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Sharon K. Parker, Anja Van den Broeck, David Holman

Institutions: University of Western Australia, Katholieke Universiteit Leuven, University of Manchester

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Work Design Influences:

A Synthesis of Multi-Level Factors that Affect The Design of Work

Sharon K. Parker

Management and Organisations, UWA Business School

University of Western Australia

sharon.parker@uwa.edu.au

Anja Van den Broeck

Work and Organization Studies, Faculty of Economics and Business,

KU Leuven

Optentia, North West University

Anja.vandenbroeck@kuleuven.be

David Holman

People, Management & Organisations

Alliance Manchester Business School

University of Manchester

David.holman@mbs.ac.uk

ABSTRACT

High quality work design is a key determinant of employee well-being, positive work attitudes, and job/organizational performance. Yet many job incumbents continue to experience deskilled and demotivating work. We argue that there is a need to understand better where work designs come from. We review research that investigates the factors that influence work design, noting that this research is only a small fragment of the work design literature. The research base is also rather disparate, spanning distinct theoretical perspectives according to the level of analysis. To help integrate this literature, we use a framework that summarizes the direct and indirect ways in which work design is shaped by the higher-level external context (global/ international, national and occupational factors), the organizational context, the local work context (work group factors), and individual factors. We highlight two key indirect effects: first, factors affect formal decision-making processes via influencing managers' work design-related motivation, knowledge, skills, and abilities (KSAs), and opportunities; and second, factors shape informal and emergent work design processes via influencing employees' work design-related motivation, KSAs and opportunities. By reviewing the literature according to this framework, we set the stage for more comprehensive theoretical development and empirical studies on the factors that influence work design.

A Synthesis of Multi-Level Factors that Affect The Design of Work

Work design refers to "the content and organization of one's work tasks, activities, relationships, and responsibilities" (Parker, 2014, p. 662). When work is designed so that it has motivating characteristics like job autonomy and social support, as well as reasonable levels of job demands, multiple positive individual and organizational outcomes arise. A vast amount of research shows that work design affects work stress, job satisfaction, performance, absenteeism, accidents, team innovation, company financial revenue, and more (e.g. see the meta analysis by Humphrey, Nahrgang, & Morgeson, 2007).

Yet, despite extensive evidence about the benefits of well-designed work, there are still many poorly designed jobs in both advanced and developing economies. For example, in Europe, Lorenz and Valeyre (2005) reported that one third of workers had jobs that were deskilled or that involved excessive demands. Significant technological and societal change is also affecting work and organizing, yet we know little about how this change might affect people's work design (Parker, 2014). Both of these forces – the continued prevalence of poor quality work designs and the vast change occurring in work - highlight the importance of having a comprehensive, evidence-based understanding of the forces that affect work design.

Such an understanding is currently lacking. In most theory and research pertaining to the design of jobs, work design is modeled at the start of a causal chain leading to outcomes via intermediary processes. In other words, work design is the independent variable. This literature neglects consideration of where work design comes from and how it is constrained or enabled; that is, work design as a dependent variable. Important questions from this perspective include: *What causes variation in work design? Does work design mostly result from top down contextual influences, or can employees and managers affect work design? How do formal and informal work design processes relate to one another?*

Our goal in this article is to address these, and related, questions by reviewing research on the influences on work design. We organize our review around an integrative multilevel

framework that synthesizes how multi-level factors shape work design. We review evidence of the direct effects of these factors on work design, as well as the indirect effects arising from the decision-making processes of those in positions of formal authority as well as from informal, emergent and employee-led processes.

Our review makes an important contribution. As we discuss, to the extent that it exists, research on work design influences has mostly considered how isolated factors shape work design, such as occupational context (e.g., Morgeson, Dierdorff, & Hmurovic, 2010) or lean production (e.g., Koukoulaki, 2014; Parker, 2002), with attention restricted to a single type of influence and approached from a single disciplinary perspective. Much of this research is also rather old (e.g., Brass, 1985; Rousseau, 1978; Trist & Bamforth, 1951), and yet the world of work has clearly changed (Parker, 2014), suggesting the need for a fresh analysis. There have been several calls for more attention to work design antecedents, both historically (Clegg, 1984) and in more recent times (e.g., Clegg & Spencer, 2007; Grant & Parker, 2009; Morgeson, et al. 2010; Oldham & Hackman, 2010; Parker, 2014).

These calls have largely gone unheeded: lists of potential influences exist in work design reviews, but there are no integrative reviews. Some articles come close, but are still distinct from what we focus on here. Thus, Morgeson et al., (2010) discussed the importance occupational and organizational context in shaping work design, but these researchers did not consider higher-level contextual influence beyond the organization, nor did they consider individual influences. Boxall and Winterton (2015) reviewed the conditions that foster high-involvement work, but the work design focus of these authors is on job autonomy only, rather than other aspects of work design. Dollard, Shimazu, Nordin, Bough, and Tuckey (2014) put forward a multilevel model of psychosocial work factors, but the article's emphasis is on health and it includes factors beyond work design (e.g., bullying). Thus, each article is helpful, but none examines the full range of multi-level factors that shape work design.

A multi-level synthesis of the factors that influence work design is important for research and practice. It will open up a fruitful area for research that will help organizational decision

makers as well as public policy developers around the globe to improve work designs. For example, achieving higher quality work has been a long-held goal within European policy, and it is a growing emphasis in emerging economies. A synthesis of research on the factors that influence work design will provide a useful platform for these policy efforts, as well as being an important foundation for work design at the organizational level.

Prior to our review, we briefly recap on the mainstream approach to work design, that is, work design as an independent variable.

Mainstream Research: How Work Design Affects Outcomes

The field of work design research is vibrant, with Parker, Morgeson, and Johns (in press) identifying more than 5000 management-oriented articles on the topic. In their synthesis, these authors identified five key work design perspectives; each representing a shift away from the Taylorist work designs characterized by low autonomy and low complexity that became popular around the time of the Industrial Revolution.

The first perspective, sociotechnical systems thinking and autonomous work groups (e.g., Trist & Bamforth, 1951) advocated that the design of work should jointly optimize technical and social aspects of the work situation, rather than prioritize the former, as was the focus in Tayloristic approaches. Sociotechnical thinking spurred the idea of autonomous work groups that are able to flexibly optimize working processes and thereby perform more effectively (Cohen & Bailey, 1997). A related concept today is team empowerment (e.g., Chen, Sharma, Edinger, Shapiro, & Farh, 2011) which encapsulates structural empowerment (delegating authority, information, support, resources to teams) as well as its psychological manifestation (i.e., team members' positive shared beliefs, such as feeling in control of the work).

The second perspective, job characteristics theory, focuses on how work characteristics affect an individual's motivation and, in turn, outcomes such as performance. Especially dominant is Hackman & Oldham's (1976) Job Characteristics Model (JCM) that identified five core motivational "job characteristics" (i.e., task variety, job autonomy, task significance, task identity, and job feedback). These characteristics are proposed to satisfy

critical psychological states (e.g., the experience of meaningfulness), which then generate higher motivation and performance. Beyond these core motivational characteristics, additional job characteristics have also been identified as important for various outcomes (e.g., Morgeson & Humphrey, 2008; Parker, Wall, & Cordery, 2001), including social characteristics (e.g., task interdependence), knowledge characteristics (e.g., cognitive requirements), and physical characteristics (e.g., physical comfort in the job).

Closely related to the job characteristics perspective is the Job Demand-Control model. In this model, Karasek (1979) merged the notions of job autonomy and skill variety from the Job Characteristics Model into "job control" and considered these factors in interaction with job demands, such as time pressure. According to Karasek, the combination of job control and job demands leads to four different types of jobs, including strain-inducing jobs with both high job demands and low job control, and 'active' learning-oriented, healthy jobs with both high demands and high control. Later, Karasek also added social support to this model as a further buffer against high demands.

An extension of the Job Demand Control Model is the Job Demands-Resources Model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) which includes resources other than job control (e.g., opportunities for development) and an array of demands such as challenge demands (e.g., workload) and hindrance demands (e.g., role conflict) (Crawford, Lepine, & Rich, 2010; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). While job resources foster engagement, job demands are the primary causes of burnout (Bakker, Demerouti, & Sanz-Vergel, 2014).

The fifth and final perspective stems from Kahn et al's. role theory, which identified role conflict and role ambiguity as two key types of stress-incurring role dysfunction (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). In recent times, spurred by the integrative Job Demands-Resources models, these variables have become more integrated into mainstream work design research.

Although there are subtle nuances in these perspectives that we do not delve into here, these models characterize quality work design as having high levels of motivational, knowledge, and social work characteristics (e.g., job autonomy, variety and social support) while limiting job demands (especially hindrance demands) and role stressors. Such work designs are associated with, for example: better physical well-being, including physical fitness (Fransson et al., 2012), lower hypertension (Babu et al., 2014), fewer headaches/ gastrointestinal problems (Nixon, Mazzola, Bauer, Krueger, & Spector, 2011) and lowered incidence of musculoskeletal disorders (Eijckelhof et al., 2013); higher mental health and psychological well-being (Luchman & González-Morales, 2013); more positive job attitudes, such as job satisfaction and organizational commitment (Humphrey et al., 2007); better job performance (Humphrey et al., 2007); and higher levels of innovation (Hammond, Neff, Farr, Schwall, & Zhao, 2011). Studies also show positive effects at higher levels in the organization, such as group work design enhancing team effectiveness (Campion, Papper, & Medsker, 1996; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009) and team innovation (Hülsheger, Anderson, & Salgado, 2009).

It is the above evidence-base that we have in mind when we refer to 'high quality' work design throughout this article. We recognize, of course, that others might characterize high quality work design differently.

Overview of Work Design Influences

In this section, we describe the key aspects of the integrative framework (see Figure 1) that we use to structure our review. To avoid excess complexity, we herein focus on the design of individual jobs, although we recognize that work can be designed at the group level. Group-level work design can be different from the work design at the individual level, and it is part of the context that shapes individual work design.

Insert Figure 1 about here

Work Design

All organizations have goals to achieve, which in turn requires the solving of two "universal problems of organizing" (Puranam, Alexy, & Reitzig, 2014, p. 163): how to divide labor and how to integrate effort. Dividing labor includes task division and task allocation; integrating effort includes ensuring co-operation and co-ordination (such as by providing rewards or information). How organizations solve these problems of organizing involve choices about work design, technology, people, rewards, layout, and information flows (see Figure 1). Multiple choices, or work organization "solutions", exist for each situation.

Decisions about work organization are typically made by those in positions of formal authority, such as chief executives, managers, and team leaders. At the higher level, chief executive officers make strategic decisions that affect work design for employees across the whole organization (Mumford, Campion, & Morgeson, 2007), whereas local managers will likely make decisions that affect the work design of a smaller group of employees (Piccolo, Greenbaum, Den Hartog, & Folger, 2010). These decisions about the division of labor and the integration of effort create, at the individual level, individual work designs in which employees have assigned tasks and responsibilities. As an example, when making chairs, managers might decide to divide and allocate tasks based on activities (cutting, sanding, assembling) or based on objects (e.g. the seats, legs, arms of the chair). The former choice might have meant a shorter learning curve and greater specialization but likely results in work designs with lower job variety and lower task identity for individual employees. Likewise, managers might decide to co-ordinate individual effort via teams, which would then affect individuals' social work characteristics, such as the level of social contact.

This focus on formal decision making means that, although some contextual variables shape work design directly (such when technology or occupational standards only allow one employee to do the cutting), very often, the influence of context will be mediated by the decisions of managers and other key stakeholders. This notion coincides with theories such as strategic human resource management theory (e.g. Schuler & Jackson, 1987) and institutional

theory (Hall & Soskice, 2000) which recognize that senior managers are in charge of strategic organizational choices (Mumford, et al. 2007), and that their interpretation of the environment and their subsequent actions shape the organization's design, operations, and culture (Foss & Klein, 2014; Schneider, Ehrhart, & Macey, 2013). As stated by Boxall and Winterton (2015, p. 5) "at the risk of stating the obvious, organizations rely on managers to interpret their environment, evolve strategies, co-ordinate others and respond to change".

As well as work design arising from formal work organization decision-making, work design is also created through emergent, informal, and social processes (see Figure 1). Indeed, the term 'work design' has increasingly been used instead of 'job design' to signal that work design not only includes assigned tasks and responsibilities, but also activities that the individual or group might have self-selected or 'crafted', or that have emerged through informal or social processes, such as role expectations from peers (Morgeson & Humphrey, 2008; Parker & Wall, 1998) or idiosyncratic work design 'experiments' (e.g.,Raveendran, Puranam, & Warglien, in press). Returning to the example of making chairs, tasks might be grouped on the basis of activities, resulting in low levels of task variety, and yet employees might negotiate with their boss to take on additional duties such as carrying out basic machine repairs, thereby expanding their job variety. As an example of social processes, a work group might develop group norms about the appropriate level of work effort, which in turn will shape individuals' experienced job demands.

Most often, these informal, emergent, and social processes arise from the actions and decisions of employees. The idea that employees themselves can change their work design is a long standing one, as indicated by older concepts as role making, as well as more contemporary proactive behavior concepts such as job crafting, and i-deals (Grant & Parker, 2010). Job crafting, one of the most popular behaviors currently being studied as a form of 'bottom up' work design, is the process through which employees change the task-related or social boundaries of their job so as to increase work meaning or decrease its stressful aspects (Tims, Bakker, & Derks, 2013; Wrzesniewski & Dutton, 2001). Following the principles of

social exchange theory, employees can also negotiate idiosyncratic deals (i-deals) with their supervisor or manager about their employment and working conditions (e.g., new tasks, flexible hours) and which benefit both employee and employer (Liao, Wayne, & Rousseau, 2016). Thus, employees engage in various agentic actions to shape their own work designs.

Proximal Processes That Shape Work Design

Drawing on the ability-motivation-opportunity model of behavior (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Blumberg & Pringle, 1980), we discuss how the work design decisions of those in formal positions of authority (whom hereafter we refer to as managers) are proximally shaped by their: (a) motivation and knowledge, skill, and abilities (KSAs), and (b) opportunity. With respect to motivation, managers' decisions about work design will be shaped by both autonomous forms of motivation (such as the desire to retain employees or a personal concern about developing high quality jobs) and controlled forms of motivation that reflect pressures outside the individual (such as the requirement to reduce staffing costs or market pressures to copy the technology of competitors). As an example of the role of KSAs, managers' knowledge about different options for work design, and their skills to engage employees in participative decision-making, will shape their work design decisions. For simplicity, we combine motivation and KSAs into one category because both are individual attributes of managers and the forces that shape these elements are often similar.

Second, opportunity is crucial. Blumberg & Pringle (1980, p. 565) defined opportunity as "the particular configuration of the field of forces surrounding a person and his or her task that enables or constrains that person's task performance and that are beyond the person's direct control". This perspective recognises that, irrespective of a manager's motivation and skills to implement (say) self-managing teams, the manager can only do so if s/he has some level of opportunity in the situation. Opportunity also encompasses power: if the manager lacks the power to mobilize resources in order to get things done and influence others (Etzioni, 1961), then managers' or employees' work design-related actions will necessarily be constrained.

We suggest the same proximal processes (KSAs, motivation, and opportunity) apply to employees' work design-related actions. For instance, employees might negotiate flexibility in their job because of a motivation to better balance home and work commitments, craft their job to match their KSAs, or take up the opportunities afforded by new technology to interact more with peers.

Multi-Level Influences and Their Mechanisms

The multi-level influences that we describe in the framework (see Figure 1) include individual and contextual influences, with the latter encompassing local context influences (e.g., at the work group level), organizational influences, and higher-level external influences (global/international; national; occupational). Considering multi-level influences means covering a broad span of disciplinary perspectives. For instance, we cover psychological perspectives to detail whether and how individual-level factors such as personality shape work design. At the level of the local context, such as the work group, we draw on human relations perspectives such as sociotechnical systems theory. Organizational influences tend to be examined within disciplines such as strategic management and organizational behavior, while disciplines such as sociology, economics, and industrial relations inform our efforts to unpack the effects on work design of higher-level external context factors.

Influences at multiple levels directly and indirectly shape individual work design. Focusing on contextual influences, we identify three mechanisms by which the context affects work design and the proximal processes described above. First, contextual influences directly affect work design, such as when national working time regulations change work hours, or when norms and regulations about occupational roles result in task demarcations.

Second, the context indirectly affects work design through influencing formal decision-making. Thus, contextual influences can affect managers' motivation/KSAs, which shapes the work design choices they make, such as when a high level of national employment increases managers' motivation to design attractive work as a means of retaining employees. Contextual influences similarly affect decision-makers' opportunity to shape work redesign.

As an example of the latter, Hackman (2003) reported how government regulations, the individualistic culture of flying, and the physical aspects of cockpit design severely constrained the work design options for aircrews. In this example, the context operates as a situational strength factor that creates a set of opportunities or constraints for work design (Johns, 2006).

Third, contextual influences affect employees' motivation/KSAs and opportunities, which in turn affect informal work design processes. For example, national culture might shape employees' preferences for work design (motivation), affecting the type of job design they try to create; or powerful trade unions may increase the individual and collective power of employees, increasing their opportunity to obtain enriched work designs or indeed to resist poor quality work designs.

As well these top-down processes by which contextual influences affect work design, it is important to note that bottom-up processes are possible. For example, organizational-level actions (e.g., CEO lobbying) might shape national-level factors (e.g., regulations); or the i-deals negotiated by some individuals might result in HR-policies for all employees (Lyons, 2008). Overall, however, such bottom up effects tend to unfold slowly, are indirect, and have less impact (Kozlowski & Klein, 2000). Thus, when it comes to understanding contextual influences on work design, our primary focus is on top down effects.

As well as the context shaping work design, individual-level factors also shape the tasks employees do and how they are organized. Again, three sets of mechanisms can be identified. First, individual factors directly affect work design, such as by shaping how individuals' appraise their work design, as well as which jobs they select into. Appraisal theory assumes that people appraise aspects of the work environment as irrelevant, benign-positive, or stressful, and hence, as signaling good outcomes, such as opportunities for growth, or indicating loss or harm (Lazarus & Folkman, 1984). Research supports the roles of appraisals in affecting the perceptions of work characteristics (Webster, Beehr, & Love, 2011), as well as the role of individual factors in affecting these appraisals, including age (Stynen, Forrier,

Sels, & De Witte, 2013) and personality (Lin, Ma, Wang, & Wang, 2015). Second, individual factors affect the decision-making of those in formal authority, such as when the high performance of an employee motivates the manager to grant him or her greater job autonomy (Clegg & Spencer, 2007). Third, individual attributes influence employees' motivation/KSAs and opportunity for adjusting their own work design, such as when a proactive individual is more motivated to actively craft their tasks (Clegg & Spencer, 2007).

We recognize that there are additional and more complex mechanisms than those discussed above. For example, contextual factors and individual variables can also moderate the effect of work design on outcomes, amplifying positive or negative effects (Johns, 2006; Morgeson et al., 2010). Goodman (1979), for instance, described how the productivity impact of self-managing teams within a mining context was severely limited by technological constraints. However, in this paper, our focus is on the causal influences on work design, hence we do not give a great deal of attention to the complex ways in which context or individual differences moderate the path between work design and outcomes; although we do appreciate that such a process might result over time in different choices being made about work design.

In the remainder of the paper, we review literature on the multi-level influences of work design. We go from the top down, first considering higher-level influences that are external to the organization, and second, considering organizational influences. Collectively, these higher-level influences cover what Johns (2006) referred to as the 'omnibus context'. Third, we consider local context influences, focusing particularly on the role of the work group (which Johns, 2006, refers to as the 'discrete' context). Fourth, we review research on the individual influences on work design, including individuals' demography, competencies and personality. Table 1 shows a summary of the multi-level influences we discuss, example disciplines that have considered each influence, the key mechanisms by which each influence affects work design, and a brief statement of the quality of the evidence base. In the final part of the article, we bring this literature together in a synthesis, and identify directions for future research.

Insert Table 1 about here

Higher-Level External Influences

We review three categories of influence that are external to the organization: international/ global influences; national-level influences; and occupational influences.

International/Global Influences

The context in which organizations operate today is characterized by the interrelated influences of globalization and market liberalization. Globalization refers to the economic interdependence among countries that develops through cross-national flows of goods and services, capital, know-how and people. In part, globalization has been fostered by efforts to liberalize markets by reducing governmental regulation of markets, privatizing state-owned enterprises and removing barriers to international trade (Gupta & Govindarajan, 2004).

Although globalization and market liberalization have significantly altered the context in which organizations operate, notably by heightening competition, there has been surprisingly little empirical work that addresses their direct effects on work design. In one of the few studies, Idris, Dollard and Winefield (2011) found a positive association between Malaysian workers' perception of heightened globalization and high job demands. They argued that this occurred because globalization increased the perceived threat of competition and heightened job insecurity, which in turn raised worker and managerial expectations about working harder. A clear limitation of this study, however, is the reliance on employee perceptions of globalization from just one country.

A key path through which globalization and market liberalization indirectly affect work design is international supply chains. That is, globalization and market liberalization have opened up access to new suppliers in other countries, especially developing countries, which has increased the potential for organizations to influence work design within these countries. For example, when a client organization in a developed country with a dominant market position selects suppliers in developing countries on price, these suppliers can be 'coerced'

into adopting a cost minimization strategy that (as we elaborate later when discussing organizational influences) typically involves poor quality work designs, as well as weak implementation of health and safety standards and minimal training (Arnold & Hartman, 2005; Marchington, Grimshaw, Rubery & Wilmott, 2005). Attention has been given to the work conditions of suppliers in developing economies, in part generated through tragedies such as the Rana Plaza disaster in Bangladesh (ILO, 2015). Considerable case study evidence shows that cost pressures on suppliers are linked to poor work designs, such as high workloads, physical demands and deskilled job designs (e.g., Brown, Dant, Ingene, & Kaufmann, 2005; Verité, 2004). But systematic evidence for the effects of international supply chains on work design – such as demonstrated by assessing work characteristics across different supply chains – is sparse.

It is important to recognize that the effects of international supply chains are far from pre-determined and can be mitigated by managerial decisions. Case study evidence shows that decision makers within client organizations can use their market position to improve suppliers' human resource practices and working conditions in the belief that this will ensure better quality products and protect the client organization's image. Client organizations can do this by contractually obliging suppliers to comply with codes of conduct that set out minimum standards for work and employment conditions (e.g., health and safety, working time, pay), through long-term collaboration with suppliers, and by encouraging suppliers to implement specific forms of work organization (e.g., Holman, Lamare, Grimshaw, Holdsworth & Marchington, 2012; Kinnie et al., 1999; Locke, Qin & Brause, 2007). Case studies further indicate that such initiatives appear to be more successful in achieving greater compliance from suppliers when they are accompanied by broader improvements in, for example, national labor law, national labor inspectorates and trade union involvement and representation (ILO, 2015; Locke, et al., 2007). Thus, in the face of strong top down negative global and international forces associated with global supply chains, counter forces in the

form of organizational choices aligned with the national institutional context of the supplier can 'turn the boat' to achieve better work designs.

Managers and executives within supplier organizations, too, can vary their strategic responses to the demands of client organizations, with consequent implications for work design. Locke and Romis (2007) presented a case in which two similar suppliers responded differently to a client's demands to reduce task cycle times. Specifically, one implemented a cell-based production system with job rotation, multiple tasks, and participation in decision making, while the other introduced assembly lines in which employees worked on a single task and had no participation in decision making.

National Influences

Organizations are embedded within the economic, cultural and institutional context of a country, and these aspects can shape work design (Budhwar & Sparrow, 2002). Here we elaborate the following key national-level influences: national economy, national culture, national institutions, and institutional regimes.

National economy

The health of a nation's economy is indicated by its gross domestic product (GDP) and unemployment level. In economies with relatively high GDP and low unemployment, one might expect a flow down effect such that organizations will have greater capacity to invest in human resource practices such as training and development, and more encouragement to make such investments as a means of attracting and retaining employees. The resulting increase in employee skills should give managers the direct opportunity to provide more enriched jobs with higher levels of responsibility (Prais, Jarvis & Wagner, 1989). Low unemployment should also boost employees' individual and collective capacity to secure better working conditions and reduce the likelihood of employees agreeing to increases in workload due to a fear of unemployment (Akerlof, 1982). For all of these reasons, work designs in 'healthier' economies should have lower workloads and higher job resources such as autonomy, skill variety, and challenge.

An analysis across fifteen European countries from 1995 to 2010 had findings consistent with this reasoning: those countries with high GDP and low unemployment had significantly higher levels of job discretion and cognitive demand, and significantly lower levels of workload (Eurofound, 2015; c.f. Green & McIntosh, 2001). Further, drawing on longitudinal data from 1995 to 2010, countries with high unemployment experienced greater increases in workload, and countries with low GDP experienced greater increases in workload and reductions in cognitive demand (Eurofound, 2015, see also Greenan, Kalugina & Walkowiak, 2013). Additional support for a link between unemployment and work design comes from studies showing that job insecurity, which increases as unemployment rises (Nätti, Happonen, Kinnunen & Mauno, 2005), is associated with high job demands and low job discretion (Burchell, Ladipo & Wilkinson, 2005; Barling & Kelloway, 1996) . These findings are consistent with the idea that unemployment (as indicated by high job insecurity) reduces the opportunity (power) for employees to achieve better working conditions. An alternative explanation of this relationship - that job insecurity simply changes employees' perception of their job characteristics - appears unlikely given the longitudinal evidence (Eurofound, 2015).

National culture

Drawing on Hofstede's four dimensional classification of national work cultures (i.e., power distance, individualism, uncertainty avoidance, masculinity), authors have argued that national culture shapes individual preferences for particular working arrangements (Aycan, 2005; Erez, 2010; Hofstede, Hofstede & Minkov, 1991), which might flow on to affect work design via managers' and employees' choices. For example, managers and employees from cultures with high uncertainty avoidance (i.e., a preference for structure and formal rules) might prefer jobs that are clearly defined and formalized (Black, 1999; Cagliano, Caniato, Golini, Longoni & Micelotta, 2010), while those in cultures with high power distance (i.e., a tolerance of power inequalities among people) should be more accepting of jobs in which power is centralized. This implies that work designs in national cultures with high uncertainty

avoidance or high power distance should be characterized by lower levels of job discretion, skill variety and skill utilization as well as lower role ambiguity.

Despite the intuitive appeal of arguments linking cultural values to work design, they are only supported weakly by the findings from the few studies in this area. Thus, although some cross-national surveys show uncertainty avoidance to be associated with lower participation, job discretion and lower role ambiguity (Cagliano et al., 2010; Peterson et al.,1995), others have found less consistent relationships (Black, 1999). These is also some indirect evidence from studies that examine cross-cultural variation in reactions to work design; the inference being that these reactions indicate variation in worker preferences for particular work characteristics, such that positive reactions may reinforce the presence of that work characteristic over time (Eylon & Au, 1999). However, even here findings are mixed. For example, Robert, Probst, Martocchio, Drasgow and Lawler (2000) showed that, among Indian workers, empowerment had a negative relationship with employee satisfaction, which the authors attributed to the high power distance of Indian workers and a possible preference for hierarchical work design. Such a conclusion contrasts with early studies showing the success of autonomous work groups in Indian textile mills (Rice, 1953) as well as more recent studies supporting the positive effects of empowerment in high power distance cultures (e.g., Humborstad et al., 2008). Altogether, there is only limited support for the intuitively appealing arguments about cultural values and work design: the mixed results suggest any relationship is conditioned in complex ways by other factors.

National institutions

Understanding how national institutions shape organizational practices is a central concern of institutional theories such as varieties of capitalism (Hall & Soskice, 2001) and employment regime theory (Gallie, 2007). Varieties of capitalism theory emphasizes the role of employers in developing institutions to coordinate their actions to address industrial relations, vocational training, and employee cooperation (Hall & Soskice, 2001), whereas employment regime theory focuses on how institutions emerge from the relative power of

employers and employees and the role of the state in mediating this relationship (Gallie, 2007). Although these theories emphasize different institutional arrangements, emerging evidence from research into each suggests three types of national institutions have direct and indirect influences on work design, namely: trade unions, national employment policies, and training systems policies.

Significant trade union characteristics include participation in organizational and governmental decision-making (e.g., works councils, national coordination bodies, collective bargaining arrangements) and membership levels. When participation is extensive and membership high, unions are likely to have a stronger influence on organizational decisions and therefore better able to achieve their aims, such as improving skills and resisting job standardization. As a result, these trade union characteristics should foster more enriched work designs (Culpepper & Thelen, 2007; Kristensen & Lilja, 2010). Such arguments are supported by evidence from studies drawing on the European Working Conditions Survey (EWCS) that show that national union membership is positively associated with high quality work designs (Dollard & Neser, 2013; Eurofound, 2013) and that reductions in membership are associated with increased workload (Green & McIntosh, 2001). Findings using other datasets reach similar conclusions (e.g., Esser & Olsen, 2012). However, highlighting once again that any single force does not have a deterministic effect on work design, trade union influence is not always positive. As noted by Boxall and Winterton (2015), when trust between managers and workers is low, such as in the UK, trade unions might trade higher pay for greater manager control over work design. Gallie, Felstead and Green (2004), for example, found trade union representation was negatively associated with job discretion in a nationally representative sample of UK workers.

National employment policies, including employment protection legislation (e.g., hiring and firing laws), welfare provision (e.g., unemployment and sickness benefits) and full employment and active labor market policies (e.g., subsidized employment) shape work design in various ways (Holman, 2013). For example, strict employment protection

legislation that guards against unfair dismissal, or extensive welfare provision that lessens the perceived risks of job loss, might increase employees' KSA's, motivation and/or opportunity to resist practices deemed deleterious to well-being, such as job simplification. Further, full-employment and active labor market policies can tighten the labor market and motivate employers to improve work design as a means of attracting and retaining employees (Gustavson, 2007; Wallerstein, 1999). A tight labor market can also increase investment in training, since returns are more likely (Cappelli et al., 1997; Finegold & Soskice, 1988), and thereby stimulate managers to develop enriched work designs (Prais, et al., 1989). In fact, relatively few studies have directly assessed the influence of national employment policies on work design, although there is some supporting evidence. For example, relative to other countries, European countries with strict employment protection legislation have a higher proportion of high quality work designs (Lorenz & Valeyre, 2005) and are less susceptible to declines in cognitive demand (Eurofound, 2015).

National training systems concern the practices through which vocational skills are developed, such as on-the-job training, formal training within firms, and formal education systems. The extensive use of training practices, particularly those that develop firm-specific skills, is thought to foster managers' willingness to provide more enriched jobs, as outlined above (Prais, et al., 1989). A study by Esser and Olsen (2012) that used data from a representative survey of 19 European countries found that on-the-job training, but not general vocational training, was associated with higher job discretion. Nevertheless, beyond this study, there is little research that directly assesses the effects of national training systems on work design. Indeed, an alternative perspective is that changes in work design drive training demand because employers and trade unions use training as a means to equip employees with the skills needed to operate effectively in the new working conditions (e.g., Osterman, 1995).

Other national institutional factors that might be expected to influence work design include health and safety institutions (e.g., inspectorates, legislation), working time legislation (e.g., the European Working Time Directive) and national regulations on working practices. For

example, health and safety or working time legislation might limit exposure to physical or time pressure demands or stimulate organizations to redistribute tasks (ILO, 1990). As a further example, national regulations on working practices allow registered Canadian midwives to provide care in hospitals, birth centers or at home, whereas American certified professional midwives can only assist planned home birth services because providing primary maternity care in the hospitals is the sole privilege of certified (nurse) midwives. National regulations thus limit the environments in which these types of midwives are allowed to operate and hence their job discretion, task responsibility and exposure to more challenging work demands (Vedam, Stoll, Schummers, Rogers, & Paine, 2014). However, although research has sought to evaluate the effects of these institutions (particularly health and safety institutions working time legislation) on outcomes such as productivity, health and safety (e.g., ILO, 1990; Richter, Kostova, Baur & Wegner, 2014), there is a lack of systematic evidence for their effects on work design, such as from cross-national comparative studies.

Institutional regimes

As well as focusing on specific institutions, institutional theories also set out how institutional regimes, or configurations of institutions, differ across countries. An important corollary of this is that national differences in institutional regimes should result in cross-national variation in work design (Holman, Frenkel, Sorensen & Wood, 2009).

Employment regime theory is particularly useful because it distinguishes social democratic regimes (the Nordic countries such as Denmark and Sweden) from continental regimes (e.g., France, Germany) and liberal regimes (e.g., UK, Ireland)[1]. According to employment regime theory, social democratic regimes have many institutional characteristics that foster better work design, such as highly influential trade unions (due to involvement in organizational and governmental decision-making), high union membership, extensive welfare benefits, and

[1] For brevity we do not include Southern or Eastern European regimes, but see Eurofound (2015).

active labor market and training policies. Continental regimes have influential trade unions and strong employment protection, but the influence of unions is weaker than in social democratic regimes as they have a more consultative role and tends to be restricted to permanent employees in large organizations. Liberal regimes have limited trade union participation in decision-making (Hyman, 2001), weak employment protection legislation, and limited welfare provision or active labor market policies (Gallie, 2007).

Consistent with the presence of these national institutions, studies indicate that countries with social democratic regimes have the most complex and enriched work, particularly with regard to job discretion and cognitive demands (Gallie, 2009; Greenan, et al., 2013; Holman, 2013; Holman et al, 2009; Lorenz & Valeyre, 2005)[2]. Further, over the past twenty years, job discretion and cognitive demand have remained high in social democratic regimes but have declined significantly in continental and liberal regimes (Eurofound, 2015). A similar 'Nordic advantage' has been found when comparing job discretion in social democratic regimes to that in other non-European liberal regimes such as the US, Canada and Australia (Dobbin & Boychuk, 1999) and in developing countries such as India that have liberal regimes (Holman et al., 2009). Work design differences between continental and liberal regimes are less consistently demonstrated (Holman, 2013; Holman et al., 2009). For example, continental regimes countries such as the Netherlands and Austria often have better quality work designs than liberal regime countries, while other continental regime countries such as Germany do not (Gallie, 2009).

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[2] One aspect to note is that workload in social democratic regimes also tends to be higher. The extent to which this is problematic is not clear, as high workload in social democratic regimes is more likely to be combined with high job discretion (Eurofound, 2015; Gallie, 2009; Lorenz & Valeyre, 2005), which – according to Karasek (1979) - can be seen as an non-stressful 'active' work design.

Although the evidence is clear in showing that social democratic regimes have more enriched work designs than other regimes, what is less clear is whether this 'Nordic advantage' is due to the relative strength of the institutions in social democratic regimes (i.e., more influential trade unions, stronger employment policies) or whether it arises from the distinctive features of the institutions in these regimes. For instance, to a much greater extent than trade unions in other European regimes, trade unions in social democratic regimes have typically sought to promote better work design through collective agreements, policy initiatives, and collaborations with government and employer organizations (Gallie, 2007; Sørensen, Doellgast, & Bojesen, 2014; Sørensen & Weinkopf, 2009). Thus, it might be the case that trade unions affect work design when they explicitly use their influence to improve work design. Indeed, this might partly explain why the greater influence of trade unions in some continental regime countries does not always lead to more high quality work designs than in liberal regimes with less influential trade unions.

Institutions and Organizational Isomorphism

An alternative but complementary perspective on the role of institutions in shaping work design can be garnered from neo-institutional theory, which asserts that organizations need to secure legitimacy within their institutional environment to ensure their long-term survival (DiMaggio & Powell, 1991). One means of doing this is to adopt organizational practices perceived to be legitimate by bodies within their institutional environment, such as suppliers, competitors, and regulatory agencies. This process implies that when organizations share similar institutional environments, they are likely to adopt similar practices and that organizational isomorphism will be greater. Neo-institutional perspectives assert that organizations typically face three isomorphic 'pressures': coercive, mimetic and normative (Heugens & Lander, 2009).

Coercive isomorphism occurs when firms adopt organizational practices that are required or demanded by powerful organizations or governments, such as via the setting of rules or through monitoring compliance. This both constrains the choices that managers can make

(reduces opportunity) and motivates managers to adopt particular practices, especially when sanctions are applied for non-compliance. For example, in response to government regulations, trade union agreements or supply chain partnerships (Heugens & Lander, 2009), managers may be obliged to adopt HR practices (e.g., minimum pay levels) or operational procedures (e.g., quality audits) that then either directly influence work design or indirectly influence work design in the manner described above (e.g., the adoption of training increases employee skills and thereby enables more complex jobs to be designed). Although meta-analytic evidence provides good support for coercive isomorphic effects more generally (Heugens & Lander, 2009), few studies have examined its effects on work design per se. One exception is a study by Frumkin and Galaskiewicz (2004), who found that US public sector organizations were more likely to adopt decentralized decision-making processes (which implies greater job discretion) when subject to review by an external agency, which the authors argued created pressure to make the organizations less bureaucratic. We also described earlier how international supply chains create coercive isomorphic pressures for particular types of work design.

Mimetic isomorphism occurs when organizations adopt practices perceived as successful in other organizations, that is, they copy 'best practice'. This implies that managers are motivated to copy best practice as a means of securing organizational legitimacy. In the study referred to above, Frumkin and Galaskiewicz (2004) found that public sector organizations were more likely to have decentralized decision-making processes when managers in these organizations paid attention to the practices of private organizations (in which decentralized decision-making processes were more frequent), suggesting a mimetic process. Yang (2008) also argued that mimetic isomorphism explained findings from a survey in the US showing that firms were more likely to have high performance work systems when they were more prevalent in firms in same sector. However, this study did not show whether managers consciously decided to copy work designs perceived to be successful in other organizations. Rather, forms of work design could spread because they accompany operational and HR

practices perceived to be successful, such as total quality management that is in turn accompanied by enriched job roles. Indeed, studies do provide evidence for the effects of mimetic isomorphism on operational practices such as total quality management (Westphal, Gulati & Shortell, 1997) and just-in-time (Ketokivi & Schroeder, 2004) as well as on HR practices (Poatsma, Lightart & Veersma, 2006) both of which can then shape work design (for example, managers might seek to skill development practices used elsewhere, with their implementation then affecting work design). More research is therefore needed to ascertain whether mimetic pressures shape work design.

Normative isomorphism occurs when occupations professionalize and are able to control the conditions of membership (e.g., educational qualification) and working methods, often through professional networks or certifying bodies. Given such isomorphic pressures it is conceivable that occupational norms about skill levels or working practices could influence work design by constraining how work tasks are allocated by managers as well as the work design actions of employees. Medical professions, for example, have relatively clear demarcations concerning which tasks can be worked on and have certifying bodies and professional networks that set and enforce the skill level of roles (Nancarrow & Borthwick, 2005). Overall, however, there is relatively little evidence that normative isomorphism resulting from occupational institutions shapes work design (Heugens & Lander, 2009) even though, as we show in the next section, occupations clearly affect work design (Dierdorff & Morgeson, 2013; Holman, 2013).

Occupational Influences

Occupations are defined as collections of work roles that have common tasks and responsibilities and which require comparable knowledge, skills and abilities (Morgeson et al., 2010). According to Dierfdorrf, Rubin and Morgeson (2009), research on work design has mostly ignored the role of occupations, and yet occupations are suggested to be at least as potent in their effects on work and individuals as are organizations (Trice, 1993). The significance of occupations over organizational contexts is shown by Dierdorff and

Morgeson's (2013) finding, based on a sample of 230 occupations, that approximately 16% of the variance of work characteristics was attributable to occupation.

Occupations can have such a powerful influence, first, because they shape the formal and informal distribution of tasks, and influence the skills used in completing those tasks, both of which are key to work design. As an example, occupational influences interacted with, and shaped, technological influences to affect the work design of doctors and midwives. Specifically, doctors' tasks of supporting child-birth required more technological support relative to midwives because the latter were not allowed to engage in certain medical procedures (Sutcliffe et al., 2012), with technology and occupational demarcations thus together strongly shaping the work design of different professionals.

Second, occupations shape work design by enabling employees to attain certain goals or values (Dierdorff & Morgeson, 2007, 2013; Morgeson et al., 2010). Occupational theories suggest that occupations differ with regard to what they 'give' and, hence, vary in the extent to which they provide opportunities for individuals to meet specific needs and interests (Dierdorff & Morgeson, 2007, 2013; Morgeson et al., 2010). Specifically, based on the Theory of Work Adjustment (Lofquist & Dawis, 1969), Morgeson et al. (2010) argued that occupations reflect different values, and therefore encourage and reinforce the display of particular activities and behaviors, which individuals may value differently. These activities and behaviors in turn shape work design. For example, in occupations that value achievement and independence, displays of competence, initiative and creativity are likely to be encouraged and rewarded. In turn, these displays are likely to give rise over time to job characteristics such as job discretion, skill variety and job complexity, such that individuals who aim to realize particular values are more likely to opt for certain occupations and hence are more likely to encounter these job characteristics. Empirical findings supports this theorizing: Morgeson et al. found that occupations high in the values of independence and achievement (e.g., police detectives and fashion designers) were strongly associated with task characteristics such as autonomy and variety; occupations with the value of altruism and

status (e.g., nursing) mostly predicted social characteristics such as social support; and occupational values of comfort and safety (e.g., librarians) mostly predicted physical context characteristics such as physical demands.

The effects of occupation on work design can also interact in complex ways with other multi-level forces. For example, showing an interaction between work re-organization and occupation, the introduction of team work including both craft and production workers in the steel industry led to work intensification among production workers yet deskilling among craft workers (Bacon, Blyton, & Dastmalchian, 2010).

Summary and Synthesis of Higher-Level External Influences

Overall, when it comes to higher-level external influences shaping work design, the evidence is clearest (although still somewhat limited) for the role of national institutions and institutional regimes. The evidence-base is rather smaller, case-study dominated, or inconsistent for global/international factors, national economy and national culture, and occupations.

In addition, there is at least some support for each of the top down pathways that we outlined earlier, although the strength of evidence for these mechanisms varies. Thus, some limited evidence suggests direct effects of higher-level external influences on work design, such as the effect of globalization and market liberalization on perceptions of job demands, or a direct effect of occupations on task demarcations. However, these direct effects imply a level of determinism that the evidence base mostly does not support. Instead, the effects of higher-level context on work design appear to be largely mediated through the formal and informal work organization choices made by managers and employees.

In particular, there is perhaps the most evidence that higher-level influences shape work design through affecting formal work organization choices, in turn, via affecting managers' motivation and KSAs. For instance, globalization and market liberalization and the resulting global supply chains can create coercive isomorphic pressures that motivate the adoption of particular types of work design, although we also discussed how decision-makers in both the

client and supply organization can make different decisions. National-level influences also affect managerial motivation, such as when high GDP/ low unemployment create a tighter labor market that motivates formal decision makers to design enriched work to retain employees. In addition, managers sometimes adopt particular work designs because they are seen to be 'best practice' in their networks (mimetic isomorphism), while the presence of unions at a national level can also motivate the adoption of particular work designs. Decision-makers' opportunity to design higher quality work is also affected by higher-level influences. For instance, in an opportunity-enhancing process, national training systems that encourage the provision of firm specific skills support the design of more enriched jobs; in an opportunity-constraining process, national regulations about task demarcations for professionals limit the work design options for particular groups, as in the example we gave for midwives' work.

There is some evidence that higher-level external influences also shape employees' motivation, KSAs and opportunity, which in turn support better quality work. In terms of motivation and KSAs, we discussed how occupations reinforce the values of those who do the work, in essence motivating employees' to seek particular work design attributes. National culture might operate in a similar way, shaping employees' preferences or motivation for particular work designs, although the evidence here is quite mixed. We also discussed how various national-level influences, such as institutional factors and institutional regimes (e.g., trade unions) appear to shape the individual and collective capability (i.e., power) of employees to obtain enriched work designs.

Overall, though, despite the above, the evidence base for global/international and national factors shaping work design is relatively weak: few studies are global in scope, and most cross-national research is limited to comparisons of European countries due to the availability of appropriate data sets. In terms of occupational influences, there is again little systematic inquiry, with Morgeson and colleagues (2010, p. 357) stating that research on how context affects work design "represents an open playing field" because there has been so little

attention to this topic. In particular, there is relatively little systematic comparison of the relative effects of global, national and occupational factors to help identify 'where the variance' lies. In addition, insights into the mechanisms by which external higher-level influences affect work design are limited by a lack of detailed evidence. For example, understanding would be enhanced by research from neo-institutional perspectives (see Davis, 2010) that offer a detailed examination of isomorphic pressures on work design.

Organizational Influences

In this section we consider how key facets of an organization influence work design, including organizational strategy, high involvement human resource practices, the level of operational uncertainty, technology, and organizational design.

Organizational Strategy

To consider the effects of organizational strategy on work design we draw on strategic human resource management (SHRM) theories that are concerned with the integration of organizational strategy and HR practices, including work design. SHRM theories assert that organizational performance is improved when HR practices are 'correctly' aligned with organizational strategy (Schuler & Jackson, 1987; Wood, Holman & Stride, 2006). From this perspective, a key task for managers is to adopt an internally consistent set of HR practices that best fit the strategic objectives of the firm. For example, organizations with a strategy to gain competitive advantage in the mass market by minimizing costs may seek to achieve this by implementing operations orientated towards the mass production of standardized products or services at the lowest possible cost (Porter, 1985; Schuler & Jackson, 1987). In this strategic and operational context, managers are likely to be motivated to adopt a low-cost 'low-involvement' HR approach that combines Taylorist work designs (which have low training and induction costs and allow low-skill and hence-low paid workers to be employed) with other HR practices such as contingent employment contracts and minimal employment benefits (Lawler, 1986). This can be contrasted with organizations whose strategy is to gain competitive advantage in niche markets through product differentiation (e.g., by quality or

innovation) in which operational processes are orientated towards creating and tailoring specialist products or services (Porter, 1985). Within this context, managers are likely to be more motivated to use 'high-involvement' HR practices that encourage and give employees the opportunity to use their specialist knowledge and skills. Such HR practices include enriched work designs (with high discretion, wide spans of responsibility and challenging tasks), high pay and benefits, extensive training and development practices, and permanent contracts (Boxall, 2003; Karasek & Theorell, 1990; Lawler, 1986). In short, the strategic context shapes managers' motivation to adopt a particular set of HR practices.

Studies show that strategy and HR practices often occur together in a manner consistent with SHRM theory to at least some degree in manufacturing (Arthur, 1992) and service organizations (Batt, 2000; Hunter, 2000)[3]. Most of these studies assess work design as part of a broader bundle of HR practices but their findings appear to be quite similar regardless of which specific work design characteristics are examined. For example, research in call centers has shown that organizations following a 'high-road' strategy (e.g., pursuing a differentiation strategy) tend to have jobs with higher job autonomy than those following with a 'low-road' (e.g., cost minimization) strategy (Wood et al., 2006; Holman et al., 2009). Nevertheless, the level of association between strategy and practice is relatively low, which implies that, in many organizations, strategy and work design are not aligned in the manner expected by SHRM (Batt, 2002; Arthur, 1992). This might be because managers lack the ability to align strategy with work design, because managers have misread the strategic context, or because other factors have a stronger influence on work design in some organizations (Burns & Stalker, 1961). Managers might also have sought to gain advantage

[3] But whether the contingent alignment of HR strategy and practice leads to better performance is contentious, given that the debate surrounding the contingent and universal effects of high-involvement working practices and high-performance work systems (Batt, 2002).

by purposively misaligning strategy and work design. For instance, Batt (2002) found that call centers serving mass markets that used high-involvement work designs outperformed those using low-involvement work designs.

High Involvement HR Practices

Evidence suggests that high-involvement HR practices can have direct effects on work design. For example, flexible working practices (e.g., flexi-time, home working) can directly increase the autonomy that employees have over working time (Gajendran & Harrison, 2007). High-involvement HR practices can also have an indirect effect on work design because they alter how managers design work and change how employees' respond to, or craft, their work tasks. For instance, enhancements to employee skill from training and development activities provide the opportunity for managers to design more complex jobs (Prais et al., 1989); the use of permanent rather than temporary contracts can result in more experienced employees, with managers then being more motivated to trust employees with complex tasks (Eurofound, 2009b; Kompier, Ybema, Janssen, & Taris, 2009); and appropriately designed performance-related pay schemes can motivate employees to take on tasks with greater responsibility (Eurofound, 2009b). As an example of the latter, a quasi-experiment by Wall, Jackson and Davids (1992) demonstrated that changing a performance-related pay scheme to reward machine downtime encouraged operators to take ownership of problems and resulted in enhanced operator control over work tasks. These findings for individual practices are complemented by the results from Castanheira and Chambel's (2010) study which found that a high-involvement approach in Portuguese call centers (including training, performance related pay, and job involvement schemes) was positively associated with job discretion and negatively associated with workload.

However, high-involvement HR practices do not always have a positive effect on work design. Studies have found that permanent employees have higher role overload and longer working hours than temporary employees (Parker, Griffin, Sprigg & Wall, 2002; Eurofound, 2009a); that performance-related pay schemes are associated with high workload (Gallie,

White, Cheng & Tomlinson, 1998); and that flexible working induces greater job demands, as workers' increased effort as a means of 'returning the benefit to the employer' (Kelliher & Anderson, 2010, p83). These findings suggest that, while high-involvement HR practices might enrich work design in terms of enhanced autonomy, they might also increase demands. But any conclusion about the effects of high-involvement HR practices on work design must be treated cautiously given the cross-sectional nature of most of these studies. Further, the effects of HR practices on work design will also depend on other aspects of the organization, such as whether HR practices occur alongside initiatives like lean manufacturing that are designed to intensify effort (Mackay & Boxall, 2008; Eurofound, 2009a).

Operational Uncertainty

A common theme across socio-technical systems theory (Cherns, 1976), SHRM (Youndt et al., 1996), contingency theory (Lawrence & Lorsch, 1967; Slocum & Sims, 1980) and labor process theory (Wood, 1992) is that the level of operational uncertainty faced by an organization (i.e., the lack of predictability in the production process caused by variation in inputs, tasks, outputs and goals) is a key influence on the design of work (Wall, Cordery & Clegg, 2002). Specifically, it is proposed that when operational uncertainty is high, operational efficiency and control over the labor process can be maximized by using enriched job designs (e.g., high job discretion, task variety) as this allows suitably trained employees to cope better with variable or unexpected demands. In contrast, when operational uncertainty is low, it is argued that operational efficiency and managerial control are achieved best by standardizing production processes, thereby limiting job discretion and task variety.

As such, organizations with high operational uncertainty should have more enriched jobs than organizations with low operational uncertainty, either because managers have explicitly chosen an appropriate match between operational context and job design (i.e., an effect via formal organizing decisions) or because an appropriate match has evolved over time as a result of trial and error (an effect via informal, emergent processes). Brass (1985, p. 238) showed that uncertainty was strongly related to the presence of enriched work characteristics

such as job autonomy and skill variety, which he argued reflected the idea that, rather than a motivational function, work design "can be viewed as providing the information and flexibility for adapting to technological uncertainties". Further evidence in support of these proposals comes from studies demonstrating a positive association between operational uncertainty and high job discretion at the employee level (Gresov, Drazin & Van de Ven, 1989), the team level (Cordery, Morrison, Wright & Wall, 2010) and the organizational level (Chowdhury & Miles, 2006; Holman, et al., 2009).

Technology

Technology can be defined as "the techniques used by an organization or its subunits to transform inputs into outputs" (Billings, Klimoski & Breaugh, 1977, p. 319). The powerful constraining or enabling influence of technology on work design has long been theorized about in sociotechnical systems theory (Trist & Bamforth, 1951) and an extensive stream of research has considered how work design is affected by the introduction of new technologies.

There are many examples of technology having a negative impact work design (Knights & Willmott, 1988). Indeed, some have argued that technology such as lean production is designed to reduce operating uncertainties (Niepce & Molleman, 1998) and thereby to ensure maximum output, increasing the workload of employees, while limiting their opportunities to control the work process. In support of this reasoning, in a quasi-experiment, Parker (2003) showed that the introduction of lean production in a UK automobile factory reduced employees' opportunities for skill utilization and autonomy, which in turn decreased employee commitment while increasing stress. Other studies similarly report negative effects for work design of lean production (Delbridge, 2005) and ICT-innovations such as enterprise resource planning systems (Bala & Venkatesh, 2013). These studies imply a direct negative effect of technology on work design.

However, there are also examples of positive work design effects of new technology. For example, advanced manufacturing technologies such as computer-aided design can increase job variety, autonomy and interdependence, and improve work design (Wall, Corbett, Clegg,

Paul, & Martin, 1991). Ultimately, therefore, it is rarely the technology per se that determines the nature of work design within organizations (Liker, Haddad & Karlin, 1999; Wood, 1982). Rather, evidence from diverse academic disciplines provides compelling evidence that the effects of new technology on work design depend on the choices made by managers and other stakeholders during its design and implementation (Buchanan & Boddy, 1983; Frenkel, Korczynski, Shire, & Tam, 1999; Kemp & Clegg, 1987; Slocum & Sims, 1980), which in turn often reflect other aspects of the context, including operational uncertainty. For example, case studies show that, when managers perceive operational uncertainty to be low, technology is often implemented in a way that standardizes tasks, deskills work and reduces job discretion, (Wood, 1982; cf. Kemp & Clegg, 1987).

Another important contextual influence on the work design choices made during the introduction of new technology is employee skill levels. For instance, when information and communications technologies (ICTs) are introduced into high-skilled jobs, managers tend to implement more flexible methods of working based on the assumption that these forms of work design enable high-skilled employees to use ICTs more effectively (Bresnahan, Brynjolfsson & Hitt, 2002; Milgrom & Roberts, 1990). In contrast, when ICTs are introduced into low-skill jobs, managers often simplify tasks and lower discretion in the belief that this will increase the effectiveness of ICTs (Knights, Willmott & Collinson, 1985). These findings suggest that the effect of technology on work design is shaped by managerial beliefs about how to organize work for high and low-skill jobs and illuminate the important relationship between ICTs, employee skill and work design; a relationship that is also explored in the economic and sociological literature on skill-biased technical change, which we discuss next.

Theories of skill-biased technical change (SBTC) assert that the introduction of ICT results in more favorable outcomes in high-skill jobs than low-skill jobs (Autor, Levy & Murnane, 2003; Milgrom & Roberts, 1990). Arguably this occurs because ICTs increase demand in the labor market for workers with high-level skills, making it harder for

organizations to recruit and retain high-skilled workers. In response, managers are motivated to improve the wages, working conditions, and the work designs of high-skill workers relative to that of low-skilled workers (Goos, Manning, & Salomons, 2009; Violante, 2008). The greater labor market demand for high skill workers should also increase their capacity to secure better working conditions (Jermier, Knights and Nord, 1994). Evidence to support these ideas, while limited in extent, comes from national and cross-national studies showing that job autonomy and task complexity are not only higher in jobs using ICT, but are also at a higher level in high-skill jobs using ICT than in low-skill jobs using ICT (Eurofound, 2013, 2015; Green, 2009).

Nevertheless, the introduction of ICT does not always appear to improve work design in high-skill jobs, as some case studies show that the introduction of ICTs can result in negative changes to work design in high-skill jobs (Gough, Ballardie & Brewer, 2014; Leverment, Ackers & Preston, 1998). Furthermore, it has been argued that the skill-biased effects of ICT on work design might not be due to changes in labor market demand as predicted by SBTC. Rather, changes in work design might occur because the introduction of ICTs into high-skill jobs is often accompanied by practices that increase discretion and variety such as self-managing teams, delayering and the decentralization of responsibility (Bresnahan, et al., 2002; Piva et al., 2005).

A recent development that emerged from debates about skill-biased technical change (SBTC) is the routine-biased technical change (RBTC) perspective (Autor, et al., 2003). Specifically, this perspective asserts that the effects of ICT on work and employment conditions depend on the extent to which the job task mainly involves routine or non-routine tasks, and cognitive or manual tasks. In particular, it is argued that ICT compliments non-routine cognitive tasks (e.g., problem-solving) that are typically performed in managerial and professional clerical roles. This has increased the demand for workers in these 'non-routine clerical' roles, leading managers and employees to seek better forms of work design in the manner described above. In contrast, ICT substitutes for the routine cognitive tasks (e.g.,

record keeping) generally performed in clerical roles such as clerks, which may cause job losses and a reduction in demand for workers in these 'non-routine clerical' roles. In turn, this lowers the capacity of employees in non-routine clerical roles to resist deleterious changes to work conditions that have been commonly implemented in these jobs (Bamber & Landsbury, 1989; Doellgast & Greer, 2006; Kalleberg, 2011). For manual jobs, the limited capacity of ICT to substitute or compliment manual tasks (whether routine or non-routine) means that ICT is unlikely to have a significant effect on work design in manual roles. Thus, according to RBTC, the introduction of ICT should result in the quality of work design diverging between routine and non-routine clerical jobs, but have little impact on work design in manual jobs. Cross-national longitudinal studies of work design in Europe provide tentative support for RBTC, with the pattern of change in job discretion and task complexity is more similar to that predicted by a RBTC perspective than a SBTC perspective (Eurofound, 2015; Lopes, Lagoa & Calapez, 2014). These findings suggest that the impact of ICTs on work design depend largely on whether the ICTs compliment or substitute the task performed in the job, and the subsequent effect that this has on managerial motives, as well as the individual and collective power of employees.

Organizational Design

The idea of bureaucracy is central to our understanding of organizational design and is at the heart of many organizational typologies, such as Burns and Stalker's (1961) classic distinction between organic and mechanistic organizational forms. Moreover, the very nature of bureaucracy is thought to have a direct negative effect on work design because its core attributes - work formalization, specialization and hierarchy – imply low job discretion, variety and task complexity and limited opportunity for skill utilization and development (Adler & Borys, 1996; Morgeson, et al. 2010). Much evidence supports the idea that aspects of bureaucracy such as centralization and formalization are negatively related to work characteristics like job autonomy, variety, and task significance (Oldham & Hackman, 1981; Pierce, Dunham and Blackburn, 1979; Rousseau, 1978; Sutton & Rousseau 1979).

Yet bureaucracy might not have universally negative effects on work design. More positive assessments of bureaucracy focus on its potential to reduce and thereby limit the negative effects of role ambiguity and role conflict. For instance, a study of professional workers by Organ and Greene (1981) found that formalization reduced role ambiguity and role conflict, and thereby lowered feelings of alienation. Juillerat (2010) also argued that formalization (written rules, procedures, and instructions) should not equate to low job autonomy or simplified work tasks, nor does it necessarily mean a lack of capacity to respond adaptively to uncertainty. This author argued that formalization can support, and indeed enable, enriched work: organizations can use formal procedures to co-ordinate complex, interdependent, and challenging roles (Nemeth, O'Connor, Klock, & Cook, 2006). A good example of this was reported by Briscoe (2007), who found that formalization facilitated the coordination of work by primary care physicians (specifically, the ability to pass on cases to others) and, while this limited task discretion to a certain extent, an important benefit was to increase the ability to control the timing of work tasks.

A further stream of relevant research concerns the effects of restructuring an organization on work design. Downsizing, one of the most common forms of restructuring, aims to increase profit by realizing the same output with fewer staff (Knudsen, Johnson, Martin, & Roman, 2003). As such, downsizing might not only lead to increased effort and workload and have generally negative effects of employee well-being (Quinlan & Bohle, 2011), longitudinal studies also show it heightens other job demands including physical hazards and perceptions of insecurity, as well as increased emotional demands, which may occur because customers are served with less care (Boyd, Tuckey, & Winefield, 2014; Ferrie, Westerlund, Oxenstierna, & Theorell, 2007). Downsizing can also decrease employee job resources: over time survivors have been shown to experience lower job discretion and fewer opportunities for skill utilization (Ferrie et al., 2007; Knudsen et al., 2003). But decreases in job resources during downsizing are not inevitable and can be improved during through carefully planned work design decisions of managers and employees, which in turn can mitigate the negative

effects of increased demands. For example, Parker, Chmiel and Wall (1997) showed that a 40% downsizing over a four year period did not result in any increase in job strain, and indeed was associated with some improvement in well-being, which the authors attributed to a work enrichment intervention (involving increased job autonomy and variety) implemented in the same period.

Summary and Synthesis of Organizational Influences

When compared to the evidence for higher-level external influences, the quality of research evidence for the effects of organizational factors on work design appears reasonably strong, particularly for the effects of strategy, operational uncertainty, technology, and organization design.

Organizational factors can have a direct effect on work design, such as when the removal of wasted time in lean production technologies reduces' employee job autonomy, when flexi-time directly enhances autonomy over working hours, or when excessive formalization limits employee discretion. Nevertheless, as was the case with external influences, the effect of organizational factors is strongly shaped by managerial decision-making about work organization, with these decisions often reflecting consideration of multiple organizational factors. For example, in regards to motivation, within the context of high-skilled jobs, managers are likely to want to implement more flexible methods of working when ICTs are introduced because such work designs enable ICTs to be used more effectively. In a similar vein, operational uncertainty can enhance managers' motivation to design enriched work because this appears to be the most effective way to manage unpredictable demands; whereas a strategy of cost minimization to meet the needs of a mass market can motivate managers to opt for low-involvement HR approaches with simplified work designs. Organizational factors also shape managers' opportunities to design and implement particular work designs. For instance, HR practices involving high-levels of training and development enable managers to design more complex jobs; and operational uncertainty enhances managers' opportunity to design enriched work, because uncertainty means there are more decisions for employees to have autonomy over.

As well as organizational factors shaping managers' decision-making about work organization, organizational factors have their effects through shaping employees' KSAs, motivation and opportunities for achieving better work design. For instance, a more dynamic and unpredictable operating context appears to strengthen employees' motivation for autonomy because such work designs allow employees to manage stressful demands more effectively (Parker & Sprigg, 1999), as well as their opportunity for greater work autonomy because such environments are harder for managers' to control through standardized procedures and close supervision. In addition, the introduction of technology might attenuate or mitigate the power of employees to achieve better work designs.

Nevertheless, although the evidence base is reasonably strong, most of the research in this field focuses on the organizational-level only, which means there is a lack of systematic evidence for the relative effects of organizational factors compared to higher-level external influences (c.f. Holman et al., 2009). There is also little evidence for the relative effects of particular organizational factors, such as whether the strategic and operation context have a stronger effects on work design than the implementation of technology. Exactly how different factors align with each other, or operate in tension to each other, also needs more attention (a point we return to later). Finally, as with higher-level external factors, existing research tends to infer, rather than assess, the exact mechanisms by which organizational factors shape work design.

Local Context Influences (The Work Group)

Local units of work organization that exist below the level of 'organization' include work units, departments, groups, or teams. Even though these local units are sometimes nested within one another, representing different levels of analysis, for simplicity, we consider these factors under the one rubric of "work group influences".

A work group is a social system that is seen as an entity by its members, has some degree of interdependence of group member tasks, has some differentiation of roles and tasks within the group, and shares collective responsibility for group-level outputs (McGrath,

1984). In this section, we discuss how work group factors can shape individual work design. Drawing on sociotechnical theory and the literature on work group effectiveness (e.g., Campion, Medsker, & Higgs, 1993; Cohen & Bailey, 1997; Mathieu, Maynard, Rapp, & Gilson, 2008), we identify work group composition, work group interdependence, work group autonomy and work group leadership as four key influences on individual work design.

Work Group Composition

Factors relating to work group composition such as group heterogeneity can have a direct influence on individual work design. Heterogeneity in teams creates a richer pool of knowledge, skills, and abilities for a team to draw on. Team heterogeneity means teams can complete more diverse sets of tasks, and thus ultimately can improve work design for individuals directly by enriching skill variety. However, the effects of team heterogeneity are not always positive and depend on the choices made by managers when designing work. For example, if managers decide to create a situation of multi-functionality in which diverse team members are each able to complete others' work, this design can lead to work intensification and overload, with an added risk of task simplification and skill dilution for the most skilled employees (Bacon et al., 2010; van den Beukel and Molleman, 2002).

Negative effects of team heterogeneity on work design also occur because team differences in values, personalities or perspectives can increase conflict and distrust amongst employees (Srikanth, Harvey, & Peterson, 2016); which in turn motivates them to create and craft particular work designs. For instance, using student samples, Langfred (2007, p. 888) showed that teams reporting high levels of conflict and distrust also reported lower autonomy and task interdependence, which the author argued occurred because distrust lowers employees' willingness to "expose themselves to the risk of relying on others by agreeing to greater individual autonomy". Similarly, changes in team membership can be a 'jolt' to team co-ordination which then requires efforts to reinstall trust (Summers, Humphrey, & Ferris, 2012). Nevertheless a heterogeneous work composition does not inevitably lead to negative outcomes, as research shows that employees can take steps to mitigate such negative effects,

although whether this extends to work design outcomes has yet to be established (Srikanth et al., 2016).

Work Group Interdependence

Work group interdependence refers to the degree to which group members need to interact and coordinate to complete team tasks (Guzzo & Shea, 1992). A high level of interdependence can impact on individual work design directly by increasing individual responsibility (Van Der Vegt, Emans, & Van De Vliert, 1998) and by providing opportunities for social interaction and support (Cleavenger & Munyon, 2015). But there can also be downsides of high team interdependence: the need for tighter co-ordination with others can act as a constraining force that reduces employees' opportunity for individual job autonomy (Langfred, 2007).

Work group interdependence also shapes social processes, which can potentially influence employees' motivation and behavior. Social exchange theory suggests that the positive social exchanges which can occur in interdependent teams should motivate employees to reciprocate with organizational citizenship behaviors that include taking on new tasks and helping others (Cropanzano & Mitchell, 2005), which can result in increased task variety and challenge (Chen & Chiu, 2009). Longitudinal research has yet to establish these relationships. On the other hand, working in an interdependent team can also lead to social loafing such that group members who feel little responsibility for the group task contribute less than what they could do. As such, employees who engage in social loafing create lower job demands for themselves, but higher demands for others (Liden, Wayne, Jaworski, & Bennett, 2004). Team interdependence can also create conflict that motivates employees to reduce autonomy (Langfred, 2007). Work group interdependence can thus have direct effects and indirect effects on work design by affecting employee motivation and opportunity. Whether these effects are positive or negative, however, depends on how the different factors interact.

Work Group Autonomy

Group-level autonomy has been a core focus of the work design literature, with a vast amount of research having investigating the effects of autonomous or self-managing teams (see earlier discussion about mainstream work design). Self-managing work teams have the freedom to make decisions about the division of labor, which has a direct impact on individual work design. Several studies, including some with a longitudinal research design, have documented that the introduction of self-managing teams leads to greater job enrichment (e.g., job discretion, variety) amongst individual team members (e.g., Axtell, Holman, & Wall, 2006). Adopting a multi-level perspective, Van Mierlo and colleagues showed that higher levels of team autonomy of health care teams spilled over to higher job discretion and lower job demands for individual team members (Van Mierlo, Rutte, Vermunt, Kompier, & Doorewaard, 2007). However, work group autonomy might not have solely beneficial effects: in a sample of 292 teams, Cruz and Pil (2011) found team autonomy to be positively related to individual job demands.

Work group autonomy also shapes social processes within the group, which in turn shapes team members' motivation and opportunities to create particular work designs. For example, work group autonomy (probably coupled with other factors) can result in teams developing strong group norms that then constitute a cultural form of control. Notably, in an ethnographic study, Barker (1993) reported that, in self-managing teams with a strong vision, workers imposed standards on themselves in an increasingly rigid way, in essence reducing individual team member job autonomy.

On the other hand, work group autonomy potentially provides greater opportunity for individual or team crafting, or other forms of agentic action. For instance, Williams, Parker & Turner (2010) showed that team autonomy promotes team proactivity. Teams may craft their tasks (e.g., taking on additional projects) or the social boundaries of their job (e.g., introducing new collaborations) without their supervisor intervening in the process. Through crafting, teams have been shown to be able to increase team control and team interdependence (Leana, Appelbaum, & Shevchuk, 2009; Mcclelland, Leach, Clegg, & Mcgowan, 2014),

demonstrating that employees can shape their work designs via emergent processes. Currently, however, there is little or no research linking team autonomy to individual job crafting and work design.

Work Group Leadership

A team leader or manager might affect individual work design directly through decision-making about the division of labor and task coordination and indirectly by shaping employee motivation, KSAs and opportunities. As an example, team leaders might directly provide social support, or lower individual autonomy by retaining control for themselves, (Berkhout, Boumans, Nijhuis, Van Breukelen, & Huijer Abu-saad, 2003). Likewise, employees rating their leaders as transformational report more goal and role clarity and more variety and autonomy, presumably because transformational leaders are better able to provide a clear vision and create challenging work tasks (Korek, Felfe, & Zaepernick-Rothe, 2010; Nielsen, Randall, Yarker, & Brenner, 2008; Piccolo & Colquitt, 2006). Similar positive effects on work design have been reported for authentic and ethical leadership (e.g., Read & Laschinger, 2015), while other studies show that abusive leadership inhibits employees' expression of social support (Hauge, Skogstand & Einarsen, 2007) and that a laissez-faire leadership approach results in higher role ambiguity (Skogstad, Hetland, Glasø, & Einarsen, 2014).

Alternative perspectives on the above finding suggest that leadership might have its effects because considerate and sociable leaders welcome the negotiation of i-deals (Liao et al., 2016), or –as argued by the social information processing theory (Salancik & Pfeffer, 1978) - perhaps leaders do not change the objective work design of employees, but only the way employees perceive their jobs. For instance, leaders might increase perceptions of meaning in the job by providing a compelling vision (Bass, 1985; Arnold, Turner, Barling, Kelloway, & McKee, 2007). Nevertheless, the associations between leadership styles and work design are unlikely to be solely perceptual as leadership has also been related to objective measures of work design characteristics (Piccolo et al., 2010; Tuckey, Bakker, & Dollard, 2012).

Summary and Synthesis of Work Group Influences

In terms of the robustness of findings, evidence appears to be strongest for a positive effect of work group autonomy and leadership on individual work design. Research directly examining the role of work group interdependence on individual work design is scarce and is mostly based on laboratory studies with student groups. Research on how work group composition shapes individual work design is also quite scant, despite a vast literature on work group diversity and work group performance (e.g., Mathieu, Tannenbaum, Donsbach, & Alliger, 2013).

To the extent that evidence exists, studies suggest that work group factors affect individual work designs both directly (e.g., team autonomy increases individual members' job autonomy) and indirectly, particularly by influencing the work design actions of team members themselves. These effects can be positive or negative, depending on the particular combination of factors. For example, team interdependence can cultivate positive social relations, and hence better work designs, or can result in negative social relations such as conflict that, in turn, result in team members allowing each other less job autonomy. There are few, if any, studies that examine how work group factors affect managerial choices about work design.

Overall, despite the longstanding idea that the social context can impact on individual work design, theoretical and empirical work on how, when and why is quite limited. There are a handful of qualitative studies and laboratory-based studies; several studies conducted at the individual level; and a small (but hopefully growing) number of multi-level studies that systematically assess how work group factors affect individuals' work design. Studies as to whether and how work group factors affect managerial decision making about work design are also lacking.

Individual Influences

In this section, we review how individual factors – such as demographics, competencies, knowledge, skills, personality, and motivation - shape individual work design, particularly through influencing employees' negotiation of i-deals and job crafting, but also sometimes by influencing formal decision makers.

Demographics

Background characteristics such as age, gender, and ethnicity can shape work design. According to the Circular and Dynamic Model of Work Design' (Clegg & Spencer, 2007) this can occur because employee attributes have a strong signaling function to managers. The more these attributes trigger assumptions that the employee is competent and can be trusted, the more managers will be motivated to delegate tasks and make other role adjustments to improve work design. Consistent with this theorizing, evidence suggests that when managers hold the stereotype that a worker's value depreciates with age (depreciation beliefs) (Yeatts, Folts, & Knapp, 1999) they are more inclined to allocate tasks on the basis of employee age (Rosen & Jerdee, 1976) or to restrict opportunities for training on the basis of age, which then affects access to new work tasks (Finkelstein & Truxillo, 2013; Kooij, Jansen, Dikkers, & Lange, 2010).

Alternatively, employee demographic characteristics might affect the work-design actions of employees themselves. With regard to age, there is some evidence that older workers are less likely to negotiate i-deals, and receive the benefits that accrue (e.g., task-related i-deals that result in greater autonomy and job complexity) because they may feel discouraged by discriminatory attitudes within the workplace, reducing their confidence to renegotiate their work designs (Hornung, Rousseau, Glaser, 2008; Rousseau, 2001).

A negative relationship between age and employees' agentic behavior is, however, not always supported (Hornung et al., 2008; Parker et al., 2001), nor is the assumption that older employees equivocally have jobs of lower intrinsic quality: older employees have also been found to report higher quality work design in terms of more job control and less job demands, role conflict or role ambiguity (Ng & Feldman, 2010). Following the Selection Optimization Compensation Theory, such results might arise because older workers develop the KSA's or motivation to increasingly seek and select, high quality jobs such that over time they move into positions with higher authority (Schneider, 1987). High quality work design amongst older workers might also simply be due to a 'survivor effect' in which older workers with good job designs are able to stay in employment, whereas older workers with poor job

designs cannot continue and drop out of the labor market. More – and longitudinal – research on the role of age in work design is thus warranted.

Gender and ethnicity can equally make some employees more vulnerable on the labor market, which then in turn is reflected in lower quality work design. Data from the European Working Conditions Survey, for example, showed that female workers have less autonomy, fewer opportunities for learning, and reduced career possibilities, even in more egalitarian countries (Crespo, Simoes, & Pinto, 2013), and similar results have been found when comparing men and women within organizations (Dubbelt, Rispens, & Demerouti, 2016). People from a migrant background are more likely to work in jobs of poor quality measured via more objective measures in terms of income and hours worked (Johnston, Khattab, & Manley, 2014). Evidence suggests that migrant workers also have less enriched jobs in terms of possibilities for development and low job control, while experiencing more job demands (Ortega, Gomes Carneiro, & Flyvholm, 2010; Rugulies, Scherzer, & Krause, 2008).

One explanation for these effects is that factors such as gender and race trigger discrimination within internal and external labor markets, which restricts these employees' access to secure jobs with better work designs (Heslin, Bell, & Fletcher, 2012; LaMontagne, Krnjacki, Kavanagh & Bentley, 2013). Discrimination by formal decision-makers then can continue once an individual is within a job. For instance, DePater et al. (2009) showed that men are more likely to being allocated challenging tasks than women. Such biased task allocations can, in turn, affect perceptions of employees' competence, further perpetuating inequality in work design (Clegg & Spencer, 2007; Humphrey & Berthiaume, 1993). Stigmatization and marginalization can also lead disadvantaged groups to identify with their stigmatized identity, which interferes with personal resources such as self-efficacy (Heslin et al., 2012), which are crucial for negotiating i-deals to improve work design or craft one's job.

Competence and Learning

Employee competencies and learning can foster high quality work design. Karasek and Theorell (1990) proposed a dynamic spiral in which enriched work promotes learning,

thereby building employee mastery and self-confidence that, in turn, enables employees to take on more challenging tasks, greater responsibility, and to utilize a wider range of skills, which generates further learning, in a positive dynamic. Feelings of competence can also give employees greater confidence in their ability to craft their job, which is supported by Tims, Bakker and Derks' (2014) finding that feelings of competence foster employees' crafting of job resources such as variety and opportunities for development. Employee competencies also spur managers to enrich the job holder's work design (Clegg & Spencer, 2007). For example, managers delegate work to more competent employees because they trust the person to perform the task effectively (Bauer & Green, 1996; Leana, 1987). But despite this theorizing and initial research on the link between competence and job crafting, the role of learning in facilitating the selection, perception and enactment of work design by employees remains poorly understood. This lack of attention reflects a general lack of research on learning and cognition in the work design literature (Parker, in press).

Personality and other individual differences

Personality and relatively stable individual differences (such as motivation and personal initiative) can affect employee work design through their influence on managerial decision-making. In particular, personality characteristics might affect who managers select for particular types of job, thereby enabling or restricting work designs for particular types of employee (Hough & Oswald, 2000).

But personality and other traits likely shape work design, mostly through their influence on employee decision-making. First, personality and motivation may shape an employee's choice of occupation and job because individuals' seek work that fits their personality and which allows their preferred goals to be achieved (McKay & Tokar, 2012). For example, based on the Theory of Purposeful Work Behavior, Barrick, Mount and Li (2013) proposed that employees with higher openness prefer jobs with higher job autonomy and task variety because these work characteristics help them to achieve the personal growth for which they strive. Support for this view comes from Bipp (2010) who showed that employees who are

open to new experiences report more meaningful jobs and greater autonomy. Second, personality means employees are more likely to express particular behaviors at work (which can be reinforced by the occupational context) that over time alter work design characteristics (Dierdorff & Morgeson, 2013). For example, a multi-wave longitudinal study by Frese, Garst and Fay (2007) showed that personal initiative led to higher levels of job control and job complexity, while another study by Bakker, Tims & Derks (2012) found that employees with a proactive personality are more likely to craft their jobs. Third, motivation might shape employee choices on whether and how to adapt work designs. According to job crafting theory, three fundamental needs (a desire for control, relatedness and competence) drive employees' attempts to change their work design so, for example, employees with a high need for control should be motivated to craft greater job autonomy (Wrzesniewski & Dutton, 2001). While it is known that the motivation to obtain different types of work characteristics varies between employees (e.g., by age, Kooij, de Lange, Jansen, Kanfer & Dikkers, 2011), it is not known whether these differences lead to variation in work design. Indeed, despite there being sound theoretical grounds for many of the arguments above, there is little research has directly examined the impact of the personality and other traits on work design.

Summary and Synthesis of Individual Influences

Evidence for the direct effects of individual characteristics such as personality, competence and demographics on work design seems to be limited. To the extent that evidence exists, most individual factors appear to influence work design through their effects on the motivation and KSAs of decision makers such as managers, or through the motivation and KSAs of employees' themselves. For example, managers will feel more motivated to assign challenging tasks and high job autonomy to competent individuals because they trust these employees will be able to perform well in such jobs and because they want to retain these high valued employees. Personal characteristics that signal highly valued competences (e.g. being male, young and native) appear to elicit similar processes, while others (e.g., being female, older or non-native) do not, presumably because they trigger stereotyped images of such employees being less competent.

Stable personality traits, as well as feelings of competence, might similarly motivate employees to seek out particular jobs, encourage the expression of behaviors that alter work characteristics, and motivate the crafting of work characteristics. Female, older and non-native employees, in contrast, might be affected by the stereotypes in the workplace or stereotype themselves such that they feel to lack the skills, ability and motivation to negotiate i-deals or craft their own work design.

In sum, whilst to date there is well-developed literature on the role of personal characteristics in regard to job selection (e.g., Hough & Oswald, 2000), we know far less about how individual characteristics affect managerial or employee work design decisions. Although models have been proposed, empirical studies lag behind. Research on agentic employee-led processes such as the negotiation of i-deals or job crafting is in its infancy: there is only a handful of studies that provide evidence that – through job crafting or i-deals – employees improve the quality of their work design. The latter studies pertain mostly to increasing job resources (or motivational work characteristics); to date, there is no evidence that employees can noticeably reduce their level of job demands through crafting.

Implications and Directions for Further Research

In this article, we have drawn together theory and research on work design from disparate areas, including management, human resources, organizational behavior, psychology, sociology, industrial relations, and economics. It is rare that such a diverse array of theoretical perspectives is considered within a single article (and it means we have had to be fairly cursory in regards to any single perspective). But we believe this comprehensive approach is necessary for unpacking the multilevel forces that shape work design. In this last section of the paper, we identify the key themes and theoretical implications stemming from our review, practical implications and research directions for the future.

Key Themes and Theoretical Implications

In the introduction, we raised a set of questions about the influences on work design. Our opening question was *"what causes variation in work design?"*. The evidence is perhaps most clear and

consistent for each of the organizational factors (strategy, HR practices, operational context, technology, organizational design, and organizational restructuring) and some of the work group factors (notably work group leadership and work group autonomy); perhaps reflecting the proximity of these factors to local work design. For higher-level external factors, there is a moderate degree of evidence regarding the national-level influences of institutions and institutional regimes (e.g., trade union power), some indicative evidence for the role of the national economy (GDP, unemployment levels) and occupational factors, but rather weak evidence for the role of national culture and global/ international factors. In regard to the effect on work design of individual factors such as age and personality, these have mostly been examined as moderators of the link between work design and outcomes such that studies considering individual factors as causes of, or influences on, work design remain relatively scarce.

The second question we raised was: *"Does work design mostly result from top down contextual influences, or can employees and managers affect work design?"* Our review shows that contextual factors do indeed have direct top down effects, such as when globalization changes individuals' perceptions of job security. But overall, the evidence is much stronger that work design is created and sustained through formal decision-making processes engaged in by those in authority positions such as executives, managers, team leaders, and by informal, emergent, and social processes initiated by employees. We discuss each process in turn.

In regard to the sub-question "*can managers affect work design*?," we proposed at the outset that managers at varying levels in the organization have a key role in making decisions about the division of labor and the co-ordination of effort, and therefore work design. For example, senior managers interpret the environment in distinct ways and choose different organizational strategies that, in turn, cascade down to create varying forms of work design. Consistent with this reasoning, our review showed that higher-level contextual factors in particular (more so than local context or individual factors) often affect work design by shaping the KSAs, motivation and opportunities of managers and others in formal decision-making positions. For example, earlier we discussed how a tight labor market can motivate managers to design "good" work so as to attract and retain

talented employees, yet we also noted that managers sometimes make different decisions depending on other forces in the context and their own KSAs or preferences. Likewise, we discussed how senior managers are less motivated to design high-involvement work practices in strategic contexts focused on cost and efficiency, but we also noted that managers sometimes intentionally make contrary design decisions.

Even when all of the influences appear to line up to pretty much guarantee a particular work design, managers can make different work design choices. An excellent case in point is Hamel's (2011) description of Morning Star, a tomato processing company that has had a high involvement approach for over twenty years, despite the context (a cost-minimization strategic focus, low-skilled occupations, etc.) being one that would strongly imply a low involvement strategy. As noted by Hamel, Morning Star is a "positive deviant" with "ridiculously empowered" employees. Likewise, focusing on the automobile industry, depending on the choices made by top level management about the operating strategy, some car manufacturing employees have deskilled Taylorist work designs, whilst others create motivating and autonomous teams designed according to sociotechnical systems theory (Clegg, 1984; Niepce & Molleman, 1998). The same important role for managers applies to the effects of technology. As Koukoulaki (2014, p. 198), reported "theories about the effects of lean production have evolved from a conceptualization that it is an inherently harmful management system, to a view that it can have mixed effects depending on the management style of the organization and the specific way it is implemented". Managers' decision-making about work design can also be shaped by group-level and individual-level influences (as in the example showing that older employees might or might not achieve high quality work depending on whether their managers' have depreciation motivations), although these lower-level factors tend to have stronger effects on employee processes than on managers' decision-making.

This brings us to the next question in which we asked whether "*employees can shape work design*". Our review shows they undoubtedly do, both as individuals and more collectively in work teams. Employee-led processes mediate the effects of higher-level context influences

such as the national economy (especially by affecting employees' power to achieve better work designs), but appear to be especially relevant in mediating the effects of the work group and individual-level variables. Examples of the latter include that work group interdependence may result in social loafing, causing higher job demands for some team members; and that an individual's proactive personality can motivates employees to craft job autonomy. Nevertheless, exactly how far employees can go in shaping their own work designs has yet to be ascertained. As discussed, employee-led work design processes appear to be especially applicable to job resources such as job autonomy, which have been characterized as 'alterables' that are easier to change (Hakanen et al., 2006; Tims, et al., 2013), but less applicable to the demanding aspects of work design that derive from higher-level pressures (Rhoades & Eisenberger, 2002), which have been labeled as 'givens' (Cooley & Yovanoff, 1996). Thus, encouraging bottom up forms of work redesign to enhance the quality of work, such as by training individuals in job crafting (Grant & Parker, 2009) and encouraging the negotiation of i-deals (Liao et al., 2016) might have positive effects; but these effects might nevertheless be limited to some work characteristics and indeed some contexts.

The final question raised in the introduction - *how do formal and informal work design processes relate to one another?* - concerns the relationship between formal, manager-led processes and informal, employee-led processes in shaping work design. One possibility is that these processes can substitute for one another. For example, perhaps crafting is most important for improving work design when positive formal work organization solutions are lacking? This perspective implies that attention to the role of employees in shaping work design might make most sense when macro influences such as national employment policies, technologies, or other aspects of the higher-level context strongly engender managers to design poor quality work. For example, the negotiation of i-deals has been proposed as an substitute to achieve high quality work now that the impact of unions is declining.

Nevertheless, as speculated by others (e.g., Parker, 2015; Hornung, Rousseau, Glaser, Angerer, & Weigl, 2010), there is some evidence that it is when the formal decision-making processes of managers align with the informal employee-led processes that the highest quality work designs are achieved. Such an alignment would mean that enriched work design is structurally embedded into work systems and practices, thereby maximizing the opportunity for employees to actively alter their work designs to best suit their personal abilities and preferences. Some evidence indirectly supports the value of an alignment of formal and informal processes. For example, job crafting is enhanced when employees are already highly engaged or already have job discretion and a reasonable workload (Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012). However, the question of how managerial and employee influences interact has rarely been directly considered. We suspect that, although the evidence is currently too thin to be conclusive in this respect, just like the sociotechnical systems theory principle that social and technical elements should be jointly optimized, the simultaneous implementation of management-led, formal work design and employee-led, informal work design will maximize the possibilities for good work design.

Implications for Practice

There are at least three important practical implications of understanding the causal influences on work design: (1) this knowledge can help to foster the more widespread design of high quality work; (2) it can help scholars and practitioners to understand the effects of contemporary technological, economic, and social change on work design; and (3) it can enhance the successful implementation of work redesign.

Turning to the first point, a survey in the 1950s showed that simplified work designs were the most prevalent form (Davis, Canter, Hoffmann, 1955). Since then, there has been a growth of jobs typically associated with challenging tasks and job discretion (e.g., professional roles, IT specialists), a decline in agricultural work, the loss of low-skill administrative and manufacturing jobs, and an increase in practices such as team working

(Autor, et al., 2003). From this, it might be surmised that the quality of work design has improved over the last forty to fifty years, at least in developed economies.

And yet, whilst there is evidence of some improvement in some jobs, it is far from universal. As well as the above trends, there has been a significant expansion in developed economies of low-skill service jobs, such as jobs in retail, personal services, and call centers (Holman, 2005). In developing countries there has been an increase in low-skill manufacturing and service jobs, partly fueled by outsourcing from developed economies (Levy, 2005). The net effect is that poor work design continues to be prevalent even when new jobs are introduced (Davis, 2010; Dollard, Skinner, Tuckey, & Bailey, 2007; Kalleberg, 2011;Osterman & Shulman, 2011). In Europe, Lorenz and Valeyre (2005) reported that 33% of workers had jobs with poor quality work designs, characterized by low discretion and task complexity, sometimes combined with high timing constraints; 28% have work design of moderate quality that combined teamwork, repetitive tasks with moderate job discretion, and 39% of workers had a high quality 'learning' work design with high job discretion and task complexity. Analyses of large-scale data sets from the US (Vidal, 2013), Australia and Asian countries (Kawakami, Park, Dollard & Dai, 2014) similarly conclude that poor quality work designs are relatively common. In addition, across the US and many large European economies over the past twenty to thirty years, work load and physical load has intensified, while cognitive demands and job discretion have declined (Eurofound, 2015; Green & McIntosh, 2001; Kalleberg, 2011; Wegman, Hoffman, Carter, Twenge, & Guenole, in press).

Altogether, therefore, the evidence shows that poor quality work designs continue to be prevalent. Our analysis suggests the challenges will be even greater in some contexts, such as developing countries where the higher-level context for high quality job design (e.g. labour legislation, strong trade unions, low GDP, high unemployment) is often lacking, and at the same time, from the bottom up employee perspective, many employees will be most concerned with having a job solely to sustain themselves and their family financially. In such

contexts, it will be no straightforward issue to redesign work to be more motivating and less demanding. Indeed, Osterman and Shulman (2011) argued that achieving good work design requires a multi-pronged approach, including effective public policy, to mitigate against the strong forces that currently drive 'low road' approaches to work organization. These authors reported a case study of the design of new weatherization jobs in the USA. A managerial desire to create high quality work operated in a situation of competing objectives (e.g., the need to spend stimulus funding as quickly as possible, to find jobs for unemployed construction craft workers, and to maximize the number of homes that were weatherized), and required the co-ordination of a fragmented set of stakeholders (e.g., employment advocates, politicians, unions, federal/state/local government, green coalitions, community groups). Against this complexity, these authors argued that "the answer (to better jobs) cannot lie entirely in employer practices and strategies but rather that what is needed is a broader political, social, and economic environment that supports progressive employment strategies" (p. 137). Our model supports this type of reasoning.

Turning to the second practical implication, we are witnessing radical technological, economic and societal changes that have potentially vast implications for work and work design. An example of the latter is the 'uberification' of the economy, which – among other things – is characterized by consumer goods turning into services and an on-demand service availability (Smith, 2016). Worldwide companies such as Uber have transformed empty seats in a car into a service, which consumers can book via one click. Such evolutions in the market have consequences for people working in these jobs, although exactly how work designs are affected is unknown. On the one hand, Uber taxi drivers might have greater individual autonomy to decide when and where to work. On the other hand, higher-level contextual factors might negatively affect their work design. For example, the lack of labor regulations, combined with customer requirements for on-demand availability, and the use of a technology that requires individuals to maintain a very high level of service might place unreasonable demands on drivers and reduce their job security (Liss, 2015).

More broadly, some commentators are rather pessimistic about the potential for high quality work in today's radically shifting environment, such as Kalleberg (2011, p. 1), who concluded that radical transformation at work has thus far resulted in "pervasive job insecurity….24/7 work schedules for many workers..." and many "dead-end jobs". But some researchers are optimistic that the sharing economy fosters positive social relationships (Smith, 2016) and that emerging organizational structures like that of Wikipedia often have decentralized forms of task division and self-allocation of tasks (Puranam, et al., 2014). Other commentators are ambivalent, such as Osterman and Shulman (2011), who claimed the effect of current global changes on achieving high quality work is "still up for grabs" (p. 136). We assert that all scenarios are possible, depending on the complex interplay of forces that we have discussed, and especially how managers respond. For example, when being confronted with the challenge of home care in the Netherlands, rather than adopting a low-road efficiency strategy, Jos De Blok, implemented independent autonomous teams of maximum 12 nurses who provide care in a particular neighborhood and are responsible for the complete process of taking care of the clients, planning, education and finance. The choices gave rise to Buurtzorg, which is now a competitive, fast growing organization with high employee and customer satisfaction (Kreitzer, 2015). In line with this example, Parker and colleagues (in press) argued for the need to proactively shape how technology and other factors affect work design, which implies an understanding of where and how to intervene. For example, when technology has direct effects on work design, interventions need to target the design of technology itself. Our analysis of the multi-level influences on work design provides a framework to better understand, and hopefully shape, how work design is changing in contemporary society.

A third and related practical implication concerns the changes to the process of work redesign. Scholars have observed that redesigning work is highly complex and fraught with risk (Parker & Wall, 1998). What our analysis shows is that work design is often affected by the higher-level context, so when these align with the aims of work redesign, implementation

might be easier and successful outcomes more likely. But if the higher-level forces do not align with the aims of the work redesign, this is likely to create difficulties during the design and implementation stages. For example, managers in a call center who want to implement more enriched work design as a means of gaining a unique competitive advantage in mass markets (Batt, 2002) might experience much resistance from colleagues who believe that it will simply increase costs. In such circumstances, successful implementation of a new work design might require managers to spend more time persuading others as to the value of their ideas and developing a broad base of support (Nielsen & Abildgaard, 2013).

Future Directions

There are thousands of studies on the outcomes of work design. Whilst changes in work mean that studies examining the outcomes of work design will continue to be warranted, we believe that what is most needed is attention to the influences on work design. We identify four directions for future research highlighted by our review.

First, we quite simply recommend: *further systematic research on the multi-level influences on work design, especially rigorous research that crosses levels*. As noted throughout the review, there is a paucity of such studies. We recommend different types of studies, including analyses at the level of nations and institutions; multi-level field studies that assess influences, processes, and work design; laboratory and simulation studies assessing managers' work design behaviors; detailed case studies tracking the design of 'new' jobs; and more. We also hope that our framework will, as a minimum, prompt researchers to consider contextual influences on work design when individual level research is conducted (Johns, 2006). For example, in a study examining the effect of empowering leadership on performance mediated by work characteristics, we would encourage the authors to reflect on and discuss whether such a relationship between leadership and work design would be the same in all contexts.

Throughout this review, we sought to depict those pathways linking multi-level influences and work design for which there is at least some evidence. But there are many other potential research

avenues to consider. We have not included how higher-level context influences might moderate the link between work design and outcomes; nor how this might create a feedback loop back to work design decisions. For instance, an autonomous work design might generate positive outcomes that in turn prompts further the design of decentralized work design, ultimately creating a virtuous spiral (Clegg & Spencer, 2007). We have given short thrift to bottom-up processes, such as how individual crafting of roles might, over some time, shape formal decision-making processes about work design or even how it might shape the higher context. For example, job crafting and the negotiation of i-deals provide opportunities to motivate the most talented employees, but they might also be a starting point for the development of new HR-practices for all employees (Lyons, 2008). We have not considered time lags at all, such as the question of how long the various top-down processes take to occur. There is much to explore.

Second, we recommend *more systematic research on how the multi-level influences on work design interact together.* We have provided some examples throughout this review, but overall, the research on how multiple influences operate in combination to shape work design is too limited in scope, and too diffuse, to synthesize in any coherent way. Below we identify some broad patterns to help guide future research.

Some of the interactions involve "fit" or alignment. Fit can occur within-levels, such as the concept of SHRM in which aligned HR practices lend support to particular work designs (e.g., team-oriented rewards for group work). Fit can occur across-levels, such as when factors at different levels can converge to motivate or enable managers to implement particular types of work design. For example, those firms pursuing a high-involvement strategy in a social democratic institutional regime should find it easier to implement enriched work designs than similar firms pursuing the same strategy in a liberal regime (Kostava & Roth, 2002; Poatsma, Ligthart & Veersma, 2006).

Sometimes higher-level influences act as a constraining force, or an enabling force, on factors at lower levels because they don't fit with each other. For instance, managers seeking

to implement Tayloristic work designs in social democratic or continental regimes may find it difficult to 'escape' from what they perceived to be institutional 'constraints' on the implementation of HR practices and work design (Doellgast, et al., 2009) and the negotiation of i-deals is hampered by highly structured work but facilitated when employees work in smaller teams (Hornung et al., 2008). Multi-level influences also sometimes trade off against one another. For instance Holman (2013) reported that, in continental regime countries, job quality was lower in independent call centers than in 'affiliated' call centers (i.e., part of a larger organization), whereas the opposite was the case in liberal regime countries. Holman argued that this occurred because trade unions in continental regimes are less prevalent in independent call centers, and therefore less able to improve job quality (and work design), than when they are in affiliated call centers. But in liberal regimes, independent call centers have greater freedom to differentiate themselves from other call centers by adopting high-commitment HR practices, and thus are likely to have better job quality than affiliated call centers where managerial choice is more restricted.

Third, we recommend: *research assessing the relative effects of various influences on work design*. It might be expected that factors external to the organization, and therefore more distal, will have a weaker effect than internal organizational factors. Some evidence supports this view. In an international survey of call centers, Holman et al. (2009) found that 83% of the total variance in job discretion occurred at the organizational level, and 17% occurred the national level. Likewise, in a cross-national sample of European workers, Esser and Olsen's (2011) found that 85% of the total variance in job discretion occurred at the individual-level, whereas only 15% occurred the national level. Both of these studies suggest more variance is explained at the lower levels relative to national-level influences, although methodological limitations of these studies mean that more precise estimates of the relative influence of factors on work design cannot be ascertained. Nor do these studies examine cross-level effects or other interactions. It might be, for instance, that in national contexts that enhance the individual and collective power of employees (e.g., countries with a social

democratic regime), organizational factors have less influence on work design, relative to countries with liberal institutional regimes where managers have more power.

Fourth, we recommend: *more attention to when, why, and how managers shape work designs, including the motivational and opportunity factors that affect their decision-making*. To date, we have mostly inferred the role of management (e.g., from evidence showing divergent effects of, say, technology when all other things are equal); there is relatively little systematic attention to exactly how managers' KSAs, motivations, and opportunities affect work design across the levels. Indeed, we suggest that very often managers are unaware they even have 'choices' to make. That is, whilst work design choices exists 'in theory', managers might often rather unconsciously accept the status quo, or make decisions rather automatically in line with coercive, mimetic or other pressures, failing to give work design explicit consideration unless there is a specific precipitating trigger to do so (Parker, 2014). We agree with Clegg and Spencer's (2007) that:

> "While there are constraints… there are always choices regarding job designs. We would predict there is more scope for role adjustment than is often perceived. For example, even in the case of assembly lines, often viewed as one of the most constrained of work systems, there are choices over cycle times, work flow speeds, the numbers and types of tasks making up a job, whether operators work in fixed locations or move with the line, the organization of breaks, the ordering and organization of materials, who undertakes quality control, and so on".

Further, when managers do consider work design, scholars have argued that they often rather 'naturally' adopt a Taylorist perspective in work designs (Clegg, 1984; Erez & Grant, 2014). Campion and Stevens (1991) showed that 'naïve job designers' (students without any work design training) tended to design deskilled jobs; a finding that is supported by more recent unpublished evidence (Parker & Andrei, 2014). Guest (2001) observed that executives and senior managers were often unclear what work design means, highlighting the possible role of knowledge. Likewise, training in work design theory and principles enables naïve job designers (e.g., students) to design more varied jobs (Campion & Stevens, 1991), although how long-lasting or robust these effects are is unknown. Related to the latter point,

Raveendran et al. (2015) showed that individuals are not rational decision makers when it comes to the complex process of work design: they tend to prefer stability in ways of working, and rely on 'availability cues' in the environment. Exactly how managers make work design decisions, and which heuristics are used, is an area for future study. Research on managers' implementation of new practices, for instance, shows differences in decision-making according to position and gender (Van Rossem, Heusinkveld, & Buelens, 2015).

There is also more to understand in regard to the individual attributes that affect managers' work design-related KSAs and motivation, as well as how they interpret and perceive opportunities. For example, managers might be motivated to foster high quality work design when they have implicit theories about employees as being active organisms who strive for development (Theory Y; McGregor, 1960), are guided by long term organizational development goals (Clegg & Fitter, 1981), or when they clearly believe such an approach is essential for effectiveness (Bresnahan et al., 2002; Delery & Doty, 1996). Managers who view their employees as having the potential to grow have been shown to provide employees with a developmental environment (Heslin, Vandewalle, & Latham, 2006) and this might extend to managers designing better work. Parker & Andrei (2014) showed that individuals who had enriched work designs themselves were more likely to design enriched work designs for others, suggesting a positive spiral born out of experience.

The interaction between managers' opportunity, and their KSAs and motivation, is likely to be important in shaping work design. From a situational strength theory perspective (Michel & Shoda, 1995), in strong situations, when individuals are expected or compelled to act in a prescribed manner such as when coercive or mimetic forces from institutional influences are very strong, the effects of managers' KSAs and motivations may be smaller or even non-existent. Likewise, when bureaucracy is very high, there might be relatively little scope for managers to design enriched jobs or adjust employee roles (Clegg & Spencer, 2007). Suppressed opportunity might also come from an excessive work load. From the perspective of information processing theory, work design is a complex process, and

managers are often constrained in their cognitive capacity when workload is high (Boxall & Winterton, 2015). An overload in demands might mean that managers simply do not have the opportunity, or at least do not perceive the opportunity exists, to consider job design as a managerial strategy to influence employees (Guest, 2001). This might be particularly the case for designing motivational work design, which is likely to be more complex than designing simplified, specialized jobs (Zhou, 2012).

In sum, the research on when, how, and why managers engage in work design is still in its infancy. Questions to tackle include: How aware of work design are managers? How conscious are they that their actions affect work design? How do managers' own work designs affect their approach to work design? What types of arguments persuade managers to adopt new approaches to work design, especially when these might require a trade-off of short-term immediate costs against long-term 'possible' benefits? What factors affect whether managers' perceive an opportunity for work redesign? How do managers' decision-making at different levels flow through to affect work design?

Conclusion

Studs Terkel, in his classic book about work written in 1974 (p. xi), observed that work "is about a search…for daily meaning as well as daily bread, for recognition as well as cash, for astonishment rather than torpor; in short, for a sort of life rather than a Monday through Friday sort of dying". This quote shows how work can be health impairing or engaging, and can drive people into counterproductive behavior or stimulate them to go the extra mile. Much evidence shows the centrality of enriched work design in obtaining the positive ends of these poles, and yet we know relatively little about how work designs arise, what sustains any particular work design choice, and what factors enable successful work redesign. In this review article, drawing on research from multiple disciplines, we synthesized research on work design influences. Our article has three key implications.

First, our review highlights that, if we want to understand the influences of work design, it is not enough to only consider the higher-level context influences on work (global and

international; national; occupational influences); nor is it advisable to only consider how lower level context (work group influences) and individual factors shape work design. All of these factors affect work design although, to date, the evidence is strongest for the effects on work design of national institutions/institutional regimes and organizational factors, moderate for work group and individual-level factors, and weakest for occupational influences, national factors like culture, and the higher-level influences of globalization and market liberalization.

Second, our review shows the importance of considering both formal, management-led decision-making processes and informal, employee-led processes that shape work design. Specifically, we proposed, and reviewed supporting evidence, that managers' formal decision-making about work design is affected by their KSAs/motivation and opportunity, which are affected by higher-level and lower level contextual influences, as well as individual factors. Likewise, we showed how employees' work design actions are driven by their KSAs/motivation and opportunity, which are in turn affected by influences at multiple levels. Together these influences form a multi-level system influencing work design. By understanding this system, the possibility exists: to support the more widespread design of high quality work, to proactively design better jobs in the face of large-scale contemporary change, and to better support the effective redesign of work.

Third, our review has highlighted quite significant gaps in our understanding regarding the drivers of work design, in part because research at different levels has proceeded from within distinct disciplinary perspectives, and in part because of a lack of multi-level empirical studies. For instance, the research is too thin and disparate to synthesize the complex interactions within the multilevel system of work design influences in any meaningful way. We have also suggested that the role of managers in the work design process has been underplayed, and that managerial choices and actions, even unconscious ones, can play a powerful role, yet we know relatively little about what drives managerial KSAs/motivation and perceived opportunities to create good work, especially in the light of strong forces to do

otherwise. We hope that our review fosters expanded theoretical development, and further empirical research, on the influences on work design.

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Table 1: Multi-level Influences on Work Design, Example Disciplines & Theoretical Perspectives, Key Mechanisms, and Evidence. Note: L = Low level of evidence; M = Moderate level of evidence; H = High level of evidence.

Level of Influence	Key Influences	Example Disciplines	Example Theoretical Perspectives	Key Mechanisms & Quality of Evidence
Global/ international	• Globalization • Market liberalization	• Sociology • Psychology	• Human resource management	• Direct effect globalization on perceived work characteristics (L) • International supply chains (e.g., via coercive pressures) shape the motivation & opportunity of decision-makers in client & supply organizations, which affects work design. (L-M)
National	• National economy (GDP, unemployment level) • National culture • National institutions (trade unions, national employment policies, training systems, health & safety institutions) • National institutional regimes	• Industrial relations • Sociology • Management • Psychology	• Varieties of capitalism • Employment regime theory • Cross-cultural perspectives • Neo-institutional theories	• High GDP & low unemployment motivate and enable managers to design enriched work, as well as increase employees' opportunity (e.g., individual and collective labor market power) for higher quality work (L-M) • National culture changes employees' & managers' motivation for particular work designs (L) • Trade unions foster enriched work designs via increased employee opportunity although contingencies exist (M). • National employment policies, training systems, & regulations motivate managers (e.g., via coercive & mimetic pressures) to create particular work designs, and shape their opportunities to do so. Such factors also affect employees' opportunity (individual & collective labor market power) for better work design (M-H) • Some national institutional factors (e.g., health & safety regulations) directly affect job characteristics especially job demands (M). • Institutional regimes (various institutional characteristics) foster enriched work design through shaping managers' and employees' motivation/KSAs and opportunity. (M-H)

Occupational	• Tasks • Values • Professional institutions	• Personnel / vocational psychology	• Theories of work adjustment	• Direct effect of occupations on task demarcations (M) • Occupations motivate employees to achieve particular values & goals through their work design (L-M) • Occupational norms about skills & work practices create normative pressures on managers' decision-making (L-M)
Organisational	• Strategic context • HR Practices • Operational uncertainty • Technology • Org. design • Org. restructuring	• Sociology • Economics • Industrial Relations • Psychology	• SHRM theory • Contingency Theory • Socio-technical Systems • Labor Process theory • Skill-biased and routine-biased technical change theories	• Cost minimization strategies motivate managers to design less enriched work & to implement associated practices (M) • HR practices can indirectly affect work design via creating the motivation & opportunity for managers and employees to design more enriched work (often via a skills pathway); and can indirectly affect the demands within jobs. (M-H) • HR practices (e.g. flextime) directly affect work design. (M-H) • Operational uncertainty motivates managers and employees, and enhances the opportunity, for more enriched work (H) • Technology can directly affect work characteristics, although its effects on work design are also mediated by managerial decision-making, with the latter also being shaped by other contextual factors (e.g., employee skill, operational uncertainty) (H). • Bureaucracy & related elements of org. design mostly reduce opportunity for enriched work design, although some argue for opposite effects (H). • Org. restructuring e.g. downsizing can directly change work design (e.g., via changing the number of tasks) or indirectly can change stakeholders' motivation/ opportunity to design work (H)
Local context (work group)	• Work group composition • Work group interdependence	• Sociology • Psychology	• Sociotechnical systems theory • Team effectiveness theories	• Work group heterogeneity mostly affects work design via affecting co-ordination, and hence affects the motivation/KSAs of employees, and opportunities for work design (L-M) • Direct effects of work group interdependence on individual work design (e.g., interdependence increases social contact), but

	• Work group autonomy • Work group leadership		• Situational strength theory	effects conditioned by other factors. Also indirect effects, especially through shaping employees' motivation & opportunity for crafting & related processes (L-M). Similar processes for team autonomy but evidence stronger (M-H) • Work group leadership directly affects work design (e.g., provision of support) but also indirectly through shaping employees' motivation and opportunity for crafting & related actions (H)
Individual	• Demographics (e.g. age, gender, immigrant status) • Personality, motivation, etc. • Competence, learning, etc.	• Psychology • Organizational Behavior	• Theory of purposeful work behavior • Person-environment fit theory • Circular and dynamic theory of job design • Job Crafting	• Individual factors directly affect work design is perceived & appraised (M) • Demographic variables affect work design by affecting managers' motivation (e.g., discriminatory beliefs) which affect task allocation (L-M) • As a result of their demography, employees' craft or agentically change their work designs and/or select jobs with particular work designs (L) • Personality and motivation shape how & to what extent employees' craft/ agentically change their work, and/or which jobs they select into (L) • Competence, learning shapes managers' motivation & opportunity in relation to work design, as well as employees' motivation & opportunity (L)

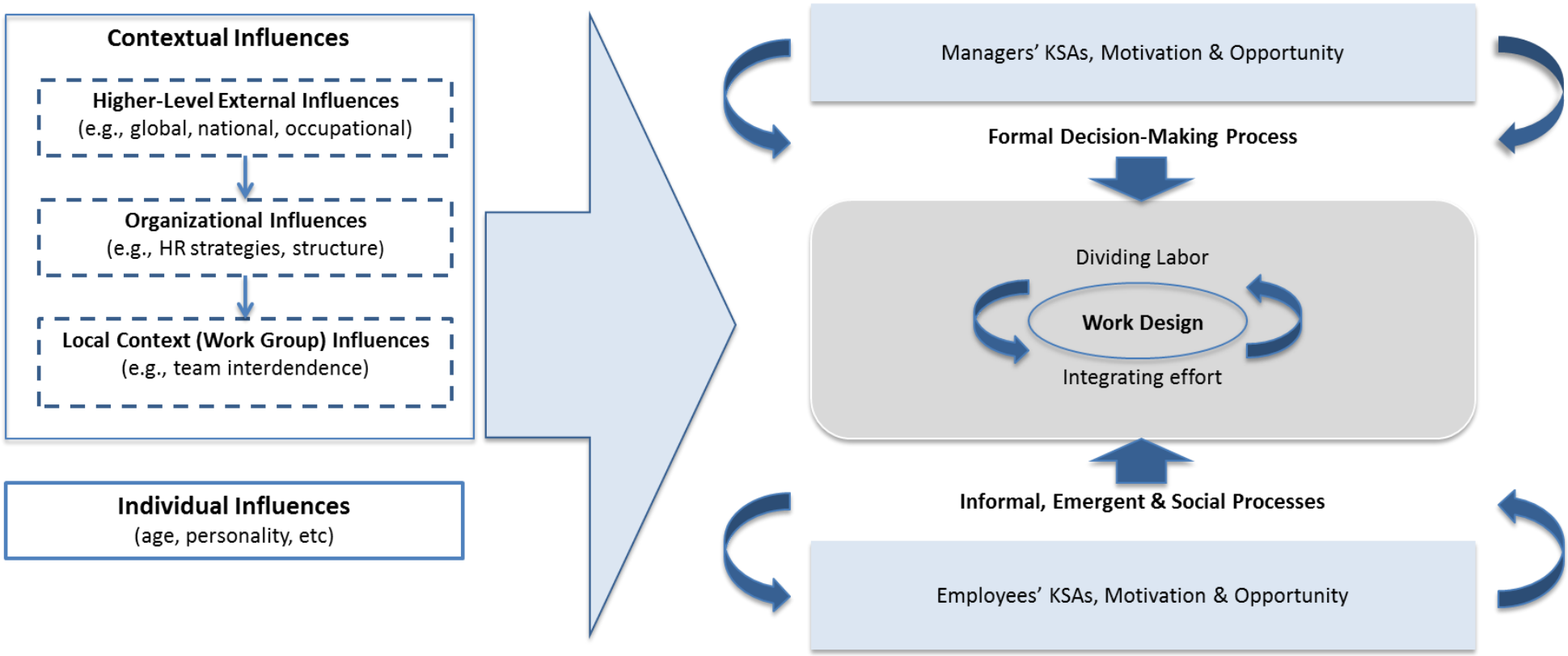

Figure 1. Framework of Work Design Influences