 2020 follow-up survey data, the measure had to be adjusted. In the context of the COVID-19 pandemic it was deemed undesirable to ask retrospectively about the profit expectation in the period before the pandemic hit, so this variable was dropped from the questionnaire. Consequently, establishment performance could be based on the three remaining variables only. It was decided to retain the balance between financial performance and other performance, so profitability was given double the weight of each of the other variables. The omission of the variable indicating whether profitability was in line with expectation implies a slight conceptual shift, placing more emphasis on profitability rather than on achieving financial objectives as an indicator of performance. However, the distributions of the original operationalisation based on four variables, and the adjusted operationalisation based on three variables, across countries, sectors, and size classes, are similar. To ensure that the results are comparable between the years, all analyses in Chapter 5 are based on the adjusted index of establishment performance.

2.2.2. Specifying the structural equation model

Structural equation modelling is a technique for multivariate statistical analysis that combines elements from factor analysis and multiple regression analysis. It is used to analyse the structural relationships between

observed variables and latent constructs. Its main advantage is that it allows for estimating the multiple and interrelated dependences in a single analysis, which implies that any errors in the measurement of the latent construct is taken into consideration – and can, to some degree, be addressed – when assessing the associations between these constructs (Bollen, 1989).

The specification of the model is primarily a theoretical exercise. Based on theoretical expectations, a set of observed variables is included in the model and the (type of) relationships that are to be estimated are specified.

It is customary to distinguish two steps in model specification: the specification of the measurement model and the specification of the structural model. The measurement model refers to the estimation of the latent constructs based on the observed variables. The structural model refers to the relationships between the latent constructs and the dependent variable.

Taking the conceptual model presented above as a starting point, Figure 2 shows the full structural equation model that has been specified to assess the relative importance of the three aspects of skills use (ability, motivation and opportunity) for establishment performance, while considering differences in organisational culture.

The uninterrupted arrows show the relations as hypothesised based on the conceptual model. To ensure that the model best reflects the structure

5 Details on the construction of the indices of establishment performance are available in Annex 1.

following from the theoretical expectations, while being sufficiently aligned with the structure of the data, a few changes were made to the model specification based on the modification indexes; all are consistent with the theoretical model. For example, a partial correlation between the latent variables capturing organisational practices that foster opportunity and ability was included. All these partial correlations are shown by interrupted arrows.

The extent to which the specification of the model is reflected in the data can be expressed in a range of fit measures. The model fit of the measurement model already satisfies all the fit requirements without the inclusion of covariates (so only looking at the uninterrupted arrows).

However, the model fit of the full model only meets the requirements when these covariates are included ⁽⁶⁾.

The considerations underlying each of the associations in the model are further detailed below, first discussing the capture of the latent variables ability, motivation and opportunity (measurement model; Section 2.2.2.1) and then discussing the associations between these latent variables and establishment performance (structural model; Section 2.2.2.2).

2.2.2.1. *The measurement model*

The measurement model refers to the elements displayed in light blue in Figure 2. Organisational culture, and the organisational commitment to fostering ability, motivation and opportunity cannot be measured directly, and are therefore treated as latent variables. While latent variables are not directly observable, it is possible to observe variables (indicators) that are correlated with them. The pattern of correlations between the indicators (strength and direction of correlation) can be used to infer the characteristics of the underlying latent variable (Bollen, 2002). Scores on these latent variables can then be estimated by using the scores of a set of observed variables that are correlated with them: it is assumed that there is a common underlying latent variable that affects the scores of each variable in a set of observed variables. For example, organisations committed to autonomous working would be more likely to have a large proportion of employees whose job involves problem solving. In a survey, it is not straightforward to include a question about organisational commitment to autonomous working, whereas the question ‘what proportion of employees are in jobs that involve problem solving?’ is reasonably simple to ask and answer. Table 1 shows the loadings for each observed variable on the underlying latent construct ⁽⁷⁾. These are discussed more substantively in Chapter 3; here they mainly show, more generally, how closely the observed variables are associated with the latent constructs. Although some of the items have low factor scores, the results suggest that there is sufficient empirical support for the assumption

that each of the latent constructs can be captured by looking at the variation in the observed variables.

The default model assumes that the latent construct accounts for all covariation between the indicator variables. More specifically, the error terms of the indicator variables are assumed to be independent of each other, so their intercorrelations are fixed at zero. However, often there are reasons to believe that this is not the case: for methodological reasons, for instance, when two variables have been collected as part of the same question battery; or for substantive reasons, when indicator variables are associated with multiple latent constructs (not all of which might be included in the model).

This is the case for this model as well. When inspecting the initial results of the analysis it was observed that the error terms between several variables were correlated. When this is the case, and there are good substantive or methodological arguments to do so, the model can be specified such that it allows for correlations between the error terms (instead of fixing them at zero). Similarly, latent constructs within the measurement model might be mutually correlated, and the model can be specified to allow for this. The model allows correlations between the error terms of:

- (a) training to articulate ideas and training to improve morale;
- (b) importance of making suggestions and the importance of helping colleagues;
- (c) proportion of jobs involving problem solving and a managerial approach focusing on facilitating autonomous work;
- (d) proportion of jobs involving problem solving and the proportion of jobs requiring continuous training;
- (e) proportion of jobs involving independent scheduling and the proportion of jobs requiring continuous training;
- (f) the latent variables ability and opportunity.

More detail is provided in Annex 2 on the rationale underlying each of these adjustments, as well as on the partial correlations that were found.

⁶ More detail on the fit measures and the associated results for the measurement model with and without covariates, and the full model with and without covariates, and with covariates as well as control variables for country, sector and size, are available in Annex 2.

⁷ Table 1 presents the estimates based on the final structural model without controls for country, sector, and establishment size (see Section 2.2.2.2). The estimates of the initial measurement model, with and without covariates, are available in Annex 2.

Table 1. Factor loadings

Latent constructs	Observed variables		Loading
	Name	Label	
Culture	trinn	Provide training to improve ability to articulate ideas	0.642
	trmot	Provide training to improve morale	0.569
	dischelp	Helping colleagues important for positive evaluation	0.555
	discsugg	Making suggestions important for positive evaluation	0.669
	eicomp	Employee involvement seen to offer competitive advantage	0.458
Ability	contr	Percentage of workers requiring continuous training	0.503
	learnnoneed	Percentage of workers with limited opportunities to learn new things (reverse coded)	0.417
	skillch	Speed of change in knowledge and skills needed from employees	0.598
Motivation	motimon	Use of monetary rewards to motivate employees	0.316
	motichal	Providing stimulating work to motivate employees	0.754
	motilearn	Providing opportunities for training and development to motivate employees	0.654
	motimis	Communicating a strong mission and vision to motivate employees	0.750
Opportunity	supchek	Managers facilitate autonomous work, rather than control for compliance	0.721
	compprobs	Percentage of workers in jobs that involve problem solving	0.828
	comorg	Percentage of workers in jobs that involve independent organising of time and scheduling of tasks	0.629
	tauton	Presence of autonomous teams	0.382

Source: ECS 2019, author calculations.

To present the descriptive results, the factor scores for each of the latent variables have been calculated and converted, such that the indices for culture, ability, motivation and opportunity all range between 0 and 100. The scores of different groups on each of the indicators can be safely compared, but absolute scores cannot be compared between the indicators.

2.2.2.2. The structural model

The structural model refers to those elements displayed in dark blue in Figure 2. The model fit suggests a high level of correspondence between the theoretically expected relationships and the structure found in the data. The estimates only change marginally when country, sector, and establishment size are included as control variables in the regression of ability, motivation and opportunity on business performance, but including these variables reduces the model fit (Annex 2). Due to sample size restrictions it was not possible to include the control variables in the grouped analyses discussed below, so it was decided to present the results from the structural model without control variables throughout the report.

2.2.2.3. Measurement invariance

As part of the model specification and estimation, measurement invariance was investigated with respect to country, establishment size, sector of activity and the variables that are used in the grouped analysis (competing on price, predictability of demand, workplace wellbeing, provision of paid training, provision of on-the-job training,

and employee influence on decision-making; see Section 2.2.3 below) ⁽⁸⁾.

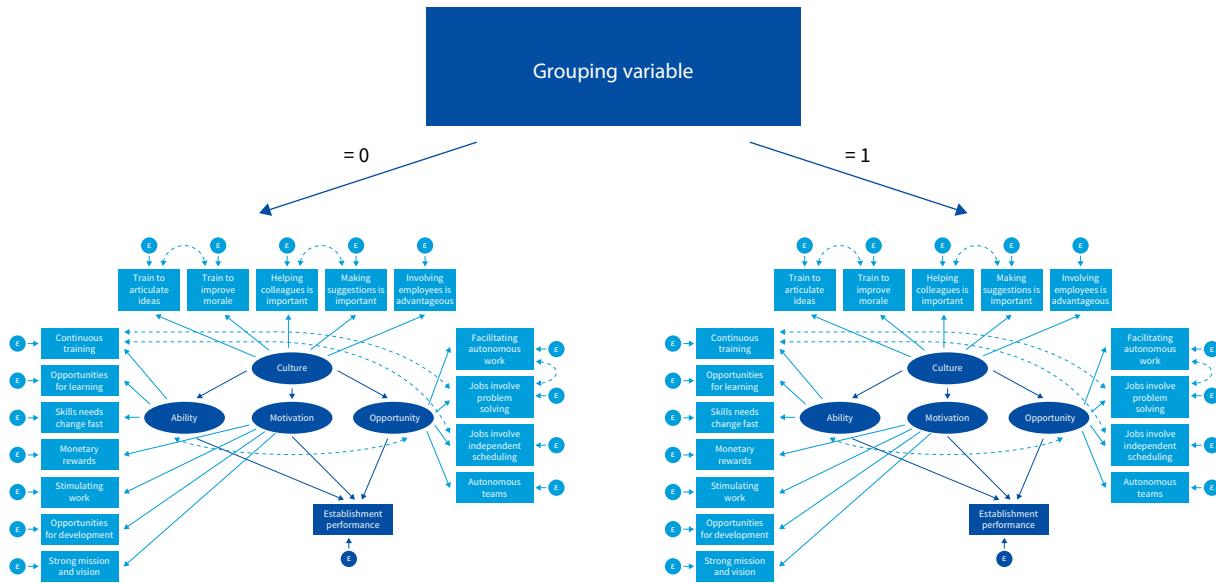
An assessment was made of the extent to which the associations between the latent and observed variables followed equivalent patterns across the categories of each of these variables. In such assessments, a distinction is made: configural invariance, in which case the structure of the model is the same in all sub-samples; metric invariance, in which case the item loadings of the observed variables on the latent constructs are equivalent; and scalar invariance, in which case the item intercepts (or thresholds) of the observed variables on the latent constructs are equivalent. Scalar invariance puts the strictest requirements on the model and is often difficult to achieve in cross-national studies (Reeskens and Hooghe, 2008; Tinghög and Carstensen, 2010; Meuleman and Billiet, 2012; Eldad et al., 2018).

Metric invariance was achieved for all variables. However, scalar invariance was not achieved for sector of activity, country, provision of paid training and employee influence on decision-making.

As the focus of the analysis in this report is on multivariate analysis at the aggregate, European level, metric equivalence suffices (Freitag and Bauer, 2013). However, the descriptive results presented in Chapter 3 need to be interpreted with care, where results are presented by sector of activity, provision of paid training and employee influence on decision-making. As the issue of non-invariance is most pronounced for country, it was decided not to show descriptive results by country.

8 The approach to testing for invariance as well as the results of the tests are available in Annex 2.

Figure 3. Empirical approach to compare business environments



Source: Authors.
NB: ϵ indicates the residual error.

2.2.3. Comparing different business environments

The AMO model links skills use to performance under general circumstances. However, the impact of ability, motivation and opportunity on performance can be expected to differ in different business environments. The strength of the associations may vary depending on the competitive environment and strategy, workplace relations, or training strategy of establishments.

To assess this, a set of structural equation models was estimated in each of which the measurement model and the relationship between the latent variables were fixed, while the relationship between the latent variables and establishment performance were allowed to vary across the categories of a grouping variable (Figure 3) ⁹. To assess whether the relationships between workplace practices fostering ability, motivation and opportunity and establishment performance vary significantly across contexts, confidence intervals are compared. When confidence intervals do not overlap, a difference is considered statistically significant. When confidence intervals do overlap, the relative overlap ratio (ror) is used to test for statistical significance (Annex 3).

The grouping variables, or moderators, indicate the presence of a certain context. By looking at differences between the groups in the regression coefficients of ability, motivation and opportunity on establishment performance it is possible to assess to what extent context matters.

This has been achieved by analysing differences between:

- businesses where competing on price is the most important product market strategy and businesses where this is not the case (implying that quality, innovation, or customisation is considered more important);
- businesses that reported product demand to be 'not very predictable' or 'not at all predictable' and businesses that reported product demand to be 'fairly predictable' or 'very predictable';
- businesses with high or low workplace wellbeing, measured using an index that combines four survey questions: the reported level of employee motivation; the reported difficulty of retaining staff; reported issues with absenteeism; and the perceived quality of the relationship between employees and management;
- businesses that in the past year provided paid time off for training to less than 40% of employees and businesses that provided paid time off for training to 40% of employees or more;
- businesses that in the past year provided on-the-job training to less than 40% of employees and businesses that provided on-the-job training to 40% of employees or more;
- businesses that are relatively unlikely to involve employees in decision-making and that – when they do involve employees – tend to give them limited influence on the outcomes, and businesses that are likely to involve employees in decision-making and give them influence on the outcomes.

⁹ A pragmatic but important reason for using this approach of applying a grouped analysis is that it is far from straightforward to estimate interaction terms between latent constructs and other variables in a structural equation model, and this option is not included in the R package Lavaan that was used to carry out the analysis. Another limitation of the Lavaan package is that, when carrying out a grouped analysis, it does not include a test for differences between the estimates that are calculated for the different groups, so these needed to be carried out separately.

The exact operationalisation of the moderator variables, and the full results of these comparisons, are presented in Annexes 1 and 3. The substantive findings are discussed in Section 4.2.

2.2.4. Replicating the analysis using the results from the ECS 2020 COVID-19 follow-up survey

Due to the small sample size of the ECS 2020 COVID-19 follow-up survey, it was not possible to replicate fully the structural equation models. To approximate the models, the factor scores for ability, motivation and opportunity generated, based on the model discussed above, were saved and entered in an ordinary least squares regression model, together with a set of dummy variables that control for variability between countries, sectors of activity and size classes.

To compare performance between 2019 and 2020, an adjusted composite indicator of performance had to be used, as not all the component variables were repeated in the 2020 questionnaire (Section 2.2.1).

3. Measuring skills use and organisational culture

This chapter provides insight into the workplace practices that have been used to capture culture, ability, motivation and opportunity, showing how the latent variables that are used to indicate these elements can be interpreted. The effect sizes reported in this chapter do not imply that some indicators are more or less important for skills use than others; they merely indicate that certain indicators had more weight in determining the score on the latent variable than others.

The chapter also describes how establishments in different sectors and of different sizes differ in terms of their organisational culture and in the extent to which they cultivate skills use through ability, motivation and opportunity. Motivation varies less across sectors and size compared to ability and opportunity, suggesting that this latent construct tends to reflect organisational choices. Ability and opportunity are also driven by organisational choices which may fluctuate with structural variables.

3.1. Culture: people-centred orientation

Culture refers to organisational reliance on human capital for its success. Organisations leveraging human capital also recognise its importance and encourage and actively support desirable citizenship behaviours. The latent construct capturing a people-centred organisational culture is based on five indicators:

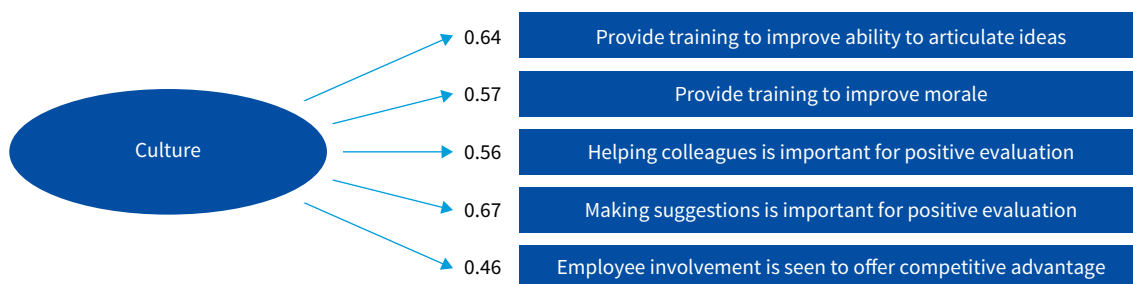
- (a) importance of increasing the capacity of employees to articulate ideas about improvements to the establishment as a reason to provide training;
- (b) importance of improving employee morale as a reason to provide training;
- (c) importance of helping colleagues for getting a positive performance evaluation;

- (d) importance of making suggestions for operational improvements for getting a positive performance evaluation;
- (e) the extent to which involving employees is seen to give a competitive advantage.

Culture is a latent construct that is derived from five indicators, each of which have an association of similar strength with the latent variable (Figure 4). The indicator with the weakest association is ‘seeing employee involvement as offering a competitive advantage’. The strongest associations are found for the indicators ‘providing training to improve the ability of employees to articulate their ideas’ and ‘the importance of making suggestions for improvement for receiving a positive performance evaluation’. The latter illustrates that the extent to which management values, and invests in, employee ideas about their work and about the workplace is a key element of an organisational culture that promotes effective skills utilisation.

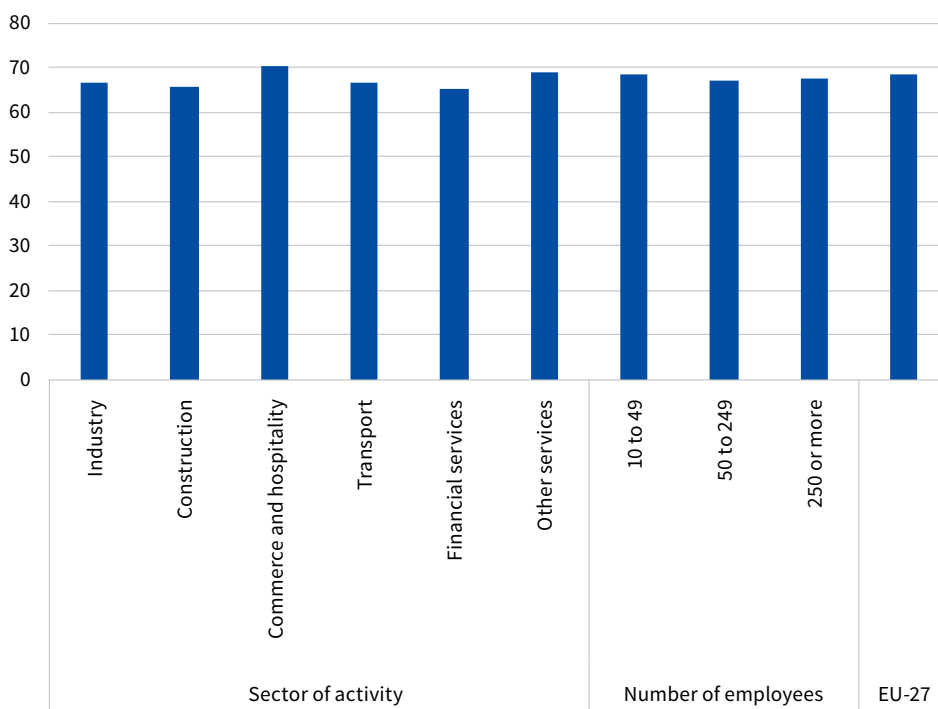
Figure 5 shows that establishments in commerce and hospitality and other services score highest on the latent construct culture while establishments in construction and financial services score lowest. Differences in organisational culture between establishments of different sizes are small, with small establishments scoring highest followed by large establishments, and medium-sized establishments scoring lowest. Although businesses in sectors where employees are more likely to be client-facing are more likely to have a people-centred managerial culture, the fact that the differences between sectors and size classes are relatively small suggests that culture depends more on managers in organisations than on the context in which they operate.

Figure 4. Measuring culture



Source: ECS 2019, authors’ calculation (N = 18,839).

Figure 5. Culture, average scores by sector of activity and establishment size



Source: ECS 2019, authors' calculation (N = 19,988).

NB: Tests for measurement invariance revealed some minor issues regarding the sectors of activity, so these descriptive results need to be interpreted with care.

3.2. Ability: fostering skills development

The latent construct capturing organisational approaches to foster skills development (ability) refers to organisational commitment towards continuous skills development. Organisations committed to developing the skills of their employees are more likely to have adopted production technologies that involve frequently changing skills needs, and to design jobs that involve learning and continuous training. The latent construct is based on three indicators:

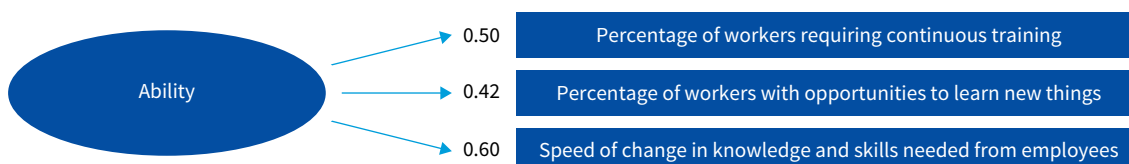
- (a) speed at which the knowledge and skills needed from the employees in the establishment change;
- (b) percentage of workers in jobs requiring continuous training;
- (c) percentage of employees in jobs that offer opportunities to learn new things.

Figure 6 shows that ability is most strongly associated with the speed at which skills needs change. Associations with the percentage of workers in jobs that require continuous training and the percentage of workers in jobs that offer opportunities for learning are weaker.

Figure 7 shows that scores for ability vary much more between sectors than scores for culture.

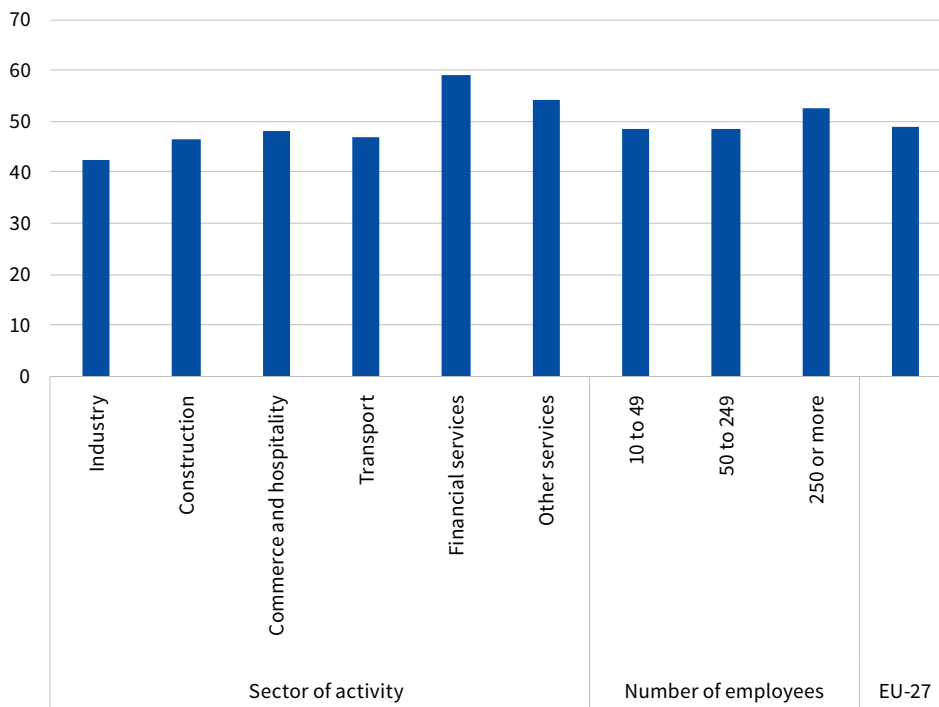
Financial services and other services score highest in terms of ability and industry scores lowest. In terms of establishment size, larger establishments are more likely to have workplace practices that cultivate ability than SME establishments.

Figure 6. Measuring ability



Source: ECS 2019, authors' calculation (N = 18,839).

Figure 7. Ability, average scores by sector of activity and establishment size



Source: ECS 2019, authors' calculation (N = 20,382).

NB: Tests for measurement invariance revealed some minor issues regarding the sectors of activity, so these descriptive results need to be interpreted with care.

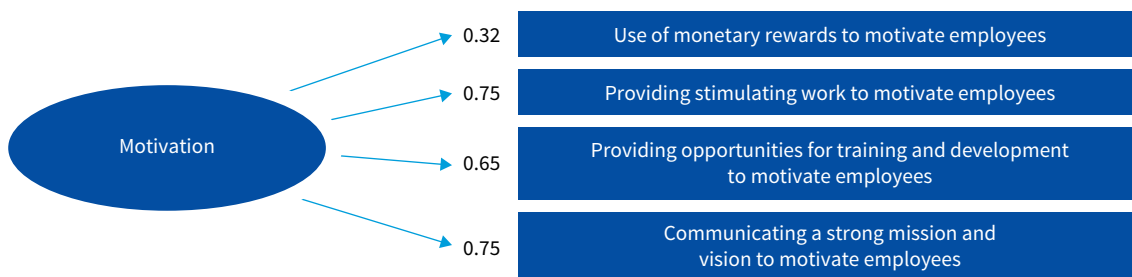
3.3. Motivation: encouraging employees to utilise their skills

The latent construct motivation refers to organisational commitment to sustaining employee motivation to draw on their skills using a variety of levers. Alongside good job design and promoting a healthy social environment, workers can also be motivated via financial and non-financial incentives. Motivation is based on four items capturing the frequency¹⁰ of:

- (a) management relying on offering monetary rewards;
- (b) providing interesting and stimulating work;
- (c) providing opportunities for training and development;
- (d) communicating a strong mission and vision that provides meaning to the work to motivate and retain employees.

Figure 8 shows that the latent construct motivation is strongly associated with non-monetary forms of motivation, particularly providing stimulating work and providing a clear mission and vision, and only moderately associated with the use of monetary rewards.

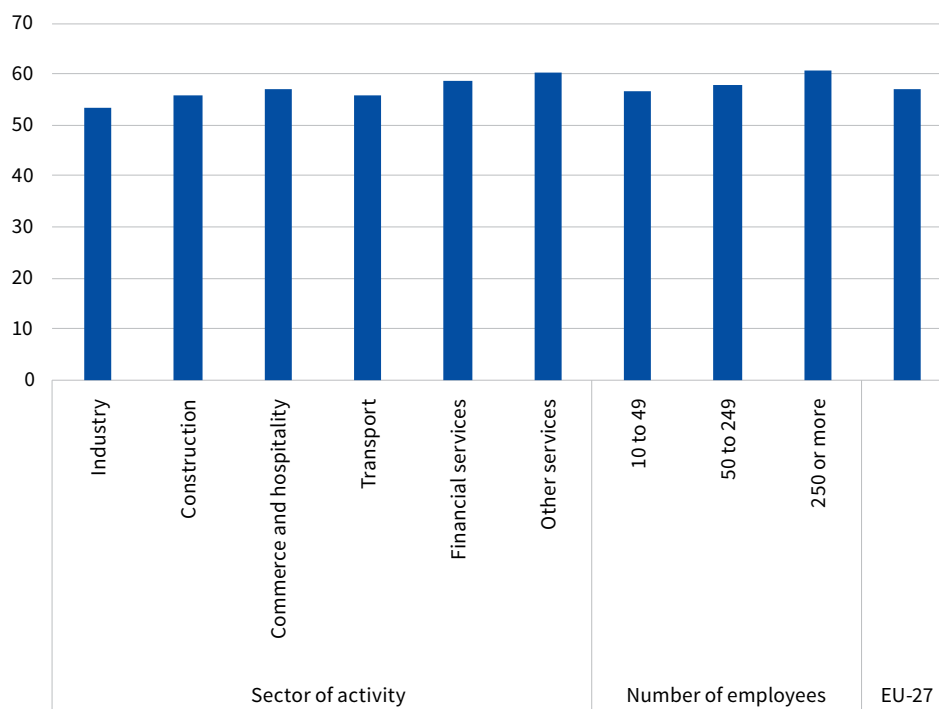
Figure 8. Measuring motivation



Source: ECS 2019, authors' calculation (N = 18,839)

¹⁰ Using a scale: 'very often', 'fairly often', 'not very often', and 'never'.

Figure 9. Motivation, by sector of activity and establishment size



Source: ECS 2019, authors' calculation (N = 20,899).

NB: Tests for measurement invariance revealed some minor issues regarding the sectors of activity, so these descriptive results need to be interpreted with care.

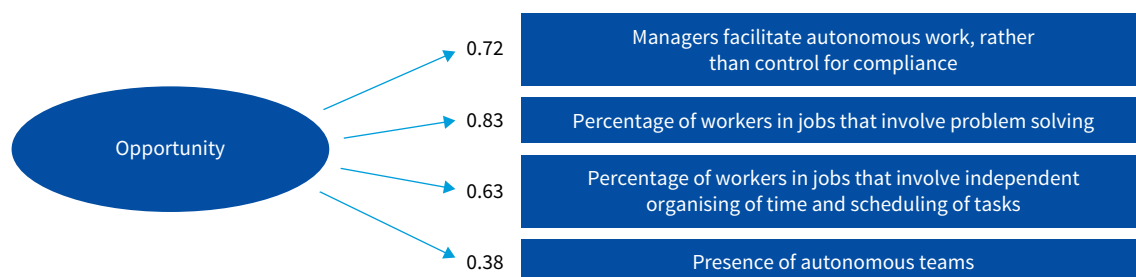
Workplace practices that foster motivation are most prevalent in financial and other services, and least prevalent in industry (Figure 9). Differences between sectors are less pronounced for motivation, than they are for ability. Large establishments are more likely to have workplace practices in place that foster motivation than medium-sized and small establishments. This again implies that the context in which establishments operate has some impact on managerial approaches to motivation.

3.4. Opportunity: supporting skills utilisation

The latent construct opportunity captures organisational commitment to autonomous working by allowing workers to take decisions about when and how they carry out their job tasks. This is reflected in job design choices (job autonomy and problem solving), work organisation in autonomous teams, and managerial support for employee autonomy. The latent construct capturing opportunity is based on four indicators:

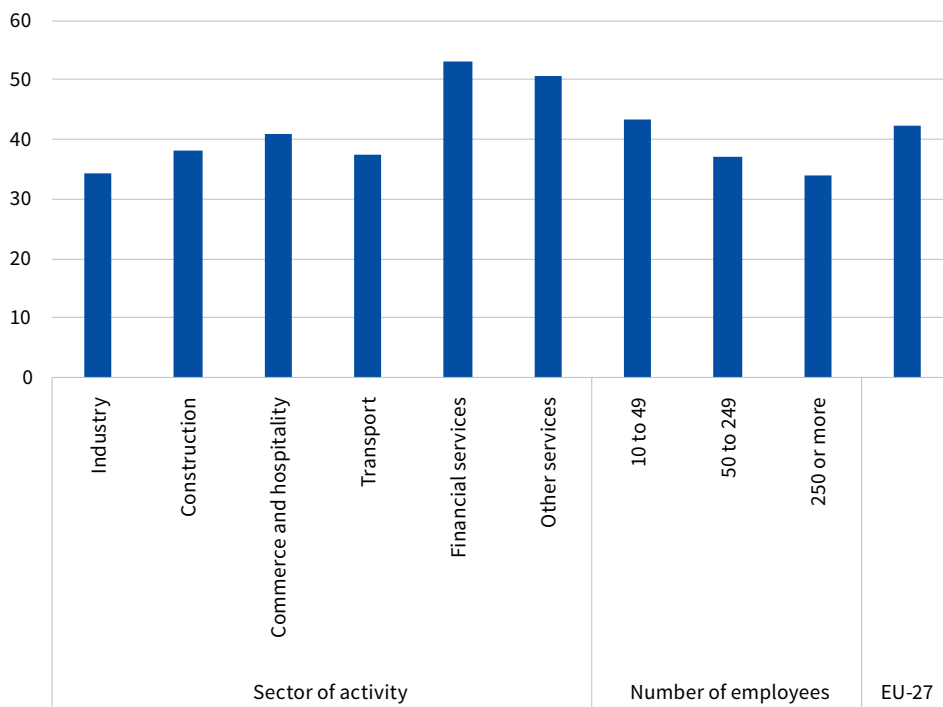
- (a) whether managers create an environment in which employees can autonomously carry out their tasks rather than control whether employees follow the tasks assigned to them;

Figure 10. Measuring opportunity



Source: ECS 2019, authors' calculation (N = 18,839)

Figure 11. Opportunity, by sector of activity and establishment size



Source: ECS 2019, authors' calculation (N = 20,251).

NB: Tests for measurement invariance revealed some minor issues regarding the sectors of activity, so these descriptive results need to be interpreted with care.

- (b) percentage of employees in jobs that include independently organising their own time and scheduling their own tasks;
- (c) percentage of employees in jobs that include finding solutions to unfamiliar problems they are confronted with;
- (d) work organisation in autonomous teams.

The latent construct opportunity is most closely associated with the percentage of workers that are in jobs that involve problem solving (Figure 10). The association is less pronounced for a managerial approach geared towards supporting autonomous work, rather than controlling for compliance, and the percentage of workers in jobs that involve the independent organising of time and scheduling of work. Opportunity is only weakly associated with the presence of autonomous teams. Based on theoretical and methodological reasons (model fit) it was deemed appropriate to retain the indicator.

Differences between sectors and establishment sizes (Figure 11) are similar to those derived for the constructs ability and motivation (Figure 7 and Figure 9). Establishments in financial and other services are most likely to have practices in place that foster opportunity, while this is least likely in establishments in industry. Sectoral differences regarding opportunity are similar in size to those found for ability but less pronounced than those found for motivation. For establishment size, opportunity shows a pattern opposite to the ones found for ability and motivation, with small establishments considerably more likely to have practices in place that foster opportunity than medium-sized and large establishments.

4. Skills use and establishment performance

This chapter links culture for effective skills utilisation and organisational approaches fostering ability, motivation and opportunity to establishment performance. It first discusses the substantive results of the basic structural model (see also Section 2.2.2.2). Following the discussion of the associations found between culture, ability, motivation and opportunity and establishment performance across the full population of establishments, the chapter analyses and presents the impact of different business environments on the associations.

4.1. Linking the latent variables to establishment performance: the structural model

Figure 12 displays the associations between culture and ability, motivation and opportunity, and between ability, motivation and opportunity and performance as estimated with the structural model.

The model highlights the importance of organisational culture. Organisations that attach high value to effective skills utilisation also tend to be more committed to fostering ability through skills development, motivation, through a range of motivational drivers, and opportunity, by stimulating autonomous decision-making by employees. The association with motivation is particularly strong, and culture is also quite closely associated with ability. The association with opportunity is weaker. This is in line with the finding that opportunity varies more between different sectors and organisational size classes.

Both findings suggest that structural and contextual factors play a more important role in opportunity than business- or manager-specific characteristics, such as organisational culture, than was the situation for ability and motivation.

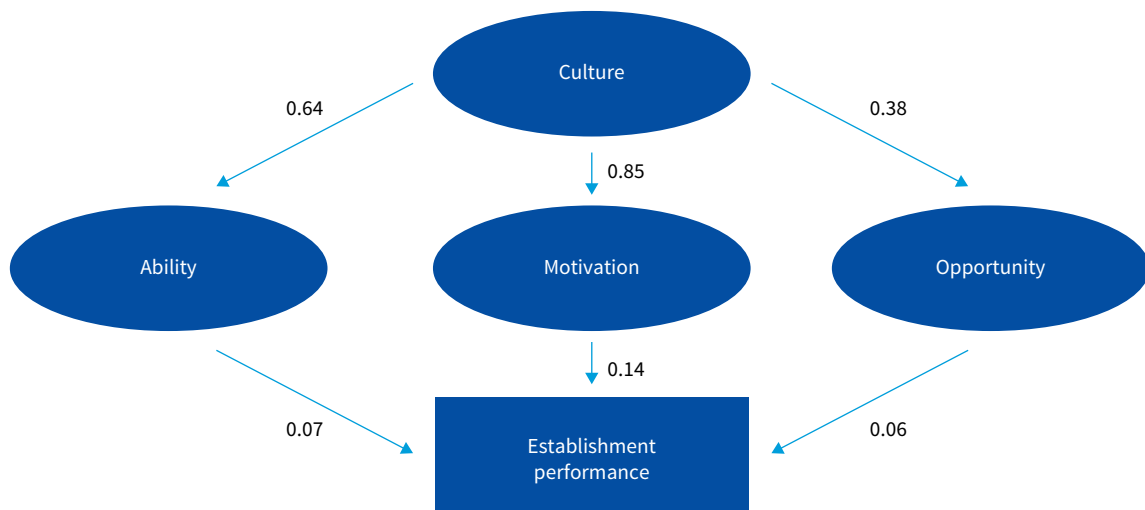
The estimates show that, in turn, workplace practices fostering ability, motivation and opportunity are all positively linked to establishment performance. The association between motivation and establishment performance is strongest.

The association between organisational approaches fostering the three components of the AMO model and establishment performance are weak compared to those between culture for effective skills utilisation and organisational approaches fostering the three AMO model components. This observation should not be interpreted as an indication that cultivating ability, motivation and opportunity is not a worthwhile investment: just a 5% increase in profitability would often be considered a worthwhile pursuit, and the proportion of variability in establishment performance that is associated with ability, motivation and opportunity is considerably greater than that.

4.2. Skills use in different business environments

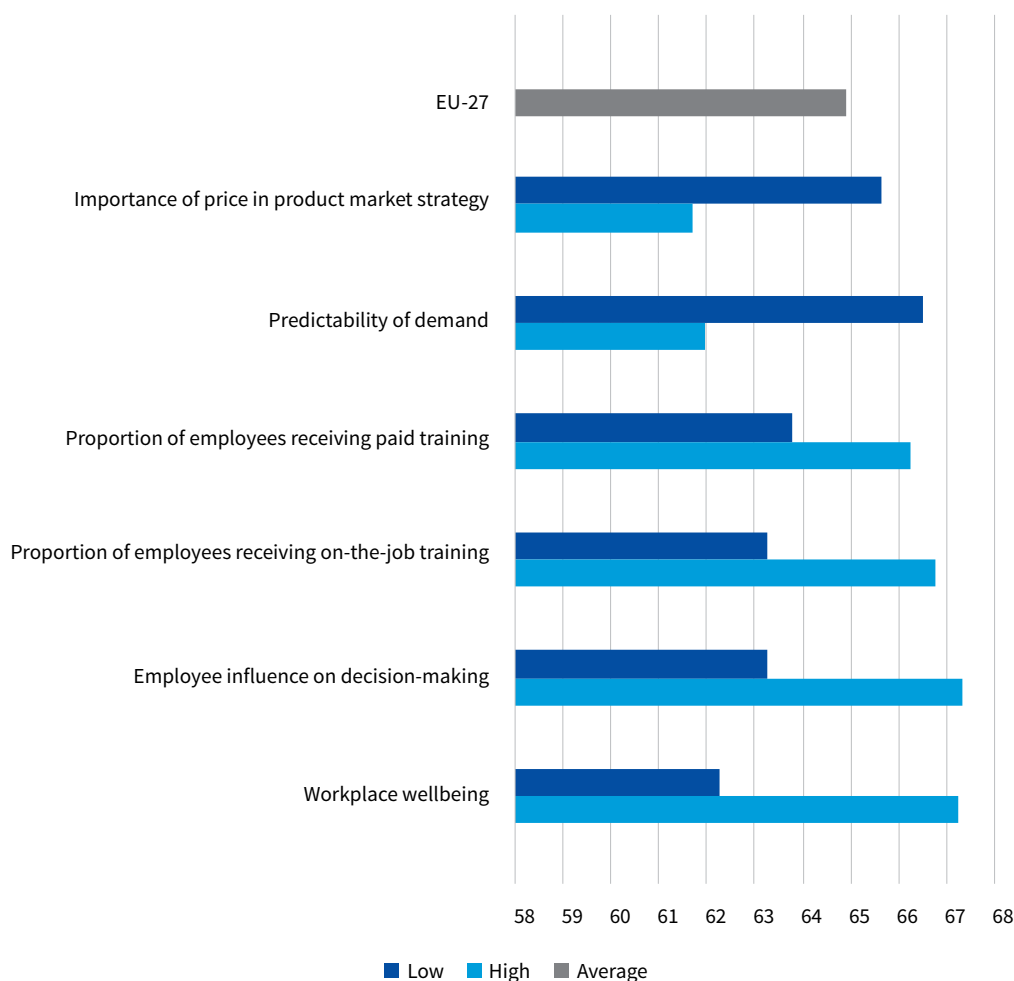
Business environment can be expected to influence the presence of practices fostering ability, motivation and opportunity. While these elements are positively associated with establishment performance, how

Figure 12. Estimation of the structural model



Source: ECS 2019, author calculations (N = 18,814). NB: All effects are statistically significant at p < .05.

Figure 13. Differences in establishment performance by business environment (performance index)



Source: ECS 2019, author calculations (N = 18,814).

organisational approaches to fostering the three AMO model components link to performance differs depending on context. Not only the strength, but also the direction of the associations may be affected. This section looks at the relationship between organisational approaches encouraging the three AMO model components and establishment performance in different types of business. It compares:

- (a) businesses that mainly compete on prices and those that have a stronger focus on other aspects, such as quality, customisation or innovation;
- (b) businesses in more and less predictable markets;
- (c) businesses that face issues with low workplace wellbeing and those not facing such issues;
- (d) businesses offering more comprehensive training and those offering less;
- (e) businesses with higher employee influence on decision-making and those with lower employee influence.

Regardless of their managerial approaches to AMO, these business types differ in terms of performance (Figure 13). Businesses mainly competing on price perform worse on

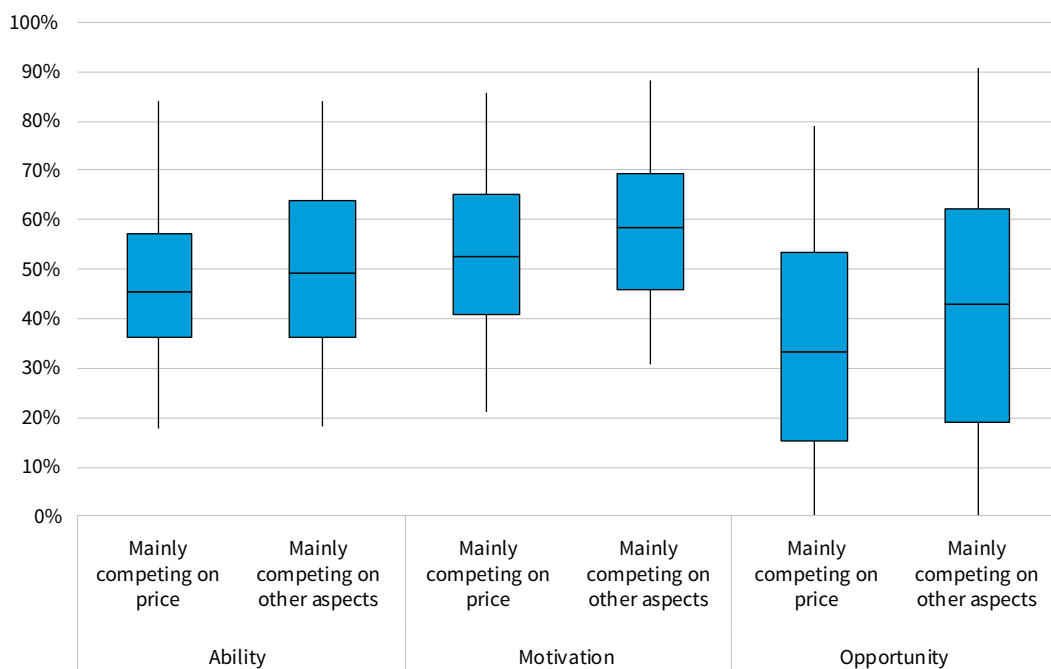
average than those mainly competing on other aspects. Businesses operating in a context where demand is predictable perform worse on average than those facing unpredictable demand, suggesting that some risk-taking pays off. Businesses where many employees participate in paid training or on-the-job training perform better than those where the share of trained workers is low, although the performance difference is smaller than that found for employee influence and workplace wellbeing. Businesses with stronger employee influence and higher workplace wellbeing perform considerably better compared to organisations with less employee influence and lower workplace wellbeing.

In the following sections, business in different environments are compared in terms of the extent to which they have adopted managerial practices cultivating the AMO model components. The analysis will also show how the AMO components affect performance for each of the business environment dimensions.

4.2.1. Competitive strategy

Businesses have different approaches to increasing or sustaining the market share of their product or service. The ECS 2019 shows that, among businesses in the EU-27,

Figure 14. Distribution of ability, motivation and opportunity, by price orientation



Source: ECS 2019, author calculations (N = 18,626).

NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers).

offering higher quality is the most common competitive strategy (37%), followed by offering customised products and services (29%), offering lower prices (11%), and, finally, product and service innovation (8%). The remaining 14% of establishments adopt a mixed strategy (Eurofound and Cedefop, 2020).

It can be expected that businesses with a competitive strategy aimed at pursuing cost leadership in the market have a different approach to designing their workplaces. To keep prices lower than the competition, they might invest less in employees overall. To benefit from the investments they do make, they might capitalise differently on skills use from businesses aiming to outperform the competition in terms of quality, customisation, or innovativeness.

There are various ways of saving costs, each of which has different implications for the type and level of skills needed, and the opportunities that workers have to use them.

- Cost savings can be achieved by investing in machinery and automating processes that increase efficiency and reduce labour costs. Automation typically reduces staff needs, but the workers that remain need to have high-level skills which need to be kept up to date to stay in tune with technological development. In such a scenario, it would be expected that ability would be closely associated with performance, followed by opportunity and motivation.
- Enterprises can also reduce costs by formalising procedures with a view to minimising efficiency loss due to human error. This entails job design centred around keeping workers tightly bound to

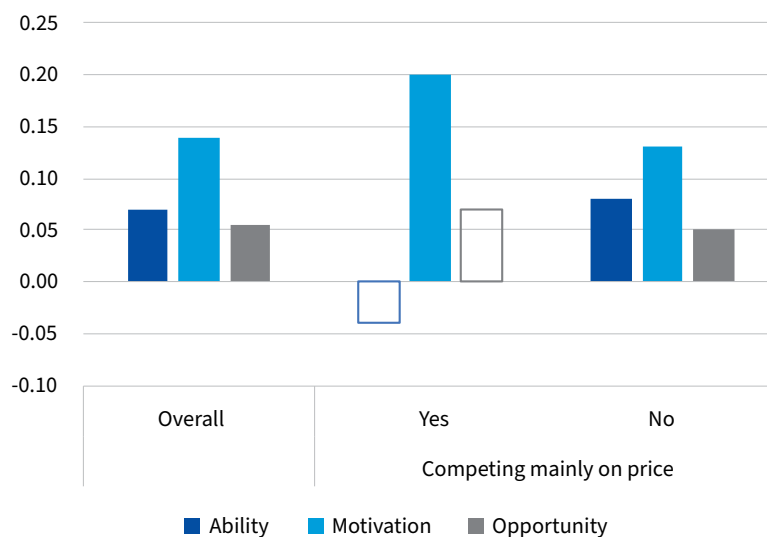
prescribed routines and limiting opportunities for skills use and development. In this context, it can be expected that the main distinguishing factor in terms of performance is motivation, followed by ability, as even these structured tasks might require continued investment in training and learning. Opportunity would play a limited role.

- Organisations may also choose the high road of leveraging employee cooperation in order to identify areas in which efficiency gains could be achieved, waste could be reduced, and resources could be bought at a lower price. Such a people-centred approach is present among businesses competing on cost and prices, but less prevalent than in businesses focusing their competitive strategy on other dimensions (Eurofound and Cedefop, 2020). In that case, ability, motivation and opportunity would be expected to affect performance positively in equal measure.

As the ECS 2019 did not collect information on the approach to cost-saving followed by businesses, analysis about their practices regarding AMO cannot be grouped according to the different sets of expectations discussed above. However, the analysis concentrates on the contrast between price-focused competitive strategies and strategies prioritising other aspects. Given the low prevalence of people-centred workplace practices in price-competing establishments, it would be expected that approaches based on increasing efficiency through job and task standardisation are dominant, and that the effect of motivation on performance would be greatest.

In line with the findings from the ECS 2019 overview report (Eurofound and Cedefop, 2020), businesses competing

Figure 15. Associations between ability, motivation and opportunity and establishment performance, by price orientation



Source: ECS 2019, author calculation (N = 18,626).

NB: The size of the bar reflects the strength of the association (standardised regression coefficient) between ability, motivation and opportunity and establishment performance. Transparent bars indicate effects that do not differ significantly from 0. Tests have also been carried out to assess whether effects differ significantly between groups. Those establishments competing mainly on price differ significantly from those that mainly compete on other aspects, in terms of the effects of ability and motivation, but not in terms of the effect of opportunity.

on price have fewer workplace practices to foster AMO (Figure 14). The difference is particularly pronounced for opportunity. It also shows that businesses competing on price show somewhat less variation in terms of their approach to ability.

There are marked differences between businesses mainly competing on price and those focusing on other dimensions (Figure 15). In both groups, the effect of motivation is dominant, but in the price-oriented group cultivating ability and opportunity do not significantly impact establishment performance. Of greater interest, however, are the differences between the two groups, particularly pronounced for ability, which matters far less for price-competing businesses than for those with other competitive strategies. Motivation, in contrast, matters significantly more for price-oriented businesses. The effect size of opportunity does not differ significantly between the groups, and the fact that it is not statistically significant for the price-oriented group is mainly due to the smaller size of the group.

These findings suggest that price-oriented businesses tend to invest less in managerial practices fostering the three AMO model components than establishments competing on product or service quality or innovativeness but, in establishments competing on price, managerial approaches fostering staff motivation are associated with better establishment performance. This could reflect a ‘price leadership compatible’ human capital strategy, where monetary incentives are often only paid if efficiency improves (e.g. in the form of a bonus or productivity-tied wages) and non-monetary incentives need not be very expensive to implement. While investing in skills and job design would also improve efficiency, this requires significant funding (of training or other development activities), which increases costs that would only be recouped over time, and slowly if profit margins are small.

In businesses competing on quality and innovativeness, managerial approaches fostering all AMO model components are associated with improved establishment performance.

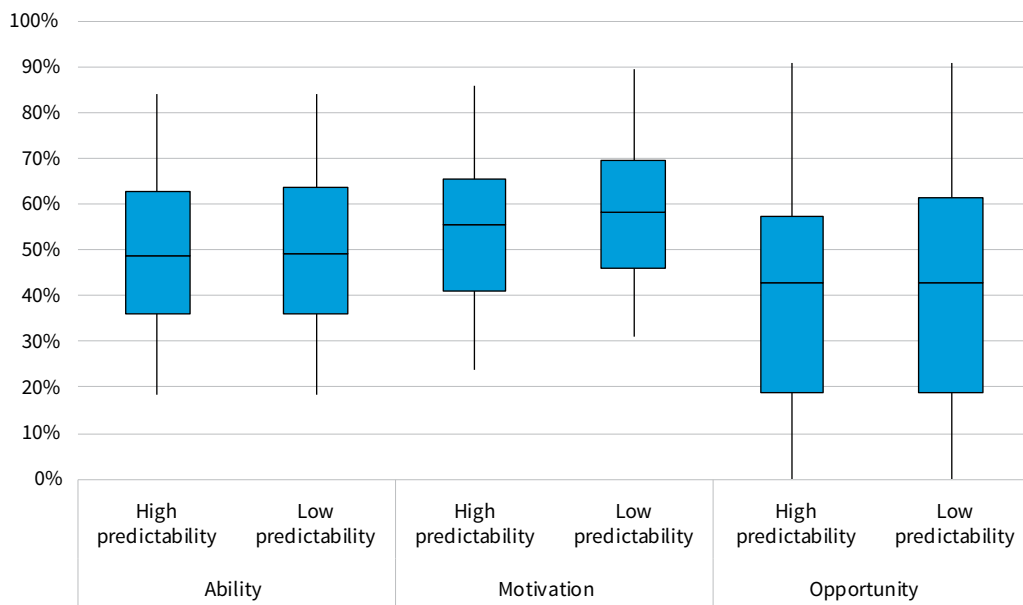
4.2.2. Predictability of demand

The environment in which organisations operate has an impact on organisational choices. While routines and centralised decision-making tend to work best in stable environments where product demand is predictable, this is not always the case.

Product demand can be difficult to predict when fluctuations in volumes are hard to anticipate (for example, when a company is part of a supply chain and demand for the product depends on the business logic or practices of one or more other companies). In other cases, product demand can be hard to anticipate because rapidly changing technologies or customer preferences may alter the type of product and service the market demands. This is typical in industries experiencing disruption (Kleindorfer and Saad, 2005; Christensen, 2006; Wessel and Christensen, 2012). Disruption may be driven by competitors whose product, services, or ideas render one or more product obsolete. Disruption may also arise when unforeseen events change the ‘rules of the game’ in some fundamental way. For example, the COVID-19 pandemic affected the way employees work together, the manager-employee relationship, and also the management of supply chains.

When fluctuations in volume make demand hard to anticipate, training and learning allow the organisation to align their workers’ skills to the qualitative and quantitative changes in product demand. In this environment, businesses that cultivate ability tend to perform well.

Figure 16. Distribution of ability, motivation and opportunity, by predictability of demand



Source: ECS 2019, author calculations (N = 18,643).

NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers).

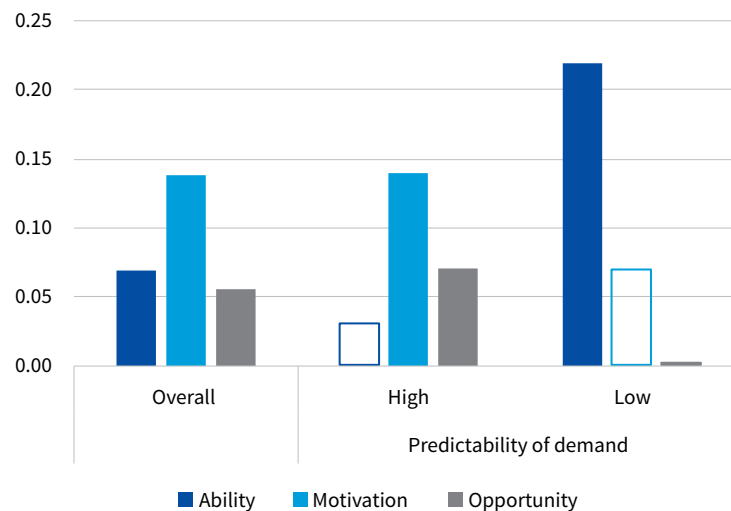
However, if the root cause of demand fluctuations is more fundamental disruption, organisations need to react quickly to business environment changes, which requires delegation of decision-making and personal initiative to capitalise on opportunities. In this scenario, organisations fostering opportunity – where job design embraces autonomy and problem solving – tend to fare better.

The ECS 2019 shows that around two thirds of managers (65%) report that demand is fairly or very predictable. The other 35% consider demand to be not very predictable or not predictable at all (Eurofound and Cedefop, 2020).

While the difference is relatively small, establishments facing difficult-to-predict demand tend to use managerial approaches supporting opportunity more than establishments operating in a context where product or service demand is easier to predict (Figure 16).

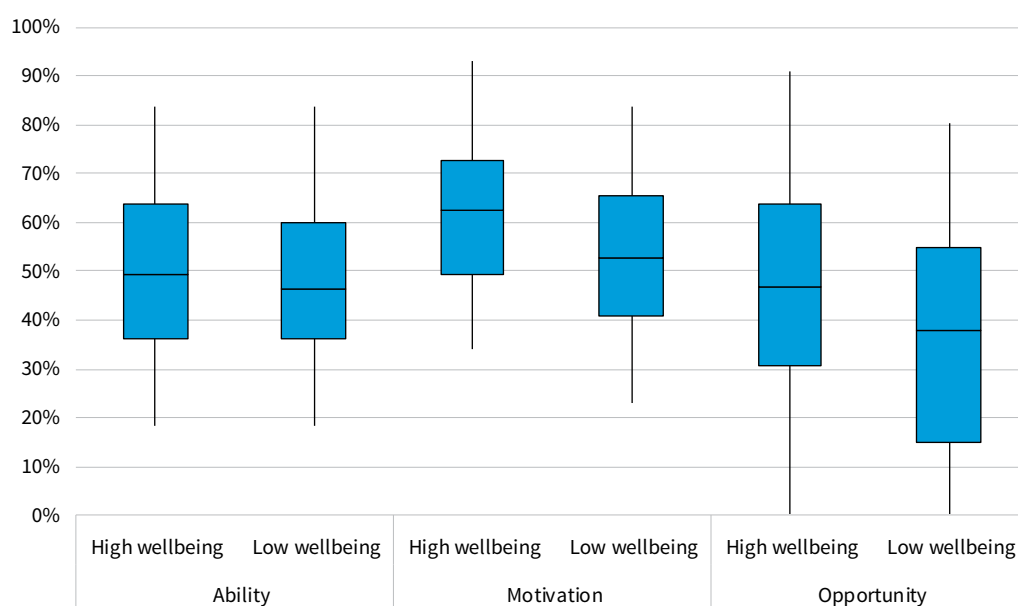
The predictability of demand has little impact on the extent to which businesses have practices in place that encourage ability and opportunity (Figure 17). The medians do not differ between the groups, and the distributions are only slightly more stretched for businesses where demand is unpredictable.

Figure 17. Associations between ability, motivation and opportunity and establishment performance, by predictability of demand



Source: ECS 2019, author calculation (N = 18,643).

NB: The size of the bar reflects the strength of the association (standardised regression coefficients) between ability, motivation and opportunity and establishment performance. Transparent bars indicate effects that do not differ significantly from 0. Tests have also been carried out to assess whether effects differ significantly between groups, and all effects were found to differ significantly between those establishments with a high and those with a low predictability of demand.

Figure 18. Distribution of ability, motivation and opportunity, by workplace wellbeing

Source: ECS 2019, author calculations (N = 18,805).

NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers).

Establishments with unpredictable demand, however, appear to have slightly more elaborate practices in relation to motivation.

In businesses where product or service demand is highly predictable, only motivation and opportunity have significant associations with performance; in establishments where this is not the case, only ability has a statistically significant association with performance (Figure 17).

The variable used to characterise product or service demand measures its predictability and not what causes it. The findings suggest that, for most businesses reporting low predictability of demand, this is due to difficulty predicting fluctuations in volume, rather than more fundamental market disruption. This interpretation is substantiated by the finding that businesses stating that product demand is not at all predictable are least likely to report that new or changed products or services were introduced.

In comparing the association between ability, motivation and opportunity and establishment performance in the group of establishments with highly predictable demand and those with low predictability of demand, the difference is most pronounced for ability, which is much larger in the low predictability group, followed by motivation, which is considerably more relevant in the high predictability group, and opportunity, which, is also more relevant in the high predictability group.

4.2.3. Workplace wellbeing

Workplace wellbeing is measured by combining four variables: issues with sick leave, employee motivation, employee retention and the relationship between management and staff. Establishments were split into two

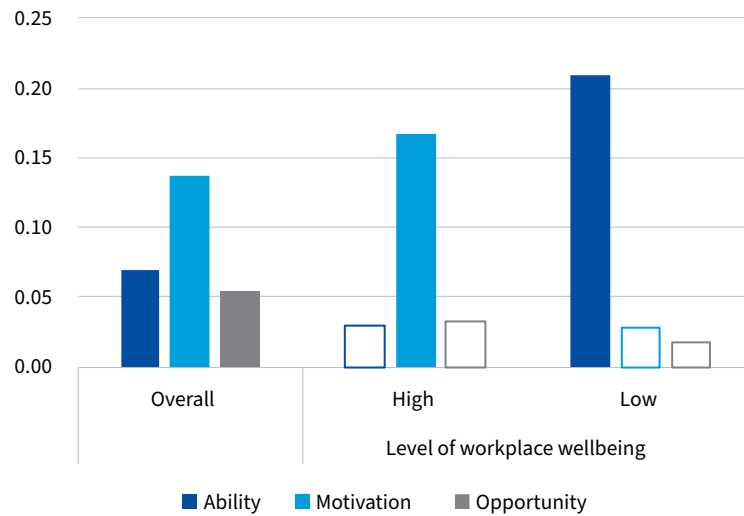
groups: those scoring equal to or above the median (53%) and those scoring below it (47%).

In earlier analysis (Eurofound and Cedefop, 2020) it was found that workplace wellbeing is positively associated with the prevalence of practices supporting training and learning, employee motivation, and employee autonomy and involvement. It can therefore be expected that enterprises in the 'high wellbeing' group score better on ability, motivation and opportunity than those that are part of the 'low wellbeing' group. This is the case: there are considerable differences between establishments where workplace wellbeing is low and those where it is high (Figure 18). Practices fostering ability, motivation and opportunity are more prevalent in the high wellbeing group.

Pronounced differences are found between establishments with high and low workplace wellbeing when it comes to the associations between ability, motivation and opportunity and establishment performance (Figure 19). In establishments with high workplace wellbeing, the construct motivation has a positive association with performance; for establishments with low workplace wellbeing, performance is positively associated with ability.

Establishments with high workplace wellbeing invest more in all components of the AMO model and achieve better performance than businesses with low workplace wellbeing (Figure 13 and Figure 18). In establishments with high workplace wellbeing managerial efforts fostering motivation are associated with establishment performance. In establishments with low workplace wellbeing, differences in the prevalence of AMO also matter, but here managerial approaches cultivating ability are associated with establishment performance. Establishments with low workplace wellbeing investing

Figure 19. Associations between ability, motivation and opportunity and establishment performance, by workplace wellbeing



Source: Author calculation (N = 18,805).

NB: The size of the bar reflects the strength of the association (standardised regression coefficient) between ability, motivation and opportunity and establishment performance. Transparent bars indicate effects that do not differ significantly from 0. Tests have also been carried out to assess whether effects differ significantly between groups. Those establishments reporting low workplace wellbeing differ significantly from those that do not, in terms of the effects of ability and motivation, but not in terms of the effect of opportunity.

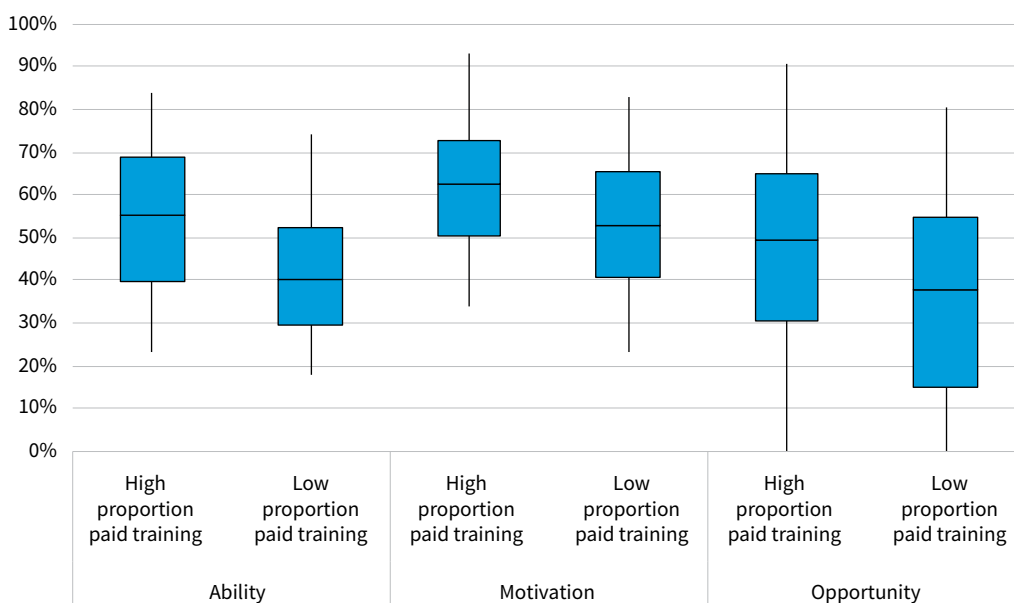
more in managerial approaches encouraging ability perform better compared to establishments investing less in such approaches.

4.2.4. Investment in human capital: paid training and on-the-job training

The relationship between ability, motivation and opportunity and establishment performance can

be expected to be affected by the extent to which organisations invest in training and learning. The ECS 2019 shows that in just over half of establishments (53%), less than 40% of staff received paid training in the year preceding the survey; in 51% of establishments, less than 40% of staff underwent on-the-job training (Eurofound and Cedefop, 2020). A positive association can be expected between the level of training provided and ability and

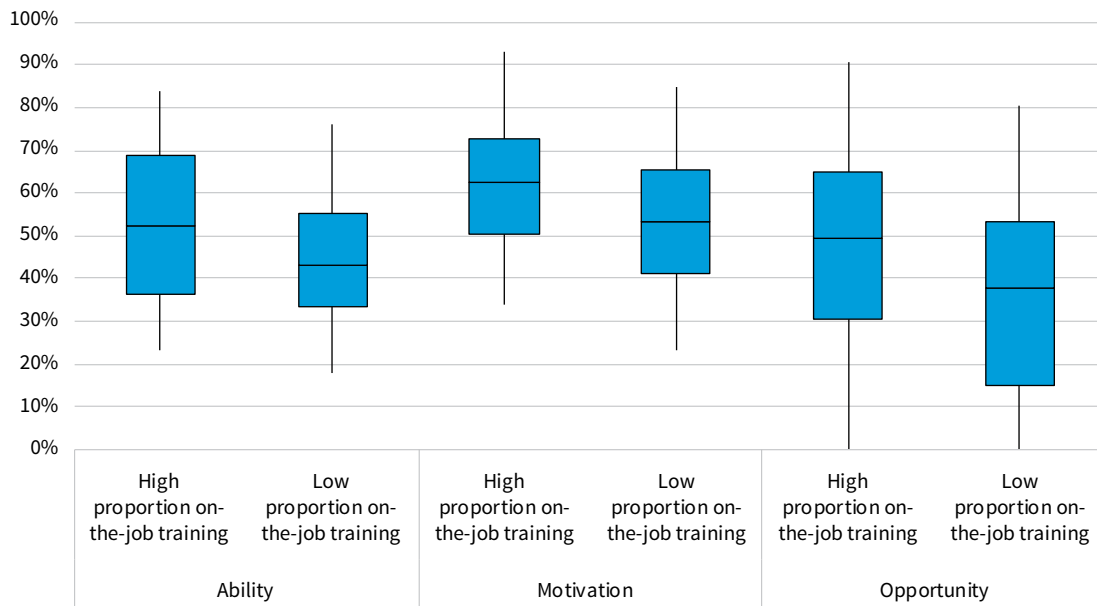
Figure 20. Distribution of ability, motivation and opportunity, by provision of paid training



Source: ECS 2019, author calculations (N = 18,727).

NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers). The test for measurement invariance revealed some minor issues with regard to the categories on the provision of training, so these descriptive results need to be interpreted with care.

Figure 21. Distribution of ability, motivation and opportunity, by provision of on-the-job training



Source: ECS 2019, author calculations (N = 18,757).

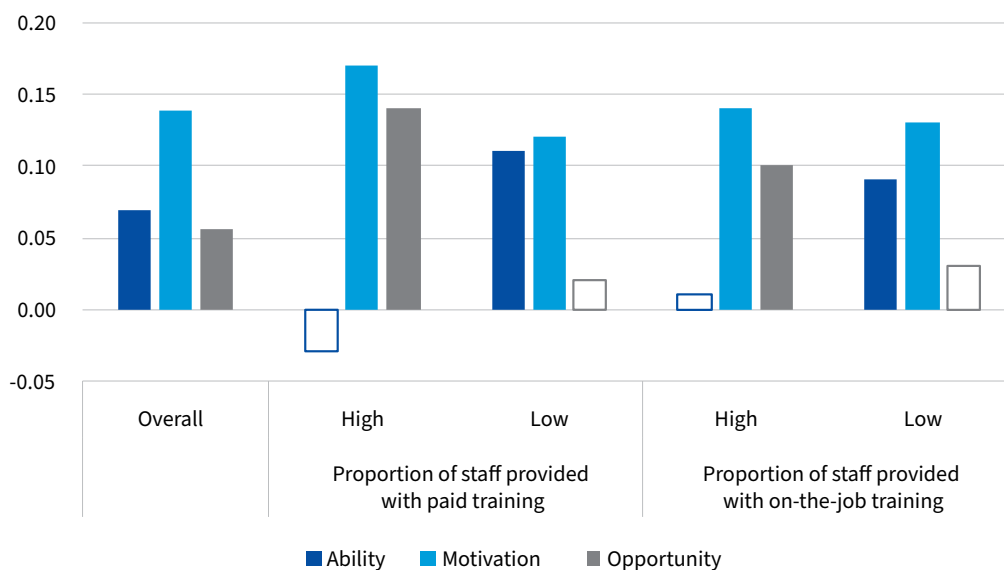
NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers).

opportunity. In the relationship between training and ability, the presence of continuous training is particularly relevant: its presence increases learning opportunities and helps to meet skills needs arising from rapidly changing requirements. A positive relationship between training and opportunity can be expected because training complements managerial approaches fostering skills utilisation opportunities, as skilled employees are particularly productive when working autonomously.

By extension, positive associations would also be expected between training provision and motivation and opportunity, assuming that managers that provide more training are also more inclined to want to motivate staff to apply their skills and give them the opportunity to do so.

Analysis confirms these expectations and shows clear positive associations between the proportion of employees receiving paid training and on-the-job training and the constructs ability and opportunity (Figure 20 and

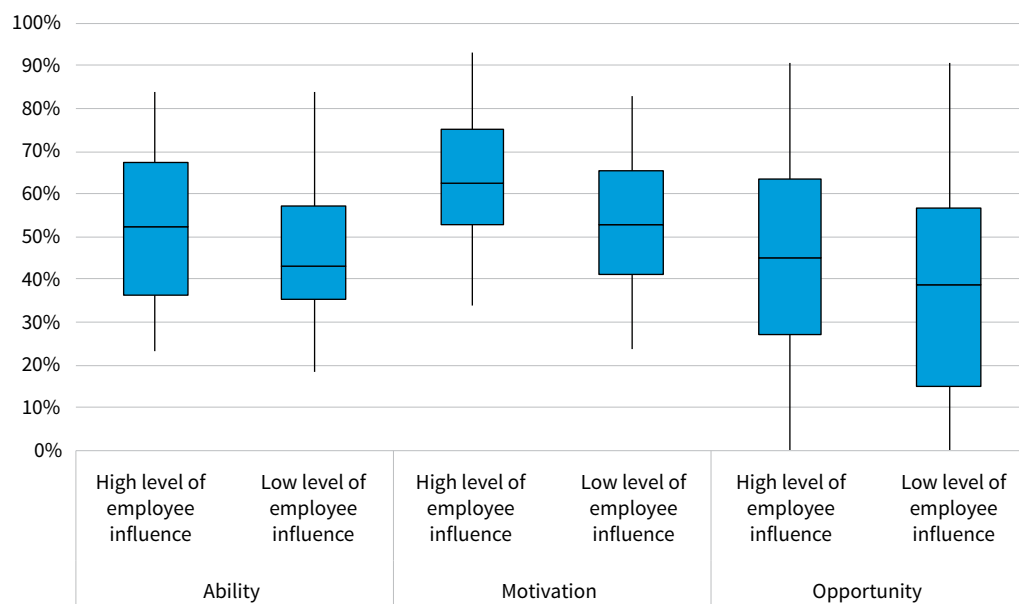
Figure 22. Associations between ability, motivation and opportunity and establishment performance, by training provision



Source: Author calculation (N = 18,727).

NB: The size of the bar reflects the strength of the association (standardised regression coefficients) between ability, motivation and opportunity and establishment performance. Transparent bars indicate effects that do not differ significantly from 0. Tests have also been carried out to assess whether effects differ significantly between groups. Those establishments providing paid training or on-the-job training to a high proportion of staff differ significantly from those that provide paid training or on-the-job training to a low proportion of staff, in terms of the effects of ability and opportunity, but not in terms of the effect of motivation.

Figure 23. Distribution of ability, motivation and opportunity, by level of employee influence on decision-making



Source: ECS 2019, author calculations ($N = 18,582$).

NB: The boxplots show the median (line in the middle), the 25th and 75th percentile scores (box), and the 5th and 95th percentile scores (whiskers).

Tests for measurement invariance revealed some minor issues with regard to the categories on the level of employee influence, so these descriptive results need to be interpreted with care.

Figure 21). The figures also show positive associations between the proportion of paid training and on-the-job training provision and motivation.

Figure 22 shows that the level of training does not significantly impact the effect of motivation on performance, which is positive and significant for both groups. Yet, among establishments that offer more training, the effect of opportunity is much greater than among those that offer less training. For the latter, opportunity does not have a significant effect on performance. Among establishments that offer less training, the effect of ability is much greater than among those that offer more training, for which no significant effect of ability on performance was found.

The findings for opportunity suggest that workplace practices increasing employee autonomy are much more likely to impact positively on performance if they are accompanied by investments in training and learning. The findings for ability, however, suggest that training and job design are not necessarily mutually reinforcing, but might rather be alternative means to the same end. Designing jobs so that employees have ample opportunity to learn and further develop their skills, and also need to do so to adapt to fast-changing skills needs, appears to be a prominent driver of performance in establishments that already invest extensively in training and learning activities.

4.2.5. Employee influence on decision-making

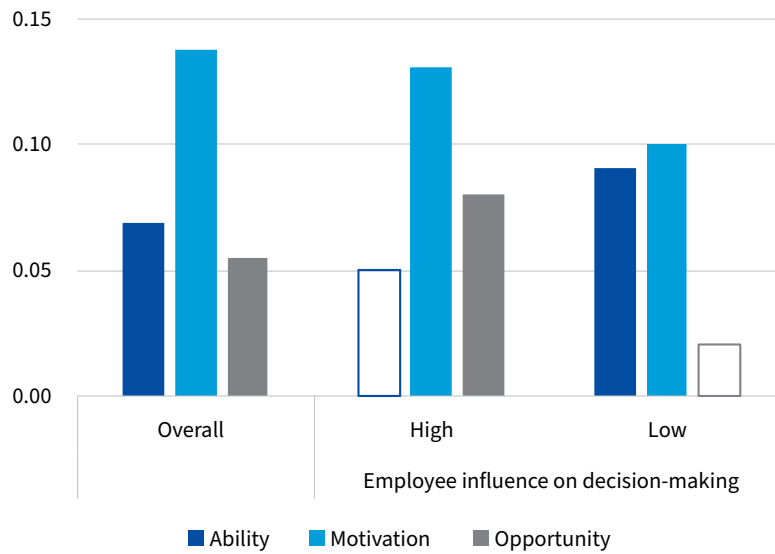
Direct employee involvement establishes a mechanism enabling employees to contribute to organisational success. This allows staff to influence managerial decisions about improving the efficiency of the production process, training and skills development, dismissals, working

times, and payment schemes. Looking at the reported influence that employees had on management decisions in a range of areas, a distinction has been made between establishments in which this level of influence is relatively low (45% of establishments) and those where this level of influence is relatively high (55% of establishments). Given that organisational culture, which has been shown to be strongly positively associated with ability, motivation and opportunity, incorporates the recognition of the value of including employees in decision-making, it is expected that the reported level of employee influence on decision-making is also positively associated with ability, motivation and opportunity.

This expectation is confirmed by the results shown in Figure 23: establishments where employee influence is relatively high have more extensive practices in place that foster higher levels of ability, motivation and opportunity than establishments in which employee influence is low. Employee influence in decision-making is an opportunity for employees to draw on their skills (human capital) to contribute to the quality of organisational decisions; the expectation is that this will reinforce the impact of opportunity.

The quality of employee contributions to decision-making depends on the motivation to contribute. It is expected that, in establishments where the level of influence of employees on decision-making is high, organisational commitment to all M and O aspects of the AMO model would be higher than in establishments where the level of employee influence is low. This is not necessarily the case for the ability aspect of the model. As direct employee involvement provides an alternative channel through which employee skills can affect output, its

Figure 24. Associations between ability, motivation and opportunity and establishment performance, by level of employee influence on decision-making



Source: Author calculations (N = 18,582).

NB: The size of the bar reflects the strength of the association (standardised regression coefficient) between ability, motivation and opportunity and establishment performance. Transparent bars indicate effects that do not differ significantly from 0. Tests have also been carried out to assess whether effects differ significantly between groups. Those establishments with a high level of staff involvement differ significantly from those with a low level of staff involvement, in terms of the effects of motivation and opportunity, but not in terms of the effect of ability.

presence may reduce the importance of ability as a driver of establishment performance.

The results of the analysis of the relationships between the elements of the AMO model and establishment performance among establishments with high and low employee influence (Figure 24) confirm expectations: in businesses where employees have more influence on decision-making, the positive effect of opportunity on performance is considerably greater than in businesses where employee influence is limited. The effect of ability is smaller – and not statistically significant – among businesses with a high level of employee influence.

5. Skills use, establishment performance and COVID-19

The COVID-19 pandemic that hit the world at the beginning of 2020 disrupted business practices throughout the economy. Activities ceased completely in some sectors and changed dramatically in others, in terms of the location and organisation of work. Data collected in November 2020 as part of the European Company Survey COVID-19 follow-up (ECS 2020) make it possible to compare business practices and outcomes before and during the pandemic.

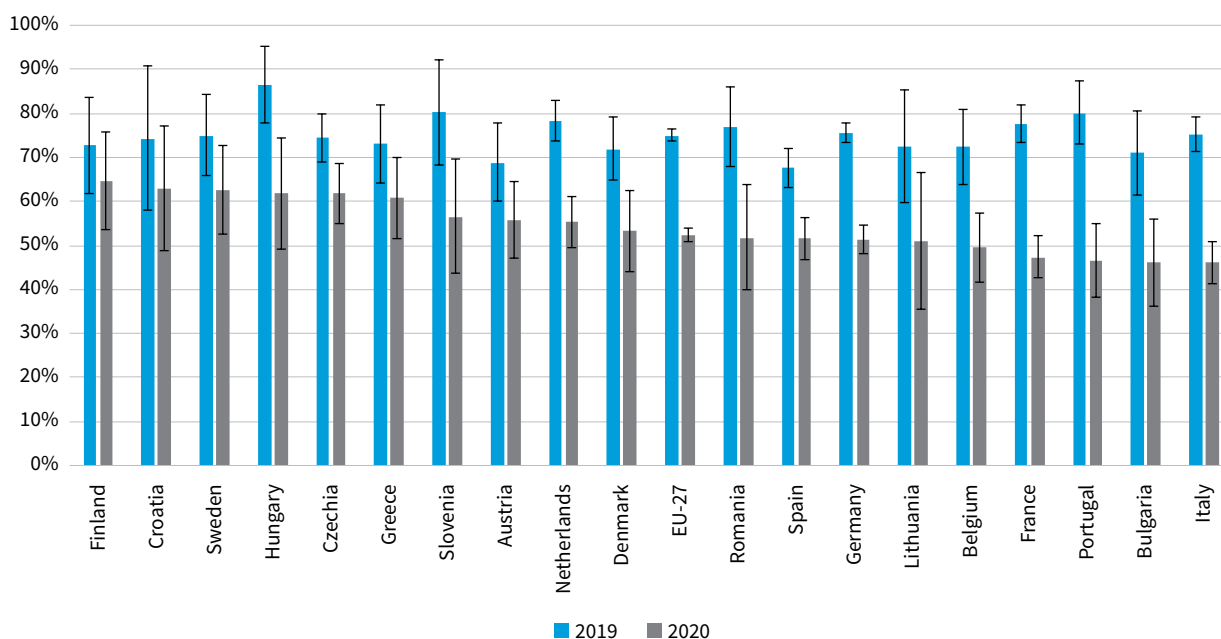
After showcasing the impact of the pandemic on establishment performance, this chapter analyses how businesses with different approaches to supporting the ability, motivation and opportunity of their employees differed in the extent to which their performance was affected by the health crisis ⁽¹¹⁾. The results illustrate the importance of practices fostering opportunity to mitigate the effects of uncertainty on business performance caused by the pandemic.

5.1. Changes in performance: spring 2019 and autumn 2020

Establishment performance decreased dramatically between spring 2019 and autumn 2020. On average in the EU-27, the score for establishment performance dropped from 75 in 2019 to 52 in 2020. However, there are marked differences between countries and sectors in the extent to which performance was affected by the pandemic.

The performance ranking of countries changed quite considerably, with Hungary, Slovenia, and Portugal being the highest-ranking countries in 2019, and Finland, Croatia, and Sweden the highest-ranking countries in 2020 (Figure 25). The lowest ranking countries in 2019 were Bulgaria, Austria, and Spain, whereas in 2020, Portugal, Bulgaria, and Italy ranked lowest.

Figure 25. Establishment performance in 2019 and 2020, by country

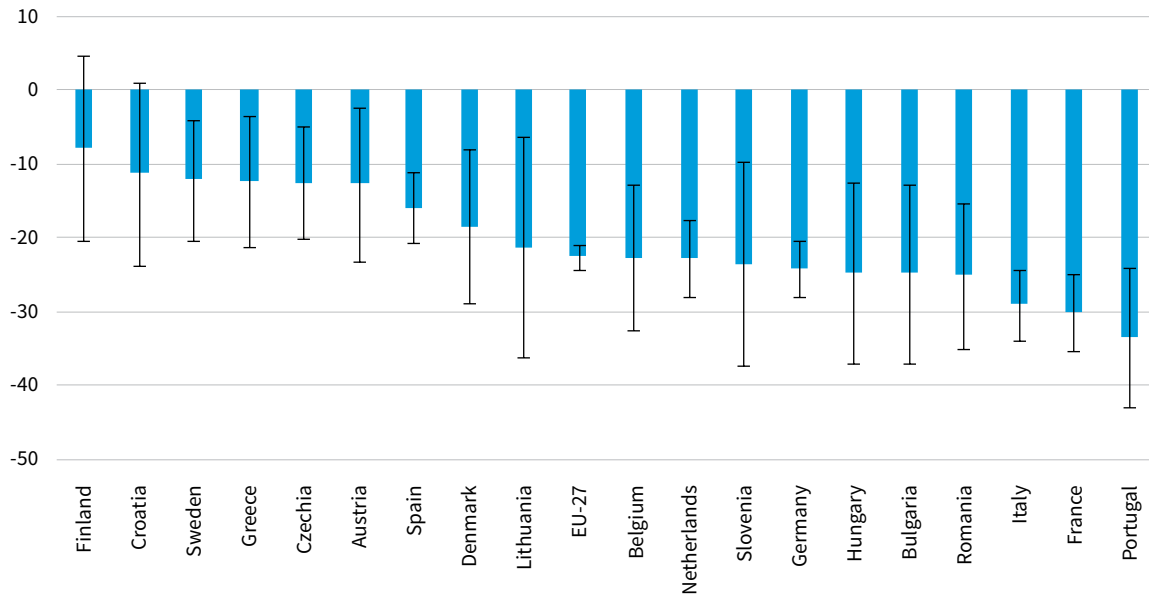


Source: ECS 2019 and ECS 2020, author calculations (N = 1,131).

NB: Estimates for Estonia, Ireland, Cyprus, Latvia, Luxembourg, Malta, Poland, and Slovakia have been excluded, as the numbers of observations in these countries were too low to calculate reliable estimates. Drop lines indicate the 95% confidence intervals of the estimated levels of performance in each year.

11 Throughout this chapter an adjusted version of the indicator for establishment performance was used. For more detail see Section 2.2.1 and Annex 1.

Figure 26. Change in performance between spring 2019 and autumn 2020, by country



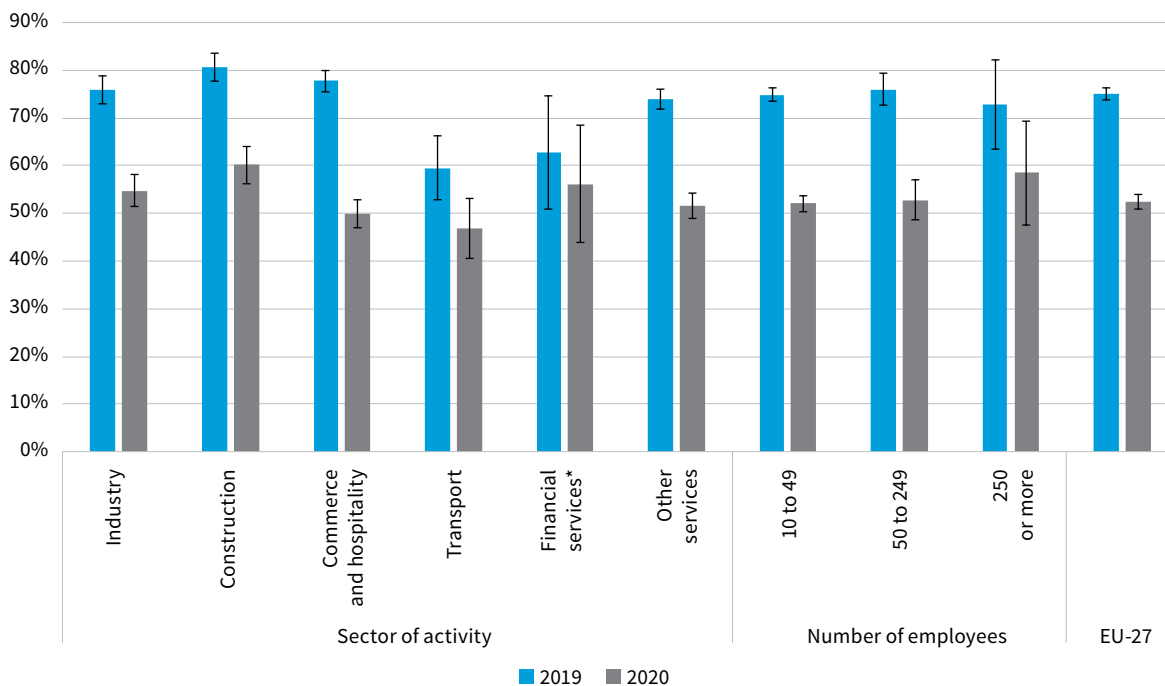
Source: ECS 2020, author calculations (N = 1,131).

NB: Estimates for Estonia, Cyprus, Ireland, Latvia, Luxembourg, Malta, Poland, and Slovakia have been excluded, as case numbers in these countries were too low to calculate reliable estimates. Drop lines indicate the 95% confidence intervals of the estimated change.

Figure 26 shows the change in establishment performance between spring 2019 and autumn 2020, which was negative for all countries, but much smaller for Finland and Croatia (where the difference is not statistically significant) and for Sweden, Greece, Czechia, and Austria than for Italy, France, and Portugal.

Establishments in commerce and hospitality were clearly most affected by the pandemic, and businesses in transport and financial services least (Figure 27 and Figure 28). The result for financial services is not very reliable as it is based on only 29 cases.

Figure 27. Establishment performance in 2019 and 2020, by sector of activity and establishment size

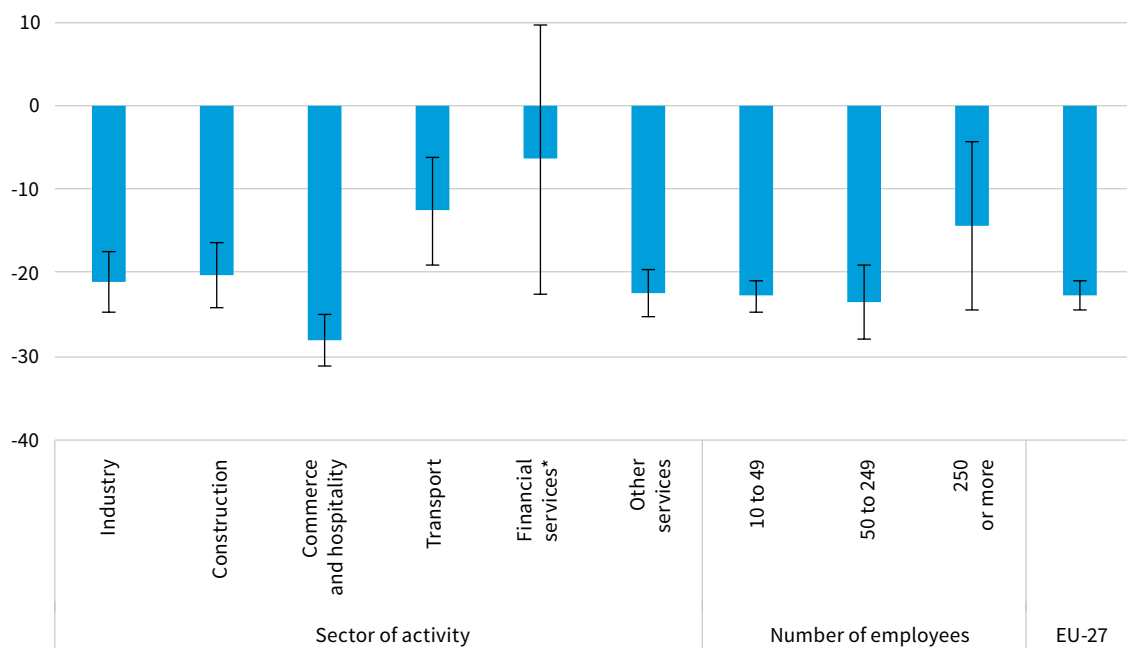


Source: ECS 2019 and ECS 2020, author calculations.

NB: Drop lines indicate the 95% confidence intervals.

* Estimates based on fewer than 30 cases.

Figure 28. Change in performance between spring 2019 and autumn 2020, by sector of activity and establishment size



Source: ECS 2019 and ECS 2020, author calculations ($N = 1,277$).

NB: Drop lines indicate the 95% confidence intervals.

* Estimates based on fewer than 30 cases.

5.2. Associating ability, motivation and opportunity and establishment performance before and during COVID-19

The previous section showed that there is significant variability between countries, sectors, and, to a lesser degree, establishments of different sizes in the level of establishment performance and the change in performance during the COVID-19 pandemic.

This section presents a simplified replication of the analyses presented in Chapter 4, looking at associations between workplace practices that foster ability, motivation and opportunity and establishment performance, before and during the COVID-19 pandemic, as well as the change in performance (Table 2).

Model 1 shows that, despite using an adjusted measure and a less sophisticated analytical technique, the estimates obtained for the effects of ability, motivation and opportunity on establishment performance in 2019 do not differ substantially from the results presented in Chapter 4. The standardised effect for ability has

Table 2. Standardised regression coefficients of ability, motivation and opportunity on establishment performance

	Model 1	Model 2	Model 3
	Establishment performance 2019	Establishment performance 2020	Change in performance between 2019 and 2020
Ability	0.033	0.047	0.018
Motivation	0.172***	0.009	-0.125***
Opportunity	0.058*	0.152***	0.097**

Source: ECS 2019 and ECS 2020, author calculations ($N = 1,089$).

NB: * significant at $p < 0.10$; ** significant at $p < 0.01$; *** significant at $p < 0.001$; data were weighted correcting for variation in response propensity to the follow-up wave; to account for any remaining variation between the full 2019 sample and the 2020 sub-sample, the regression analyses were carried out including control variables for country, sector of activity and establishment size.

decreased somewhat and turned non-significant (also due to the reduced sample size). The standardised effect for motivation is slightly larger, and the standardised effect for opportunity is almost the same (but only marginally significant, due to the reduced sample size). This suggests the model is quite robust, as neither tweaking the operationalisation of the dependent variable nor the simplification of the analytical approach has large implications for the interpretation of the results.

Model 2 shows that performance in autumn 2020 – when lockdowns and other restrictive measures were quickly and comprehensively reintroduced across Europe – is differently associated with workplace practices regarding ability, motivation and opportunity. The effect for ability is quite similar, but the effect for motivation disappeared and the effect for opportunity became much larger. Under normal circumstances practices fostering motivation have the largest positive effect on performance, but the shock caused by the COVID-19 pandemic appears to have increased the importance of practices fostering opportunity. Businesses which give employees the autonomy to apply their skills in accordance with their own judgement, which design jobs in a way allowing employees to deploy their problem-solving abilities, and in which managers support employees' autonomy appear to have better managed to sustain establishment performance during the pandemic.

Model 3 analyses the change in performance, showing that practices fostering motivation are significantly associated with a larger reduction in performance, whereas practices fostering opportunity are associated with a smaller reduction in performance, or potentially even an increase.

6. Discussion and policy implications

6.1. Linking human capital and establishment performance

To be sustainable, businesses need to obtain economic results. Profits are important but there are also other indicators of business success that are not monetary and that do not translate directly into profits. Consequently, this study uses as indicator of economic outcomes a compound measure of (expected) profitability augmented with two indicators of changes in employment and in the volume of production or service provision.

Firms activate organisational resources to achieve a competitive advantage in the product market. Businesses can invest in their human resources to turn them into strategic resources which the organisation can leverage.

Employees contribute to the success of the organisation through their behaviour at the workplace. This includes the way they do their job tasks (task performance) but also their propensity to go beyond what is written in their job description, by displaying proactive behaviours supporting the effective and efficient operation of the workplace (contextual performance). These desirable behaviours, which are often called ‘going the extra mile’ and include helping colleagues, sharing information, and providing suggestions to improve efficiency, in the academic discourse are often referred to as ‘organisational citizenship behaviour’, or ‘extra-role behaviours’.

The quality of workplace behaviours enacted by employees is determined by their skills, knowledge, and abilities, by their motivation to draw on their skills, and by the extent to which they have opportunities to do so. Establishments can leverage their human resources by creating an environment stimulating desirable workplace behaviours: a work environment that is supportive of skills development, offers opportunities for workers to draw on their skills and motivates them to do so.

The assumption is that organisations with a culture recognising the importance of human resources for business success will be more inclined to recognise the importance of these desirable workplace behaviours and invest in the features of the AMO model that support employees in acting in line with them.

Managers may not have direct evidence of the importance of human resources as a source of competitive advantage because not many organisations evaluate the outcomes of their human resources investments systematically and properly. This means managers need good people skills to understand how goals can be achieved through people, how organisational citizenship behaviours crucially matter, and how to activate workers so that they display desirable behaviours to attain organisational goals.

The issue of lacking ‘direct evidence’ does not only apply to managers, but also to researchers. Managerial approaches and culture are hard to conceptualise

and measure. In this report, they have therefore been modelled as latent variables: measures for managerial approaches fostering ability, motivation and opportunity, and for organisation culture derived from indicators from the ECS 2019 that are hypothesised to be predicted by the same latent construct.

The indicators used are observable features influenced by four underlying latent variables: a culture recognising employees as an important asset to the business, and, following the AMO (ability, motivation, opportunity) model, managerial approaches fostering skills use and development, motivating workers, and providing opportunities for employees to draw on their skills.

Organisational culture recognising employees as an important asset to the business is reflected in the organisational perspective of viewing human resources as a source of competitive advantage, attaching high importance to engaging in desirable workplace behaviours (such as helping colleagues and providing suggestions) and actively supporting such behaviours by providing resources (e.g. providing training to boost morale and providing training to improve workers’ ability to provide suggestions).

Efforts to sustain skills use and development (ability) are reflected in the incidence of jobs requiring continuous training, the prevalence of jobs in which employees learn new things, and the frequency of change in skills requirements. Organisational commitment to motivating the workforce is based on the use of many different motivational levers, including monetary and non-monetary incentives: for example, interesting jobs, the provision of professional development, and a strong mission and vision statement. Efforts aimed at providing opportunities are linked to the extent of job autonomy and problem solving and to the deployment of autonomous teams.

These operationalisations are driven by theory and jointly determined by the availability of variables in the ECS 2019. The interpretation of the latent constructs needs to be informed by what the variables from which they are derived measure: when findings for ‘managerial approaches fostering ability’ are presented, these refer to the extent to which continuous training and learning and frequent changes in skill requirements feed into job design. The finding that the latent variable is most closely related to the speed of skill change is relevant in that it determines how the latent variable should be interpreted but cannot be generalised beyond the model. It does not mean that, in general, the speed of skill change is a more important factor for skills use than other factors.

While the ECS data cannot be used to identify other managerial practices supporting ability, motivation and opportunity beyond the ones analysed, it is likely that such practices would also predict AMO. Although the ECS 2019 questionnaire was informed by literature

that underpins the AMO model, it was not purposefully designed to capture AMO. Capturing different dimensions of skills use and development, and more comprehensively mapping organisational culture, would be of value in future survey work.

6.2. Main findings: how EU establishments utilise worker skills

The results of the analyses can be summarised as follows.

- (a) The expectation that a people-centred organisational culture drives workplace practices that foster AMO, which in turn boost business performance, is supported. These results remain valid when controlling for country, sector of activity, and establishment size.
- (b) Organisations recognising the importance of human resources for their success, placing importance on organisational citizenship behaviours, tend to make greater efforts to foster all three AMO model components.
- (c) Managerial approaches aimed at motivating the workforce, creating the opportunities for workers to use their skills, and strengthening the knowledge, abilities, and skills of the workforce are positively associated with establishment performance.
- (d) The strength of the associations between managerial approaches fostering ability, motivation and opportunity and establishment performance depends on the context where these managerial approaches are deployed.

Six enterprise and market characteristics were considered to analyse how context affects the workings of the AMO model: the competitive strategy (cost leadership or not); the predictability of demand (high or low); the provision of training (high or low); the provision of on-the-job training (high or low); the degree of employee influence (high or low); and workplace wellbeing (high or low). The effect of the context on the relationship between the AMO model components and business outcomes can be summarised as follows.

- (a) A cost leadership competitive strategy is negatively associated with the prevalence of managerial approaches fostering ability, motivation and opportunity and with establishment performance. Highly predictable demand for goods and services tends to coincide with lower reliance on managerial practices fostering motivation and is negatively associated with establishment performance.
- (b) Higher human capital investment (paid training and/or on-the-job training), strong employee influence, and high workplace wellbeing are associated with more extensive managerial practices cultivating all AMO model components and are positively associated with establishment performance.

The following paragraphs illustrate in more detail how context influences the workings of the AMO model.

Managerial approaches fostering ability, motivation and opportunity could be challenging to implement in organisations competing by delivering a product or a service at a lower price than their competitors. These businesses might be inclined only to support practices that enhance productivity directly and quickly. The analysis in this report shows that this is only partly true:

- (a) businesses competing mainly on price with more elaborate practices fostering motivation tend to outperform establishments without such practices. This suggests that businesses can keep costs down and still make better use of the skills of their employees by prioritising investment in practices fostering motivation, rather than ability or opportunity;
- (b) in businesses pursuing other competitiveness strategies (e.g. competing on quality, product or service customisation, innovation), managerial approaches fostering ability, motivation and opportunity are all positively associated with economic outcomes.

On the incidence of training provision, the results suggest that:

- (a) the relationship between managerial approaches fostering ability and establishment performance is weaker in organisations with high training and on-the-job training than in businesses with low training incidence. While investment in human capital is correlated with establishment performance, the mechanisms behind this link may vary with the type of human capital investment. In organisations with little or no staff training, managerial approaches fostering ability (and motivation) are strongly linked to establishment performance. In organisations already substantially investing in training or on-the-job training, further human capital investment does not imply similar performance outcomes;
- (b) in establishments offering ample training opportunities, the relationship between opportunity and establishment performance is particularly pronounced. Because they have higher scores on the three AMO model components, organisations that invest in the development of their human resources achieve better performance than establishments with little human resource investment. The pronounced contribution of opportunity to performance among establishments already investing in human resources suggests the complementarity of investment in human capital and expanding opportunities for employees to use their skills.

On the degree of employee influence, the results suggest that:

- (a) The relationship between opportunity and establishment performance is stronger when employee influence is high. Involving employees effectively in decision-making, in the sense that they influence outcomes, boosts the effect of workplace

practices that promote skills use on establishment performance. Organisations that give their employees significant influence have more elaborate managerial approaches that support ability, motivation and opportunity. At least in part, thanks to such approaches they also attain better performance compared to establishments where employees have little or no influence;

- (b) the association between practices fostering motivation and providing opportunities to draw on skills and economic outcomes is stronger in establishments in which employees are given substantial influence on decision-making than in those where employee influence is limited;
- (c) in establishments where employee influence is limited, establishment performance is associated with managerial practices fostering ability (and this association is stronger than in the group of establishments with a large degree of employee influence).

Predictability of demand for goods or services is an important aspect characterising the environment in which organisations operate. If changes in demand are relatively easy to predict, organisations have the time to implement measures to accommodate them. If demand is difficult to predict, organisations must be ready to react flexibly to fluctuations.

- (a) When predictability of demand predominantly refers to the extent to which fluctuations in volume can be foreseen, organisations need to be able to rely on the skills of their workforce to adjust to new circumstances. This expectation is empirically confirmed in the finding that the association between establishment performance and managerial approaches fostering ability is particularly strong among businesses reporting that demand is (very) hard to predict.
- (b) When difficulties in predicting demand stem from more fundamental uncertainty linked to disruption in industries or non-foreseeable economic or social events, organisations need staff that can react quickly to the new circumstances and show initiative in seizing opportunities. In such a context, delegation of decision-making and granting workers autonomy are vital to business success. It makes staff more able to adapt to local conditions – things happening in a particular place at a certain time – which is important for the survival of the organisation.

The COVID-19 crisis, which led to unprecedented uncertainty, makes it possible to develop new insight into the impact of business environment instability. The analysis in this report suggests that:

- (a) workplace practices aimed at giving employees opportunities to use their skills (by granting autonomy, via jobs that involve problem solving and independent scheduling, and by organising work in autonomous teams) are more strongly related to establishment performance in the period after the pandemic than before;

- (b) establishments that give staff opportunities to draw on their skills appear to have better managed the health crisis than enterprises without such approaches. This establishes empirically that organisations fostering opportunity tend to perform better in business environments with fundamental uncertainty.

Establishments with high workplace wellbeing tend to have in place more elaborate managerial approaches fostering ability, motivation and opportunity. This, at least in part, helps them achieve better performance than establishments where workplace wellbeing is low. The analyses in this report show that:

- (a) among establishments with high workplace wellbeing, those adopting managerial practices fostering motivation perform better than the rest;
- (b) among establishments where workplace wellbeing is low, those with more elaborate managerial practices fostering ability in place have the best establishment performance.

6.3. Policy pointers: workplace wellbeing and managerial skills

Organisational approaches aimed at sustaining or improving employee motivation are most strongly associated with establishment performance. Motivational levers include the provision of opportunities to grow and develop and the provision of interesting and challenging jobs. These levers contribute to workplace wellbeing. In addition, there is a positive correlation between the perceived level of motivation in the workforce and the organisations' ability to retain employees and to avoid high incidence of sickness leave, which are other indicators of workplace wellbeing (Eurofound and Cedefop, 2020). The strong connection between motivation and establishment performance suggests that 'win-win' arrangements are the most attractive strategy for businesses, regardless of their positive outcomes for employees.

Workplace wellbeing should not be regarded as disconnected from the process of generating business outcomes. The evidence suggests it is deeply interwoven with motivational drive and a key element in the process sustaining business success.

These results are important because they suggest that policies geared towards improving competitive business practices to produce sustained competitive advantage could regard investments in skills utilisation, and, by extension, investments in workplace wellbeing, as an integral part of organisational efforts to attain desirable economic outcomes.

A second policy implication derives from the observation that organisational approaches fostering the three AMO model components are based on the presence of a people-centred organisational culture that seeks to leverage

human capital for organisational success by effectively utilising employee skills, knowledge and experience. Such a culture demonstrates organisational understanding of human resources as a source of competitive advantage and of the value of citizenship behaviours. In the absence of hard evidence on the returns on investment in human capital, managers with good people skills are in a better position to understand that human resources contribute to organisational success, know what to ask from their employees in terms of how work is done and desirable citizenship behaviours, and how to encourage the display of these desirable citizenship behaviours (Hoffman and Tadelis, 2018).

To support organisations in transitioning towards a more efficient utilisation of their human capital the following measures could be considered.

- (a) Training programmes or professional development programmes aimed at improving managers' people skills (Hunt and Baruch, 2003; Levasseur, 2013; Bedwell et al., 2014). Training could also be used to support managers' ability to design jobs so that they are interesting and challenging, rich in learning opportunities and problem solving, and grant employee autonomy (Parker et al., 2019). Such professional development programmes would support managers in becoming better at interacting with and activating human resources and would contribute to the wider dissemination of organisational culture centred on the importance of human resources.
- (b) Future-oriented policy interventions would target the next generation of managers, leaders, and entrepreneurs, who are still in managerial education (Bedwell et al., 2014). This would entail encouraging universities and management/business schools to integrate fully in their teaching the importance of people-centred organisational cultures, and to showcase practices that create more opportunities for employees to develop and use their skills and motivate them to do so. Integrating the theory and practice of human-centred approaches to achieve more effective utilisation of human capital in curricula would equip future managers with people management skills and improve their understanding of job design techniques.

Demand side policies are traditionally underdeveloped compared to their supply side counterparts (Lloyd and Payne, 2003; Payne and Keep, 2003; Payne, 2012). Demand side policy suggestions aimed at improving skills utilisation in companies contribute to redressing the imbalance.

Policies to support skill development generate benefits for individuals, companies and society at large. These benefits will materialise in full only if companies utilise their workers' skills effectively. Without people-oriented managerial policies, only a fraction of the potential benefits for companies will come to the surface.

A people-centred organisational culture and organisational approaches that foster ability would improve skills development and learning and increase the importance of companies as loci of lifelong learning. This would, ultimately, improve the contribution of employers to reaching EU skill development and lifelong learning ambitions, alongside and in close connection to other stakeholders such as trade unions, education providers, authorities and public bodies, and learners and workers.

Acronyms

AMO	ability, motivation, opportunity
Cedefop	European Centre for the Development of Vocational Training
CFI	comparative fit index
CI	confidence interval
CVTS	Continuing vocational training survey
ECS	European Company Survey
Eurofound	European Foundation for the Improvement of Living and Working Conditions
EUWIN	European Workplace Innovation Network
EU-27	European Union (EU), which consists of 27 countries (Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden)
HIWP	high-involvement work programmes
HPWP	high-performance work practices
HRM	human resource management
INNOSUP	Innovation in SMEs
LRT	likelihood ratio test
MI	modification indices
RMSEA	root mean square error of approximation
ror	relative overlap ratio
SEM	structural equation modelling
SME	small and medium-size enterprises
SRMR	standardised root mean square residual
TLI	Tucker–Lewis index
VET	vocational education and training

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Annex 1: Operationalisation of the observed variables

Establishment performance

In 2019 respondents were asked the following:

- Since the beginning of 2016, how has the amount of goods or services produced by this establishment changed?' with the answer options 'It has increased', 'It has stayed about the same', 'It has decreased' [prodvol].
- 'In 2018, did this establishment make a profit?' with the answer options 'Yes, we made a profit', 'No, we made a loss', 'We broke even', 'Not applicable, our company is a not-for-profit organisation' [profit].
- 'Did this establishment expect to make a profit in 2018?' with the answer options 'Yes', 'No' [profplan].
- 'In the next 3 years, how do you expect the total number of employees in this establishment to change?' with the answer options 'It will increase', 'It will stay about the same', 'It will decrease' [chempfut].

From the variable for financial results for 2018 (profit) and the one for expectations about profit in 2018 (profplan), a variable was derived indicating whether profitability was better than expected (profit when no profit expected), as expected (profit when profit expected, or broke even or loss when no profit expected) or worse than expected (broke even or loss when profit expected). Then the original profit variable, the constructed expectation variable, the variable capturing changes in the volume of production or service provision since 2016 (prodvol) and the variable for expected changes in employment levels in the 3 years after the survey (chempfut) were normalised to range between 0 and 1, where 1 is the highest positive score. The index of establishment performance was derived by computing the average across these four variables. Finally, the resulting variable was multiplied by 100.

In the follow-up survey in 2020, the questions about the alignment of profitability with expectation was not asked, as in the context of the COVID-19 pandemic this was not deemed an appropriate question. The calculation of the index of establishment performance therefore had to be adjusted for 2020. The revised index was calculated by taking the average of profit – which was first transformed to range between 0 and 1 – and the average of the transformed scores of prodvol and chempfut.

To ensure comparability of results, all comparisons between 2019 and 2020 are based on the adjusted index of establishment performance.

Competing on price

Respondents were asked the following:

'How important are the following four factors for the competitive success of this establishment? Please order them from most to least important, entering 1 for the most important down to 4 for the least important:

- [pmstratlp] offering products or services at lower prices than the competition;
- [pmstratbq] offering products or services that are of better quality than those offered by the competition;
- [pmstratcust] customising products or services to meet specific customer requirements;
- [pmstratnps] regularly developing products, services or processes that are new to the market.'

Those businesses that ranked 'Offering products or services at lower prices than the competition [pmstratlp]' as most important are contrasted with businesses that do not rank it as most important.

Predictability of demand

Respondents were asked the following:

'How predictable would you say that the demand for the main products or services of this establishment is? [pdemstab]'

Businesses that answered 'not very predictable' or 'not at all predictable' are contrasted with businesses that answered 'fairly predictable' or 'very predictable'.

Workplace wellbeing

Respondents were asked the following:

'Do you think the level of sickness leave in this establishment is too high?' with the answering options 'Yes' and 'No' [sickleave].

'Overall, how motivated do you think employees in this establishment are?' with the answering options 'Not at all motivated', 'Not very motivated', 'Fairly motivated', and 'Very motivated' [lowmot].

'How difficult is it for this establishment to retain employees?' with the answering options 'Not at all difficult', 'Not very difficult', 'Fairly difficult' and 'Very difficult' [retainemp].

'How would you describe the relations between management and employees in this establishment in general?' with the answering options 'Very bad', 'Bad', 'Neither good nor bad', 'Good', and 'Very good' [qwprel].

All variables were recoded so that the most positive answer had the highest value. They were subsequently normalised to range between 0 and 1, where 1 is the highest positive score. The index of workplace wellbeing was derived by computing the average across these four variables, allowing for a missing value on one of the four variables. Finally, the resulting variable was multiplied by 100.

Those with a score on this index below the median value were assigned to the group with 'Low wellbeing' and those with a score equal to or above the median value were assigned to the group with high wellbeing.

Investment in human capital: training and on-the-job training

About paid training, respondents were asked the following:

'In 2018, how many employees in this establishment participated in training sessions on the establishment premises or at other locations during paid working time? Your best estimate is good enough.' [paidtrain].

Businesses that indicated that the percentage of employees was lower than 40% are contrasted with business that indicated that this percentage was 40% or higher.

About on-the-job training, respondents were asked the following:

'In 2018, how many employees in this establishment have received on-the-job training or other forms of direct instruction in the workplace from more experienced colleagues? Your best estimate is good enough.' [onjob].

Businesses that indicated that the percentage of employees was lower than 40% are contrasted with business that indicated that this percentage was 40% or higher.

Employee influence on decision-making

Respondents were asked the following:

'Please think of the period since the beginning of 2016. In your opinion, to what extent have employees directly influenced management decisions in the following areas?

- [mmepinorg] the organisation and efficiency of work processes;
- [mmepindism] dismissals;
- [mmepintrain] training and skill development;
- [mmepintime] working time arrangements;
- [mmepinpay] payment schemes'.

The answering categories were 'To a great extent', 'To a moderate extent', 'To a small extent', 'Not at all', 'No decisions were made in this area'.

A composite indicator, with values ranging between 1 and 4, was created, by first recoding the answer 'No decisions were made in this area', as well as any other missing values to the same code as 'Not at all' (1), and by then taking the average score across the five items.

Businesses with a score up to and including the median score on this indicator (low level of influence) are contrasted with businesses that score above the median score (high level of influence).

Annex 2: Structural equation models (SEM)

Fit measures in structural equation modelling

When compiling a structural equation model, the fit can be assessed using several measures.

- The comparative fit index (CFI) is based on the relative improvement in fit of the postulated model to the baseline model (which is the model with the worst possible fit). A common threshold is $CFI \geq 0.95$ (Hu and Bentler, 1999).
- The Tucker–Lewis index (TLI) is an extension of the CFI, which takes the model complexity into consideration, assessing the relative improvement in fit per degree of freedom, when comparing the postulated model to the baseline model (again, the worst possible model). A commonly applied threshold is $TLI \geq 0.95$ (Hu and Bentler, 1999).
- The root mean square error of approximation (RMSEA) assesses how far the postulated model is removed from the perfect model (so the model with the best possible fit). As it captures the amount of error rather than the fit, it should be as small as possible, and a common threshold is $RMSEA \leq 0.06$ (Hu and Bentler, 1999).
- The standardised root mean square residual (SRMR) also captures error, looking at the standardised difference between the observed correlations and the predicted correlations. As with the RMSEA, it should be as small as possible. A value less than 0.08 is generally considered a good fit (Hu and Bentler, 1999).

When constructing the models presented in this report, these four fit measures have been assessed at each model iteration.

Poor fit might be due to correlations between constructs and/or indicators not being specified in the model. An empirical tool for identifying such unspecified associations is the modification index (MI) which indicates the expected improvement in Chi square if a certain model modification is applied. This allows for the identification of those associations that have the highest modification indices. It can subsequently be decided to specify them explicitly in the model or to omit variables for which one or more associations with other variables have a high MI, hence improving model fit (Bauer and Curran, 2019). Once the modifications are accepted, the model is fitted again. In order to test whether the difference between the baseline model and the modified model is statistically significant, a likelihood ratio test (LRT) is performed. A significant result implies the better fit of one model compared to the other. Successively, goodness of fit measures are calculated again, and thresholds are checked. If the model meets them, it can be accepted.

It should be noted that the threshold values for any of the fit measures should be taken as indicative. Ultimately, it is most important that the model is theoretically sound. This implies that the model should only be adjusted to improve the fit if the adjustment makes theoretical sense: for an overview of the debate on how to best apply structural equation models, see for instance Tarka (2018). This implies that a model can have a very good fit while not necessarily being a good model, and conversely, that fit values below the threshold can be acceptable if the theoretical underpinnings of the model are strong.

Model fit of the measurement model

Table 3 shows the initial results of the measurement model, as well as the results of the measurement model after specifying a number of covariates based on the modification indices observed when running the initial model. As can be seen at the bottom of the table, the thresholds for all four fit measures were already exceeded by the model without covariates, and they all improved even further when explicitly specifying the covariates.

Table 3. Measurement model, with and without covariates (N = 18,839)

			Without covariates	With covariates
Culture	=~	trinn	0.734	0.687
Culture	=~	trmot	0.672	0.613
Culture	=~	dischelp	0.660	0.598
Culture	=~	discsugg	0.757	0.715
Culture	=~	eicomp	0.457	0.471
Ability	=~	contr	0.546	0.504
Ability	=~	learnnoneed	0.403	0.418
Ability	=~	skillch	0.564	0.592
Motivation	=~	motimon	0.305	0.306
Motivation	=~	motichal	0.754	0.754
Motivation	=~	motilearn	0.657	0.656
Motivation	=~	motimis	0.746	0.747
Opportunity	=~	supchek	0.556	0.720
Opportunity	=~	compprobs	0.734	0.830
Opportunity	=~	comorg	0.693	0.629
Opportunity	=~	tauton	0.374	0.374
discsugg	~~	dischelp		0.316
trinn	~~	trmot		0.298
compprobs	~~	contr		0.240
comorg	~~	contr		0.224
compprobs	~~	supchek		-0.860
Opportunity	~~	Ability		0.474
Cfi			0.976	0.988
Tli			0.970	0.985
rmsea			0.024	0.017
srmr			0.045	0.034

Source: ECS 2019, author calculations.

NB: All effects are statistically significant at $p < .001$.

Model fit of the structural model

Table 4 shows the results for three iterations of the full model. The first model does not include the covariates, the second model does include them, and the third model includes the covariates as well as variables capturing the fixed effects of country, sector of activity and establishment size, in the regression of ability, motivation and opportunity on establishment performance. Only for the model with covariates, but without controls, are the thresholds exceeded for all four fit measures. Adding the covariates and, to a lesser extent, adding the control variables, shifts the results of the structural model (the relationships between the latent variables themselves and between the latent variables and the observed dependent variable establishment performance), but not to the

degree that it changes the substantive interpretation of the results. As the fit is best for the model with covariates but without controls, and because in the grouped analysis it was not possible to fit the models while including the controls, it was decided to present the results from this model throughout the report.

Measurement invariance

As discussed in Section 2.2.2.1, measurement invariance was investigated with respect to country, establishment size, sector of activity and the variables that are to be used in the grouped analysis (competitive strategy, predictability of demand, employee motivation, provision

Table 4. Full model, without covariates, with covariates, and with covariates and controls (country, sector of activity, establishment size; N = 18,814)

			Without covariates	With covariates	With covariates and controls
Culture	=~	trinn	0.695***	0.642***	0.629***
Culture	=~	trmot	0.634***	0.569***	0.547***
Culture	=~	dischelp	0.623***	0.555***	0.528***
Culture	=~	discsugg	0.717***	0.669***	0.651***
Culture	=~	eicomp	0.444***	0.458***	0.442***
Ability	=~	contr	0.530***	0.503***	0.487***
Ability	=~	learnneed	0.406***	0.417***	0.399***
Ability	=~	skillch	0.583***	0.598***	0.604***
Motivation	=~	motimon	0.316***	0.316***	0.362***
Motivation	=~	motichal	0.755***	0.754***	0.750***
Motivation	=~	motilearn	0.654***	0.654***	0.657***
Motivation	=~	motimis	0.749***	0.750***	0.731***
Opportunity	=~	supchek	0.568***	0.721***	0.660***
Opportunity	=~	compprobs	0.737***	0.828***	0.788***
Opportunity	=~	comorg	0.680***	0.629***	0.603***
Opportunity	=~	tauton	0.392***	0.382***	0.347***
Ability	~	Culture	0.682***	0.637***	0.646***
Motivation	~	Culture	0.782***	0.846***	0.832***
Opportunity	~	Culture	0.450***	0.377***	0.393***
est_perf	~	Ability	0.055 [*]	0.069 ^{**}	0.083***
est_perf	~	Motivation	0.137***	0.138***	0.131***
est_perf	~	Opportunity	0.069***	0.055 ^{**}	0.057 ^{**}
discsugg	~~	dischelp		0.361***	0.365***
trinn	~~	trmot		0.377***	0.370***
compprobs	~~	contr		-0.857***	-0.676***
comorg	~~	contr		0.241***	0.229***
compprobs	~~	supchek		0.225***	0.185***
Opportunity	~~	Ability		0.326***	0.263***
Cfi			0.947	0.979	0.717
Tli			0.937	0.973	0.945
rmsea			0.034	0.022	0.029
srmr			0.060	0.041	0.037

Source: ECS 2019, author calculations.

NB: * significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$

of paid training, provision of on-the-job training, and employee influence on decision-making).

To test for metric invariance, a model in which all parameters are free and a model in which item loadings are constrained (fixed) are compared. To test for scalar invariance, not only the item loadings are constrained, but the intercepts, or thresholds, as well.

A common rule of thumb is that when the CFI of the free model (CFI(+)) is more than 0.01 lower than the CFI of the constrained model (CFI(-)) and is statistically significant, there is an issue of non-invariance (Chen, 2007; Hirschfeld and von Brachel, 2014). In that case, some factor loadings need to be freed to obtain comparable groups. Table 5 shows that metric invariance was achieved for all variables. However, scalar invariance was not achieved for

Table 5. Measurement invariance for different groups

Control	Model	CFI(-)	CFI(+)	Δ CFI	P-value
Size (N = 18,814)	Metric	0.978	0.979	0.001	0.145
	Scalar	0.979	0.973	-0.006	0.000
Sector (N = 18,814)	Metric	0.975	0.978	0.002	0.102
	Scalar	0.978	0.964	-0.014	0.000
Country (N=18,106) ^a	Metric	0.942	0.939	-0.003	0.002
	Scalar	0.939	0.860	-0.079	0.000
Competing on price (N = 18,626)	Metric	0.964	0.969	0.004	0.081
	Scalar	0.969	0.967	-0.002	0.214
Predictability of demand (N = 18,643)	Metric	0.961	0.965	0.004	0.193
	Scalar	0.965	0.961	-0.004	0.000
Workplace wellbeing (N = 18,805)	Metric	0.958	0.960	0.002	0.000
	Scalar	0.960	0.955	-0.005	0.000
Provision of paid training (N = 18,757)	Metric	0.962	0.963	0.001	0.000
	Scalar	0.963	0.940	-0.023	0.000
Provision of on-the-job training (N = 18,727)	Metric	0.962	0.964	0.002	0.017
	Scalar	0.964	0.958	-0.006	0.000
Employee influence on decision-making (N = 18,582)	Metric	0.955	0.959	0.004	0.289
	Scalar	0.959	0.944	-0.015	0.000

^a Due to the low number of cases, Cyprus, Ireland, Luxembourg, and Malta were excluded from the analysis.

sector of activity, country, provision of paid training and employee influence on decision-making.

For the central objective of this study, which is to analyse associations between the latent constructs, metric equivalence suffices (Freitag and Bauer, 2013).

For sector of activity, provision of paid training and employee influence on decision-making, the difference in CFI is very small and the level of CFI is already high, so it was decided to accept the minor non-invariance for these variables, and show descriptive results for these groups, but with the disclaimer that scalar invariance was not achieved.

For country, the issues with scalar non-invariance cannot be ignored, so it was decided not to show descriptive results across countries.

Covariates included in the model

As was briefly discussed in Section 2.2.2.1, following the inspection of the fit measures and modification indices, a small number of covariates were specified in the model. As can be seen from the results in Table 3, the model fit of the measurement model already satisfies all the fit requirements without the inclusion of covariates. However, Table 4 shows that the CFI and TLI of the full model only exceed .95 once the covariates are included.

Table 6 shows the correlations between the error terms (partial correlations) that were included in the final full model.

Inclusion of the correlation between the importance of providing training to enable workers to articulate their ideas and to improve morale accounts for the fact that these variables were collected in the same battery and

cover the same sub-dimension of the organisational culture, which is related to the motivations underlying investments in staff.

Similarly, inclusion of the correlation between the importance for receiving a positive evaluation of making suggestions and of helping colleagues is both methodologically as well as substantively driven, as the variables were asked in the same battery and cover the same sub-dimension of the organisational culture which is related to the expectations of staff.

The main correlation between problem-solving and a supportive management style is captured by the measurement model (opportunity). However, the answers to the question assessing managerial approaches, indicating whether managers focus on controlling whether or not employees execute the tasks assigned to them or on creating an environment in which employees can autonomously carry out their tasks, are likely somewhat biased towards the second option. To avoid that this bias suppresses the correlation between this variable and the other variables capturing opportunity, an additional parameter was introduced in the model to capture the residual correlation between the proportion of workers in jobs that involve problem solving and a managerial approach that is geared towards facilitating autonomous work rather than towards controlling for compliance. The estimated residual correlation is negative. This is consistent with leadership studies finding that sometimes there is a gap between what managers say about their leadership style and what they really do (Sveningsson and Larsson, 2006); it suggests that some of the managers reporting a facilitating management style might, in fact, be micromanaging their employees (Alvesson and Spicer, 2011; Collinson, 2011).

Table 6. Partial correlations included in the model (N = 18,839)

Train to articulate ideas	Train to improve morale	0.361
Making suggestions is important	Helping colleagues is important	0.377
Jobs involve problem solving	Facilitating autonomous work	-0.857
Jobs involve problem solving	Continuous training	0.241
Jobs involve independent scheduling	Continuous training	0.225
Ability	Opportunity	0.326

Source: ECS 2019, author calculations.

Inclusion of the correlations between the proportion of workers in jobs that involve problem solving and independent scheduling of tasks, and the proportion of workers that require continuous training, is motivated by the notion that there are jobs where these elements coincide (for example, medical or legal professions and jobs in education where professional development is often regulated by authorities or professional associations), regardless of whether or not a managerial approach geared towards fostering opportunities for skills use is in place.

Finally, the correlation between ability and opportunity was included because practices that create opportunities for workers to apply their skills often also create opportunities for workers to improve their skills.

Annex 3: Structural model estimates in subpopulations

Comparing differences in estimates using confidence intervals

When comparing estimates (for example, means or coefficients) across independent groups, the statistical significance of the difference between the estimates can be established by comparing the confidence intervals around the estimates. A confidence interval (CI) – also referred to as the ‘margin of error’ – is an interval around the estimate, spanning $2 \cdot t_{\alpha} \cdot SE$, with t_{α} referring to the critical value of the t-distribution corresponding to the desired confidence level $(1-\alpha)$ and SE referring to the standard error of the estimate. If a significance test is carried out at the 95% confidence level, the critical value of the t distribution is 1.96, so the width of the CI, is $2 \cdot 1.96 \cdot SE$.

If the confidence intervals around the estimates of two independent samples do not overlap, the estimates are significantly different from each other. However, if the confidence intervals do overlap, it is not necessarily true that the estimates are not significantly different from each other.

Cumming and Finch (2005) have developed a measure for the p-value – as the probability of obtaining the observed difference between the estimates in a sample if the two estimates are assumed not to differ in the population – that can be obtained from the relative overlap between the confidence intervals.

For any two estimates, E_1 and E_2 , where $E_2 > E_1$, with corresponding confidence intervals, CI_1 and CI_2 , the relative overlap ratio (ror) is defined as:

$$ror = (ULCI_1 - LLCI_2) / ((w_1 + w_2) / 2),$$

where $ULCI_1$ denotes the upper limit of CI_1 , $LLCI_2$ denotes the lower limit of the CI_2 , and the denominator is the average width of the confidence intervals for each of the two estimates. If $ror < 0.5$, the p-value of the difference between the estimates is 0.05 or less. Therefore, the difference between the two estimates can be considered significantly different from 0 (Cumming and Finch, 2005). This approximation is valid as long as neither of the CIs is more than twice as wide as the other.

Results of the grouped analyses

Table 7 shows the results of the parts of the structural model that were allowed to vary between the subgroups in each of the grouped analyses.

Table 7. Associations between ability, motivation and opportunity and establishment performance, by subgroup

Competing on price (N = 18,626)	Yes			No			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.154	-0.037	0.080	0.026	0.083**	0.139	0.311
Motivation	0.102	0.200***	0.299	0.083	0.125***	0.168	0.468
Opportunity	-0.017	0.068	0.153	0.013	0.053**	0.092	0.876
Predictability of demand (N = 18,643)	High			Low			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.034	0.029	0.091	0.120	0.223***	0.326	No overlap
Motivation	0.093	0.142***	0.191	0.000	0.073	0.146	0.434
Opportunity	0.029	0.069***	0.110	-0.076	0.002	0.080	0.430
Workplace wellbeing (N = 18,805)	High			Low			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.037	0.029	0.095	0.126	0.210***	0.293	No overlap
Motivation	0.113	0.167***	0.221	-0.033	0.028	0.089	No overlap
Opportunity	-0.014	0.032	0.078	-0.042	0.018	0.079	0.873
Provision of paid training (N = 18,757)	High			Low			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.119	-0.025	0.069	0.053	0.110***	0.168	0.106
Motivation	0.109	0.169***	0.228	0.075	0.123***	0.171	0.577
Opportunity	0.073	0.144***	0.215	-0.021	0.020	0.060	No overlap
Provision of on-the-job training (N = 18,727)	High			Low			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.095	0.005	0.105	0.028	0.086**	0.144	0.487
Motivation	0.079	0.141***	0.204	0.085	0.133***	0.182	0.928
Opportunity	0.029	0.103**	0.177	-0.009	0.030	0.069	0.354
Employee influence on decision-making (N = 18,582)	High			Low			ror
	LL CI	Coeff.	UL CI	LL CI	Coeff.	UL CI	
Ability	-0.014	0.048	0.110	0.007	0.088*	0.169	0.720
Motivation	0.085	0.133***	0.181	0.040	0.100**	0.159	0.688
Opportunity	0.038	0.083***	0.128	-0.039	0.018	0.075	0.363

Source: ECS 2019, author calculations.

NB: * significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$; **bold**: confidence intervals do not overlap or $ror < .5$, suggesting the difference in effect size between the two groups is significant at $p < .05$.

Human resources contribute to the success of an organisation through their skills. According to the ability, motivation, opportunity (AMO) model, employee contributions to organisational performance depend on their skills, their motivation to draw on their skills, and the opportunities to do so. Organisations can adopt managerial approaches cultivating ability (A) by facilitating learning, creating opportunity (O) by providing employees with autonomy, and encouraging motivation (M) by leveraging monetary and non-monetary motivational drivers.

This report is based on the 2019 European Company Survey (ECS 2019). It shows that managerial approaches cultivating AMO are positively linked to establishment performance, and that these approaches are driven by an organisational culture that values employees as an asset to the organisation. People-centred managerial approaches that harness workplace wellbeing are central to the mechanism linking human capital utilisation to business outcomes.

