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Big Data, Social Media and HPWS for the Intelligent Office

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Introduction

To cope with a rapidly changing environment, *'today's workplace designs are being revolutionized due to the changing nature of work and worker profiles, the impact of technology, and the need for organizational efficiency and flexibility'* (Khanna and New 2008). More than anything else in the last twenty years, firms are drifted into frantic competition to produce, distribute and change as fast as they can. More recently, social media and big data have accelerated change on the basis of providing richer information, as well as facilitating collaboration, openness and creativity (London and Hall 2011).

The rise of social media and big data feed into the 'new office' paradigm as a broader workplace transformation manifested in the physical spaces of organisation as mediators for creative collaboration (Ward 2015). Social media and big data add 'intelligence' to this paradigm, which is driven by rich information and interactivity through the digital medium (Cook 2008, Spencer 2015). These broader transformations in the workplace could not leave human resource management intact. The motive behind each so-called management revolution, either the new office, social media or big data (Cook 2008, McAfee and Brynjolfsson 2012, Ward 2015), is the need of organisations to improve their performance. Human resource management plays a vital role in attracting, selecting, training, motivating and empowering employees within a secure environment that promotes learning, creativity and collaboration (Pfeffer 1998).

This line of thinking has inspired the understanding of human resource management in terms of 'high-performance work systems' (HPWS) that aim to improve performance through consistent policies across the organisation that promote high commitment and job satisfaction (Baird et al 2003, Dul et al 2011, Guest 2011). Prior literature on HPWS has identified psychological, behavioural, social and technological aspects as determinants for organisational performance (Messersmith and Guthrie 2010, Sun et al 2007, Kehoe and Wright 2013, Kintana et al 2006, Hartog and Verburg 2004). Nevertheless, the role of big data and social media as mediating factors between the HPWS and the performance is yet untested. This paper contributes to HPWS literature by identifying the conditions in which big

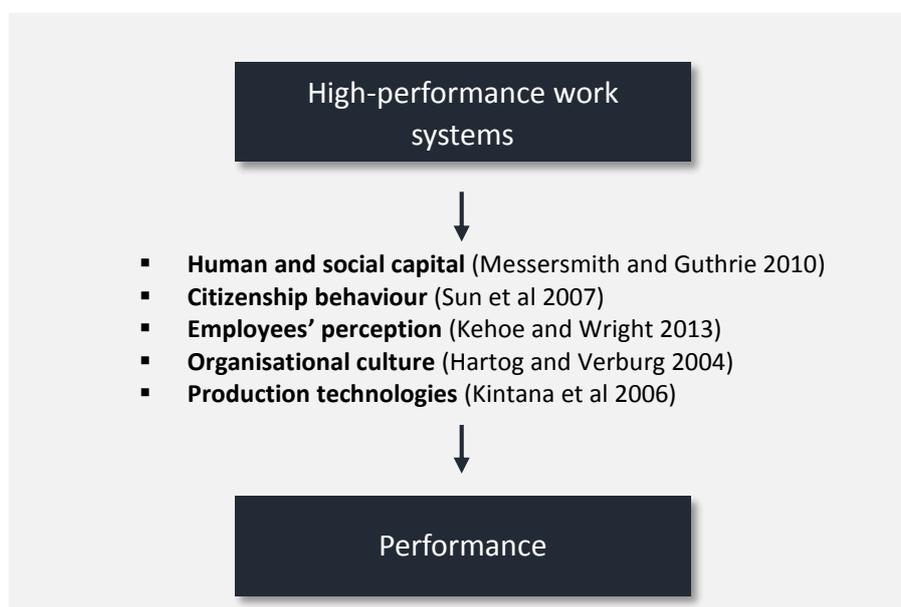
data and social media enrich physical spaces, shaping the 'intelligent office' as a new paradigm. The case of Googleplex is used to illustrate this argument.

High-performance work systems in the digital age

'High-performance work systems' are defined as *'a set, or bundle, of human resource management practices related to selection, training, performance management, compensation, and information sharing that are designed to attract, retrain, and motivate employees'* (Messersmith and Guthrie 2010, p.242). The emphasis is given on the bundles of practices across functions which aim to retain and develop employees in order to increase performance. Prior studies highlight a number of factors that mediate between HPWS and performance, such as human and social capital (Messersmith and Guthrie 2010), citizenship behaviour (Sun et al 2007), employees' perception (Kehoe and Wright 2013), organisational culture (Hartog and Verburg 2004) and production technologies (Kintana et al 2006).

The main lesson from HPWS is that human resource practices need to be consistent with organisational culture (Hartog and Verburg 2004), communicated transparently and effectively across the organisation (Pfeffer 1998), and connected with the core competence of the firm (Hamel and Prahalad 1990). However, an HPWS is not just an instrumental framework for the management of human resources, but it reflects on the strategy and power structure of a firm, as each set or bundle of human resource practices represents choices, such as the long-term versus short-term retaining of employees, or the dedication of an organisation in discovering and developing talent (Godard 2004, Guest 2011).

Figure 1: A schematic review of HPWS literature



Developed based on Messersmith and Guthrie (2010); Sun et al (2007); Kehoe and Wright (2013); Kintana et al (2006); Hartog and Verburg (2004)

Figure 2: The contemporary workplace



Source: The authors

The new collaborative environment is manifested in three major transformations in the workplace: (1) an emphasis on the aesthetics, openness and flexibility of space within ‘the new office paradigm’; (2) the emergence of ‘the data-driven office’ which is powered by big data and social media; (3) an emerging ‘intelligent office’ which integrates big data and social media with the physical infrastructure, creating a malleable and agile organisation that couples and recouples in situations (Figure 2; Atkinson and Moffat 2005).

The recent volume *I Wish I Worked There* reviews spatial design of organisations, manifesting the ‘new office’ paradigm as a playful and open space which is designed to provide psychological and physical comfort to employees, and boost creativity and collaboration among employees (Groves et al 2010). Organisations included in this volume, such as Google, Lego and Yahoo, have created a meaningful environment that facilitates social time and space, as employees interact with and within spaces (Groves et al 2010).

Interestingly, the core competence of firms such as Amazon and Google which have been born digital relies at most on the engagement with data and information (McAfee and Brynjolfsson 2012). As pure data-driven organisations, they rely on constructing information not only for developing new products, but also for the management of human resources. Firms such as Amazon and Google have built their high-tech empires based on their expertise

in managing databases, as well as in translating seas of data into meaningful information to back up decisions and reduce human error that stems from intuition (McAfee and Brynjolfsson 2012). Social media, which include corporate social networks, blogs and forums, as well as media-enriched devices, such as wearables, increasingly find application in organisations (Burrus 2014, Kaplan and Haenlein 2010). Social media in organisations can empower employees as channels of bottom–up and peer-to-peer communication, while structurally transforming organisations towards decentralised forms (Child and McGrath 2001, London and Hall 2011).

Big data can positively influence performance, as long as decision-makers are aware of their constraints and limitations. An over-reliance on big data may be misleading because the available information may be incomplete. While data scientists are expected to analyse data, leaders are expected to ask the right questions about data (McAfee and Brynjolfsson 2012). A data-driven company does not subscribe to ‘neo-Taylorism’ (Niepcel and Molleman 1998), but it is aware that soft skills, such as creativity and improvisation, are also influential within a data-driven context. As a result, human resource managers who rely on the power of big data are expected to ‘curate data’ in order to transform a sea of data into meaningful information that is aligned with the bundle of practices across the organisation. Curating data refers to the subjective choices of an individual towards the analysis of big data which produce meaning and frame action (Sowe and Zetsu 2014). Although data analytics as a field is extensively applied in the context of marketing, a new area of research is emerging around employee-generated big data (Roberts 2013).

Figure 3: High-performance work systems for an intelligent office



Source: the authors

The case of Google

Googleplex is the company's headquarters in Silicon Valley, adapted in 2004 by architect Clive Wilkinson, who redesigned the previous house of Silicon Graphics, creating a radical new space that reflects Google's culture, aiming to foster creativity, social interaction and innovation (Jakobsson and Stiernstedt 2010, Vise 2005). Google's organisational culture has three major characteristics – geek culture, vision to change the world, and selective recruitment – that shape its unique identity (Iyer and Davenport 2008, p.67). 'Geek culture' refers to a university-like atmosphere in the company, as well as to the extended knowledge of programming by Googlers, who promote a 'do it your own' mentality (Konzack 2006). Google's organisational culture largely affected the design of the 'living environment' at Googleplex, which reminds one more of a university than a 'conventional work environment' (Chang 2006).

Office design is crucial, placing *'three or four people into an office, a configuration that the cofounders liked from their Stanford grad-school days'* (Chang 2006), while the creation of social spaces aims to facilitate knowledge exchange and social talk. Informatisation reflects on Google's norm to consider every aspect of organisational life and performance as information on a continuous flow that is evident to statistical analysis and control (Iyer and Davenport 2008). An example of this norm is Google's *'experiment in using mathematical modelling for personnel management'* (Carr 2008, p.203). In 2006, Google launched a 300-question questionnaire that tracked the personality of Googlers, measuring both in-work and out-of-work characteristics. In 2007, based on this information, the company created algorithms that might predict performance, which are used for employee selection.

In contrast to Google's centrality in ICT business worldwide, Googleplex has been designed to promote *decentralisation and self-organisation* as key principles of organisational life. Social media play a vital role in decentralisation and self-organisation in terms of *'small groups of Googlers working independently on their own projects'* (Jakobsson and Stiernstedt 2010, p.121), and sharing knowledge and information through social media platforms. Decentralisation also reflects on its architecture, which includes both public and private spaces which encourage collaborative work at some times, and secure privacy and isolation at other times (Chang 2006).

The rise of data scientists has nowadays driven data-driven human resource practices. Lorraine Twohill, Google's senior vice president of global marketing, comments that *'Google has a very data-led culture'*. For instance, human resource practices are led by the People Analytics Department, which is responsible for recruiting, training and organising activities across the organisation. According to Prasad Setty, the vice president of people analytics and compensation, the goal of people analytics is to *'complement human decision makers, not replace them'* (Setty claims that people analytics has contributed towards limiting the number of interviews required from 100 to 4 per position). Based on analysing data across the organisation, the People Analytics team has identified the optimal size and shape for each department, improved the retaining of female employees by better managing their needs during maternity leave, helped new employees to better adapt at the beginning of their employment at Google, and it *'produced an algorithm to review rejected applications and hire talent otherwise missed'*.

Recently, Google has announced its plans for recreating its Mountain View headquarters. The new Googleplex is planned to be an urban village, equipped with robotic technologies that physically transform the building according to the changing needs and configurations of its teams. As Mangalindan (2015) reports for Mashable UK, *'small cranes and robots will reconfigure the corporate buildings by moving around floors, walls and ceilings, in just a few hours'*, adding that *'the make-it-yourself design also seems like a nod to Google's open-source approach'*. Glassy-canopy structures will create a space in harmony with the natural environment of the area and open to the public.

Finally, the use of big data and social media at Google appears as best practice that is closely tied with the management of human resources and the firm's performance. It seems that there is a strong belief within the organisation and, specifically, the People Analytics Department, that big data can resolve important problems and lead the way to the future. Interestingly, it demonstrates a departure from the typical human resource approach into data-driven human resources, considering each employee and team as data-generator. The plans of Google to integrate robotics with its new architecture reveal its intention to create a media-enriched organisational space. A pioneer of the new office paradigm, Google is now

implementing the data-driven office, blending science with human resources, while leading the way to the intelligent office.

Implications for human resource practice

Organisational spaces such as the Googleplex stimulate a culture of creativity (Amabile 1983), play (Statler et al 2009) and collaboration (Perry-Smith 2006). The new office paradigm emerged to challenge bureaucratic and mechanistic views on organisational culture. For instance, artistic intervention is hailed as a catalyst for organisational renewal, as *'neo-avant-garde art practices which show a renewed interest in (intervening into) the everyday production of public space'* (Beyes and Steyaert 2011, p.100). As a consequence, the metaphor of glass cage challenges bureaucratic rules in organisations, but at the same time increases transparency and surveillance (Gabriel 2005). Although embracing iconic architecture, Googleplex encapsulates a paradox of organisational creativity. On the one hand, it purports to distribute power and promote a 'be-yourself' ethos at work, amplifying cultural diversity and openness (Fleming and Sturdy 2009, Zhang et al 2008). On the other hand, increased transparency which supposedly deconstructs previous norms may introduce new ones as delicate means of control, increasingly blurring the line between work and life (Dale 2005, Gabriel 2005, Fleming and Sturdy 2009, Randle and Rainnie 1997, Sennett 1998).

The question is whether HPWS are best practices, or customised approaches required to fit better with the conditions and needs of an organisation (Guest 2011). HPWS lead to the development of standardised practices, which aim for long-term commitment employment that reflects on stability, retention and development of employees (Messersmith and Guthrie 2010). By embracing big data and social media, human resource management strategies aim for supporting an agile organisation (Atkinson and Moffat 2005). In this malleable context, the HPWS approach is particularly useful in maintaining high commitment of human resources towards long-term employment, stability and job satisfaction.

However, HPWS are required to shift from static systems into coupled and recoupled situations. In this way, the design of HPWS is not expected to aim for best practices, but for customised policies that couple the core competences with the needs of the firm. HR practitioners are required to transcend the boundaries of their departments, working closely

with and instilling to data scientists the vision of the firm. Hence, HR in the age of the data-driven, and in the future, in the intelligence office, is expected to play an interdisciplinary role translating the needs of the firm across departments, while contributing to the social construction of big data implementation within the firm (Leonardi and Barley 2010).

The data scientist is a relatively recent role that emerged from the need to analyse the vast amount of data. HR managers need to extract meaningfully ordered information, exercising their judgement and creativity (Sowe and Zettsu 2014). Consequently, this causes a reconfiguration of the organisation of human resources which should aim for nurturing lateral thinking by distributing leadership across the organisation (Bolden 2011). HR should thus find appropriate use of social media to facilitate coordination across divisional and organisational boundaries (Nielsen 2013).

Empowerment, in this case, takes place through 'job crafting', enabling individuals in organisations to develop a set of skills and roles which are unique and in some cases unexpected (Nielsen 2013). At Google, social media, as well as the 20% rule dedicated to autonomous projects, led to product and service innovations, including the creation of Gmail, Google News and the Google Art Project, among others (Vise 2006, Proctor 2011). Social media and big data nowadays can accelerate the process of innovation, and the role of HR is to design HPWS that promote job satisfaction through job crafting.

HPWS could facilitate building an agile workforce as a source of competitive advantage (*Harvard Business Review* 2015). Especially in the field of software development, agility is crucial in order to deliver products and services faster than the competition. Agility in this case not only refers to flexible working, but to a creative process in which the stages of product development (planning, design, development, testing and implementation) run in circles instead of sequentially. Specifically, HR should concentrate on changing the most difficult factor for creating an agile organisation – the culture – in order to accelerate the creative process (*Harvard Business Review* 2015).

Nevertheless, in a recent article in *The Economist* (2015), the topic of speed is approached with scepticism: '*forget frantic acceleration. Mastering the clock of business is about choosing when to be fast and when to be slow.*' The argument is that speeding up could lead to

competitive advantage, but an obsession with speed may lead to short-termism (*The Economist* 2015). Hence, the designers of HPWS should couple agility with long-term planning. In addition, the need to slow down also explains why a technological giant such as Apple, Google or Facebook, which rely on speed, design organisational spaces that aim to comfort employees. In the creative process, slowing down is as important as speeding up, providing social time and space for knowledge exchange and collaboration (Baird et al 2003). Nowadays, human resources managers have more tools available in their hands (space, social media, big data) to create a working environment that balances velocity and slowness, and their role is to 'master the clock of business'.

The role of human resource management evolves in tandem with technological change and the needs of the information society. While aiming for collecting rich information for the individual customer in order to provide a customised instead of standardised experience (Pine and Gilmore 1998), human resources should provide and 'curate' the context of individuals' work experience. By curating is meant the increasingly hybrid physical and media-enriched space that mediates the HPWS and organisational performance. Finally, those transformations feed back into the role of HR managers and the skills they require to lead this process. As new media gradually inserts itself into organisational life, shifting the vertical organisation into horizontal, HR managers are expected to develop a new set of interdisciplinary skills (Sennett 1998), integrating data analytics with HR practices.

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