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# The Professional Responsibilities of ERP Experts: A New Form of Organizational Citizenship Behaviour

*Completed Research Paper*

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## Abstract

*In this study, we examine how ERP experts engage in organizational citizenship behaviours (OCB) that contribute towards work performance in the context of a manufacturing firm in China. Our interpretive case study reveals instances of OCB that correspond to salient characteristics of the Chinese culture. Key and new forms among these are: harmonious work relations and the willingness to help others plus workarounds, problem solving, job crafting, building role models and leadership. A primary driver of these instances of OCB is a strong sense of responsibility. This is implicitly associated in a morally obligatory fashion with specific job positions and leads employees at all levels to engage voluntarily in overtime work, undertaking whatever tasks are necessary, irrespective of whether these are part of their formal job descriptions. We also observe OCB's potential for improving performance in both functional and social dimensions, as well as its impact on organizational agility.*

**Keywords:** Organizational citizenship behaviour (OCB), extra-role behaviour (ERB), professional responsibilities, enterprise resource planning (ERP) system, small and medium enterprise (SME)

## Introduction

The role of Information Systems (IS) professionals in an organization has evolved considerably over the years (Deng et al. 2015). Although their predecessors may have focused much more on the technical aspects of IS development and implementation (Benbasat et al. 1980), today's IS professionals are required to be all round business employees (Lee et al. 1995) who can interact with a variety of internal colleagues from different functional departments such as sales, marketing and human resources. Further, IS knowledge today can scarcely be considered an exclusive property of IS professionals (Davis 2013), since the younger generations of employees are all digital natives (Vodanovich et al. 2010; Davison and Ou 2017). They not only grew up with the Internet, but have embedded the Internet into their social and working lives (Davison and Ou 2017; Schultze and Mason 2012; Clarke 2011). The IS professionals who remain must now work in a role that spans problem solving for the rest of the organization (Das 2003) with post-implementation support of IS, notably large scale software such as Enterprise Resource Planning (ERP) (Pawlowski and Robey 2004; Deng et al. 2015). IS professionals thus have a dichotomous set of responsibilities: as technical professionals they must manage the IS; as problem solvers, they must communicate with and support business users.

Prior research has often considered the role of IS professionals in larger organizations, where there may be substantial IS departments or groups responsible for the management of significant IS investments and implementations (Levy and Powell 1998). However, small and medium-sized (SME) organizations are also worthy of investigation, not least because of the very significant role that they play in national economies (Radas and Bozic 2009). In SMEs, in contrast, IS professionals may be few in number, with multiple responsibilities for different aspects of the systems environment (Levy and Powell 2000). SMEs are also characterised by an absence of organizational slack and few free resources; organizational success is often dependent on the extent to which employees are responsible and motivated to accomplish their tasks at a high level of performance (Osabiya 2015). When employees go beyond the call of duty, helping their colleagues or undertaking tasks in a discretionary manner that is not specified in their job description, then they are engaging in what is known in the literature as Extra-Role Behaviour (ERB) or Organizational Citizenship Behaviour (OCB) (Organ 1988). OCB has been identified as a major contributor to organizational success, since employees who voluntarily engage in OCB help the organization in difficult times, e.g. when their colleagues are sick or lack experience.

While prior research into OCB has been primarily conducted in larger organizations in Western countries, there are few studies in countries such as China, where different organizational cultural norms apply. Fewer still are the studies that consider the OCBs of IS users and professionals. In this paper, we explore OCB in a Chinese SME in order to answer the question: How and why do employees engage in OCB with respect to ERP system use in a Chinese manufacturing firm? We present the research as an interpretive case study, drawing on interviews with employees in the workplace, in a SME that we pseudonymise as Hardware Systems. Following this introduction, we review the literature on OCB, including its application in Information Systems and the Chinese context, before turning to the research context and methods. We present the case description and discuss its implications for both OCB and IS research before concluding the article with implications for theory and practice.

## Literature Review

OCB is a phenomenon with a long and illustrious history in studies of organizations. Its roots lie in the work of Roethlisberger and Dickson (1964), and Katz (1964, p.131), who suggested that organizations need employees who engage in “innovative and spontaneous activity that goes beyond role prescriptions”. Katz (1964, p.133) further explained that these activities would include “a myriad of acts of cooperation, helpfulness, suggestions, gestures of goodwill, altruism, and other instances of what we might call citizenship behavior”. Roethlisberger and Dickson (1964) suggested that these supererogatory activities, which contribute to the informal structure of the organization, are essential to a healthy organization. However, the informal nature of this behaviour and its location outside

normal work activities means that notwithstanding their value, they could not be controlled or incentivised by the organization. Organ (1988) was the first scholar to formalise OCB, defining it as “individual behaviour that is discretionary, not directly or explicitly recognised by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (ibid. p.4). When focused at the individual level, OCB involves “acts of altruism or helping behaviour such as assisting a worker with a heavy workload, sharing resources, giving emotional support, and being courteous” (Frenkel and Sanders 2007).

### ***The Components of OCB***

The component parts of OCB have been the focus of meta research in a number of papers. Podsakoff et al. (2000), reviewing the empirical papers published to 1998, identified a parsimonious set of seven forms, including helping behavior, sportsmanship, organizational loyalty, organisational compliance, individual initiative and civic virtue. Since 2000, the literature on OCB has expanded exponentially. Podsakoff et al. (2009) reported 650 articles in the management literature while a Google Scholar search for ‘Organizational Citizenship Behaviour’<sup>1</sup> suggests in excess of 11,000 results. Much of this research appears to have been conducted in the fields of management, applied psychology and organizational behaviour. In the discipline of Information Systems, the interest is not quite so frenzied, yet OCB is recognised as a legitimate theory that can be applied to studies of IS professionals (e.g. Chou et al. 2013; Deng et al. 2015; Hsu et al. 2015).

### ***OCB in the IS Literature***

Despite an extensive search of the literature, we were only able to locate seven studies that document OCB/ERB in the IS context, (i.e.: Chou et al. 2013; Davis 2013; Deng and Wang 2014; Deng et al. 2015; Hsu et al. 2015; Cui 2017 and Zou et al. 2017). These studies are typically concerned with the behaviour of either IS or non-IS personnel who engage in IS work. An exception is Zou et al. (2017) who consider the technologically-focused ERB of social media users who help one another online. Since such users are not organizational employees, they fall outside our scope and will not be considered further.

Deng et al. (2015) examined the situation where IS personnel applied the principles of OCB to support their non-IS colleagues working in functional units. Deng et al. (2015, p.495) define this kind of customer-focused OCB as “employees’ discretionary behaviors in serving customer interests and needs not explicitly requested”. They noted that IS personnel would offer assistance to ERP users by “explaining the causes of the problems, rather than simply providing guidelines”, even though those users had not made a specific request for that assistance. In a similar study, Deng and Wang (2014) found that IS personnel were more likely to explain and solve problems than provide procedural instructions and help files. However, although this approach to work was appreciated by the ERP users, it was less efficient from the IS personnel’s perspective, as more time was required.

Deng et al. (2015) identified five types of customer-oriented OCBs: (1) education (taking extra care to ensure that users understand the technical features of a system); (2) anticipation (providing information that is not specifically requested so as to help the user to use a system effectively); (3) justification (providing additional information that explains a situation in greater detail than necessary); (4) personalization-technology (personalizing the way the user can use the technology); and (5) personalization-business (personalizing the information that the user can obtain).

In similar vein, Hsu et al. (2015) considered the role of ERB in enhancing information security policies. They suggest that it is necessary for employees and managers to go beyond in-role (i.e. normally or contractually expected) behaviour and also engage in ERB. As they observe “Performing extra-role behaviors can help employees monitor and report bad behavior and/or help less capable employees work more effectively” (ibid. p.294). They also suggest that “more extra-role behaviors can be expected when employees are attached to their coworkers, are involved in IS creation activities,

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<sup>1</sup> It is important *not* to use the abbreviation ‘OCB’ as a search term, since it can also refer to Obsessive Compulsive Behaviour, an entirely different matter.

share security beliefs, and are highly committed to their organizations” (p. 293). As Chou et al. (2013, p.105) note, employees are more likely to engage in OCB when they are mutually dependent within a team and “share the responsibility to accomplish a defined task”.

The competence and attitude of the non-IS worker is also central to OCB in the organizational context. Davis (2013, p.403) notes that “as business users continually gain experience with enterprise systems and a new generation of tech-savvy workers enters the labour force, IT competence is increasingly distributed beyond the IS department”. The extent to which non-IS personnel are willing to volunteer their competence and thereby contribute to organizational success is clearly significant, perhaps particularly in SMEs that lack organizational slack (Major and Cordey-Hayes 2000) and where there may be few IS personnel in any case. Volunteering one’s technical competence is thus a form of OCB, since it will entail increased workload and responsibilities that may not be rewarded (Bergeron 2007). Davis (2013) suggests that non-IS personnel are more likely to volunteer their technological competence when they have a strong relationship with and loyalty to the organization.

### ***OCB in China***

While the prior literature on OCB is extensive, it is largely informed by studies undertaken in Western contexts. Despite the global importance of the Chinese economy, a limited number of studies have been conducted to examine the relevance of the OCB constructs in Chinese societies. However, as Farh et al. (2004) note, these studies are generally replications of those undertaken in the US. Farh et al. (1997) undertook the first of these studies, developing an indigenous measure of OCB, which was then contrasted with Western counterparts. Drawing on the literature in distributive justice, where it is well known that very different values exist across cultures, they suggest that in a Chinese organization, traditionally-minded employees will engage in OCB according to the roles that they play and in order to satisfy their “self-derived obligations to the company” (ibid. p.424). However, these patterns likely vary among employees who have a more contemporary mindset, given a preference for a more Western-style equity with rewards that are based on individual contributions (ibid. p.425; Chou et al. 2013).

Following an extensive review of the literature, Farh et al. (1997) developed and validated a 22 item scale to measure OCB in Chinese contexts. Following data analysis, they suggested the existence of five dimensions. Their source of data was individual employees in Taiwan. Two of these dimensions (‘interpersonal harmony’ and ‘protecting company resources’) do not appear in Podsakoff et al.’s (2000) seven forms of OCB that focus on the Western literature. Considering these two new dimensions: (1) interpersonal harmony is defined as discretionary behaviour “by an employee to avoid pursuing personal power and gain with detrimental effects on others and the organization”; (2) protecting company resources is defined as discretionary behaviour “by an employee to avoid negative behaviors that abuse company policies and resources for personal use” (ibid. p.429).

Farh et al. (2004) extended their earlier work through an inductive analysis of instances of OCB behaviour in the People’s Republic of China. This led to the identification of ten dimensions of OCB, viz.: taking initiative, helping co-workers, voice (making helpful suggestions), group activity participation, promoting company image, self-training, social welfare participation, protecting and saving company resources, keeping the workplace clean and interpersonal harmony. Among these ten dimensions, ‘helping others’, which was also identified by Farh et al. (1997), is of most relevance to the current study.

Helping others, in particular co-workers, which is often referred to as altruism, is a prominent component of the OCB phenomenon globally, with considerable evidence supporting its existence. Closely related to helping others (see also Zhu 2013) is the idea of interpersonal harmony, for the latter may be one of the outcomes of helping others. *Hexie* (和諧) (interpersonal harmony) is a well-known component of the broader *guanxi* (關係) (mutually obligatory interpersonal relationships) that is ubiquitous in Chinese society (Davison 2017). Also cognate is the affective commitment of employees to their company, since through this commitment and loyalty, a more harmonious culture may be created (Chen and Francesco 2003). Farh et al. (2004) emphasise the importance of harmony in the Chinese context, where a strong belief that “conflict is harmful to organizations” (ibid., p.250) prevails.

An additional concept prevalent in the Chinese context, though not previously linked to OCB, is *zerengan* (責任感), usually translated as a ‘sense of responsibility’ and associated with the tenure of a position or role: there are normative but self-derived expectations for the kind of behaviour that is expected of a role (Nadel 1957) including social norms (Parsons 1951) and what is taken for granted (Zucker 1977). A person who has a prominent position in a social or work network should be aware of these normative expectations for the responsibilities that go with the position and how to act. As a result, this person may engage in OCB more readily (Lamertz 2005). Research on *zerengan* is limited in the Chinese context. However, as Lu and Koehn (2015) explain, even though the associated role expectations may not be formally stated, they can still be implicitly and morally obligatory. Yeophantong (2013) confirms that “the notion that the legitimate exercise of power is tied to the burden of responsibility is one that resonates strongly in Chinese society” (p.333). As a result, “behaving ‘responsibly’ involves acting in accordance with both the formal and the informal rules governing society and its institutions, such that compliance with established norms and values amounts to an observable outcome of responsible behaviour” (ibid. p.334).

Studies of OCB in China are limited in scope and depth. However, these studies suggest the salience of some new forms of OCB, for instance interpersonal harmony and the role-based sense of responsibility. Also traditional OCB studies often claimed to rely on OCB theories to investigate the focal OCB phenomenon in different contexts. However, there is a lack of consensus as to what are the basic components, antecedents and consequences of OCB. Where studies of OCB in an IS context are concerned, the few studies tend to focus predominantly on supererogatory helping behaviour and the provision of information. Finally, the OCB of non-IS personnel, who may have significant technological competence, should not be ignored, especially in smaller organizations where resources may be in short supply.

## Research Context and Method

We undertook this research in a SME which we refer to as Hardware Systems. We selected this company, which is physically located in the city of Zhongshan in southern China, because it is a well established firm with a stable history of ERP systems use and a mix of long-term and recently hired employees. In many ways, it is a typical manufacturing SME in China. Hardware Systems was established in 1995 and employs 400 people in the manufacture of hardware components for door, windows, furniture and bathrooms. These products are exported to customers globally. The company also custom designs and manufactures specialised hardware items from small components to entire door structures. In April 2017, we interviewed 13 employees who are all active users of the ERP (See Table 1) as part of a study into the use of technology in the workplace. In the course of the interviews, we serendipitously identified an unexpected finding that is the focus of the current study and which we expand on in the case section below. This finding is related to the way certain employees appeared to deliberately neglect their ERP-based work duties on a regular basis; their neglect, however, was compensated for by some of their colleagues. Although we did not prepare questions about this situation (we were not expecting to find it) we explored it in greater depth when we realised what was happening. In December 2017, we returned to the firm in a follow-up visit to ask more detailed questions about the behaviours we had observed previously, interviewing six employees a second time as well as three employees not interviewed previously. All interviews were undertaken in Chinese (Cantonese or Mandarin), recorded, transcribed and translated for analysis. The interview questions can be obtained from the the authors.

**Table 1: Demographics of ERP System Interviewees**

Code	Gender	Job Title	Interview Month(s)
A	F	Sales Manager	Dec
F	F	Assembling Supervisor	April
G	M	Engineering Manager	April, Dec
L	M	ERP Practitioner	April
M	M	Engineer	April
N	F	Sales Executive	April
O	F	Sales Manager	April
S	F	Sales Supervisor	April, Dec
SH	M	Material Worker	April, Dec
V	F	CEO	Dec
W	M	Planning Manager	April, Dec
X	F	Finance Manager	April, Dec
Y	F	Warehouse Worker	April, Dec
Z	F	Purchaser	April
ZH	M	Production Manager	April
ZY	F	Warehouse Manager	Dec

The method that we apply in this research is an interpretive case study (see Klein and Myers 1999). Although we were broadly familiar with the OCB literature, we did not set out to test hypotheses or propositions that had been created in advance. Instead, we explored a unique and emergent phenomenon that unexpectedly occurred during an on-going research investigation (see Pan and Tan 2011). As we explain, this led to our identification of a new form of OCB previously undocumented in the literature.

## Case Study

We first describe the ERP system itself and briefly introduce its functionality, as well as aspects of its implementation that may limit the way employees use it. We next examine the issue of how employees are trained to use the system. This leads to a narrative of how employees actually use the system and the associated aspects of responsibility to perform their designated work tasks (Langley 1999). We illustrate the case with quotations from interviews with employees at all levels, as well as with reference to the literature where appropriate. We have also identified the employees with a letter code (see Table 1 above).

### *ERP Issues/Problems*

The ERP software is designed to support planning, production, procurement, sales and shipping functions at Hardware Systems. It is developed by Yonyou, China's largest domestic ERP developer. Version 10.2 was in use when we visited, though a more updated version 12.5 was reportedly available. Only five simultaneous logins are permitted, which leads to delays if employees have to wait for someone to log out before they can log in. An Engineering Manager [G] remarked: "There are only a few access points to the system so I have to send a private message using WeChat to tell others to logout when they have finished a job so as to allow me to use it. Even if you have urgent tasks to do, you may need to wait a few hours before you can log in". This was corroborated by a Production Manager [ZH] who observed: "Due to the limited number of access points, if people do not logout promptly, then the others can't access the system". The employees reported that the design of the system is rather inflexible: One Planning Manager [W] commented "When we are dealing with a customer's request, the system may not help us to finish our work quickly. After I create a Bill of

Materials (BOM), adding more materials requires a complete change: all the data needs to be re-entered and I have to go through the whole process again”. Indeed, some employees reported that the ERP software could not support certain necessary functions at all. Unsurprisingly, a Sales Supervisor [S] explained that she had to export data to Excel, where it is easier to manipulate it in response to the different requirements of customers.

### ***ERP Software Training and Use***

Although the ERP software was seen by employees and managers as important for supporting work, a number of problems arose. Not only were some of the design features inflexible, but many employees commented on the poor quality of training provided by Hardware Systems. The Planning Manager [W] noted: “We really need training because we must use the system all the time. ERP is not helpful for Warehouse colleagues who receive little training to explain how the system works. As a result, they cannot create BOMs correctly and you can find mistakes in each BOM”. In similar vein, a Sales Supervisor [S] remarked that “The ERP is not difficult to use if we are familiar with the software, but we are not. We don’t have on-the-job training. If we have problems, we can only communicate with the ERP practitioner, but he does not teach us step-by-step”.

The issue of employee competence is critical to ERP success (Somers and Nelson 2001). Poorly-trained and poorly-motivated employees who failed to use the ERP correctly, and employees who lacked a sense of responsibility for their work, were a recurring problem. A Purchaser [Z] told us that “some staff input the data late or the input is not complete, which causes inaccuracies. Some staff don’t follow the correct procedure or jump from the second part to the fifth part”. The Finance Manager [X] made the more general remark that “if no one requires the employee to do the job, he or she gives up. No one tells the employee that he or she can’t give up doing the job. Then the employee ignores the duty and no one does the job”. In order to counter this situation, the Finance Manager [X] continued by noting how she tries “to influence the less motivated colleagues to be more engaged in their work”. If this fails, she keeps “a close eye on them, to ensure they do not make mistake on their jobs, for example, keying in data incorrectly”.

Hardware Systems employed an ERP Practitioner [L] to train employees and troubleshoot problems. However, we witnessed a certain degree of friction between this individual and other employees at all ranks. For instance, he pointedly remarked that “staff are incompetent. Colleagues need to undertake statistical analysis but they are weak in this respect. There are many functions that colleagues do not use, including process management, cost accounting, salary calculation. They don’t know how to use these functions”. More seriously, but consistent with the Finance Manager [X], he suggested that “the employees are lazy. I require each department to check the data and search for information, but in the end they give up because they don’t care about this. If I don’t supervise them, they won’t do it”. The ERP Practitioner suggested that there is a cultural aspect to the situation: “Colleagues are passive to learn and ask for help. I require them to ask me if they don’t understand but they are too passive. Every time I need to ask them what difficulties they have. They will never ask me actively”.

As noted above, some employees found it hard to communicate with the ERP Practitioner, suggesting that the situation is at least two-sided. For instance, the Finance Manager [X] reported “I have difficulty communicating with the ERP practitioner. Even though I try to communicate my opinions to him, he either misunderstands or has a different interpretation of the same issue. I can’t agree with his explanation and response. He can only solve half of the problems of the system”.

### ***OCB and Its Forms***

The evident problems associated with use of the ERP software, the way employees are trained in its use, and their competence development constitute one important narrative in the story at Hardware Systems. However, this is not the only narrative: we also observed other behaviours that tell a different story. For instance, the Finance Manager [X] explained how she “voluntarily helps her colleagues ... on an over-time basis at night ... first, when they cannot finish their work; second, when they are sick and absent from work”. She also explicitly mentioned that she personally checked with the ERP provider when the ERP practitioner couldn’t solve the problems onsite. As Hardware Systems only started the Cost Management module a few weeks previously, she often needed to learn



by herself how to transfer and integrate the information from the existing ERP modules after the normal working hours. This overtime work was never remunerated. We found that such OCB is not unusual in Hardware Systems. The Sales Supervisor [S] confirmed this attitude, noting that “If colleagues are absent from work, their work must be replaced by someone else. The work is usually allocated by managers, and we are comfortable to do the extra job without complaint, we don’t mind doing it”. The Warehouse Manager [ZY] also confirmed how he would help colleagues who are unfamiliar with the ERP system by teaching them “how to use it effectively, for example, how to check information in the system. If there are duties that they forget or don’t know how to do, I will remind them and show them how to do it”. As described previously, the BOM files in the ERP were often constructed incorrectly; this also happened with some data in the financial and warehouse modules. These mistakes required continuous monitoring and supervision from the managers, meaning extra efforts need to be paid on the details and educating others. The Planning Manager [W] described similar behaviours, explaining: “I think this is part of my job responsibility”.

### ***The Sense of Responsibility and Its Influence on OCB***

The notion of responsibility or *zerengan* is central to the way some managers at Hardware Systems approach their work. It would be misleading to trivialise the helping behaviour as little more than collegial altruism, consistent with the OCB literature. Several employees discussed in detail how their actions were not merely altruistic, but rather are born of a sense of responsibility. The Warehouse Manager [ZY] noted that “there are a lot of things that are far beyond my job responsibility, but when there are things I can do to improve the efficiency of work, I would do them”. The Sales Supervisor [S] reiterates the point, observing “when my colleagues need help, I help. This is not because we are close to one another, it is because of the sense of responsibility. When colleagues ask for help, we should help them without hesitation”. The Finance Manger [X] expressed a deep sense of responsibility and loyalty to the company: “I feel shameful if I do not do my job well. This is because I treat the company as my home. Hence, no matter how busy I am at work, or working overtime, I do not complain. I just want to do the job well, and it is truly from the bottom of my heart”.

Attributed to the sense of responsibility, many staff at Hardware Systems are willing to do something extra. For instance, the engineering manager [G] indicated that Hardware Systems primarily manufactures non-standard products and therefore most components of each BOM are different. However the current ERP system can’t be integrated with a product design system such as CAD for the blueprint drawing information. Therefore some mistakes may occur during the transferring process of such information from one system (such as CAD drawings) to another (such as ERP) for the BOM setting. In order to avoid any potential mistakes, the engineering department often needs to carefully check the BOM information and communicate with the sales, production and material purchase departments accordingly. This is not an automatic process and requires not only professional responsibility but also extra care on BOM setting in the ERP. Considering that the current process is not ideal, the engineering manager [G] suggested the business process reengineering (BPR) and volunteered to provide assistance and even leadership if needed in the BRP process.

It is notable that the sense of responsibility is not only found at the managerial level. Similarly, the material worker [SH] suggested many ways in which process improvement could be achieved involving the ERP software. He clearly pointed out that the existing problems in using the ERP relate to the absence of standard ways in current work processes. He regularly shared his previous experience of using SAP ERP with his co-workers and commented on such issues as ERP support, training, and information internalization. During an hour-long interview, he suggested many creative and innovative initiatives that could improve the current work arrangements at Hardware Systems.

We conducted the above interviews and also the observations on two occasions based on the arrangement from the CEO of Hardware Systems [V] and her assistant. The CEO had several face-to-face meetings with the research team before, during and after the interviews. Her desire to improve the ERP use, the business process, and employees’ job performance was clear. The interviewees (including the managers and front-line employees) have highlighted the CEO’s strong commitment to the company and her influence on the employees of Hardware Systems. We observed that the CEO appeared to work around the clock, keeping herself engaged all the time on phone calls, emails and

WeChat (the most popular instant messaging application in China, similar to What's App) to solve internal and external problems. Indeed, she slept in the office most nights! In addition to these professional business activities, the CEO also often organized after-work activities, such as meal gatherings, karaoke, sports exercise and events (biking, basketball, yoga, etc.), and city tours. Her working philosophy of engaging with employees involved both professional work and social activities. Together, these brought energy, agility and harmony to the company, as evidenced by several interviewees [ZY, S, X, SH].

## Discussion

In the literature, there is a general appreciation that both the absence of technical skills and inadequate on-the-job training can contribute to problems among employees (Wong et al. 2005). Their motivation to work, their sense of care when performing their work and their enthusiasm can all suffer. These can lead to serious negative consequences for the organization (Wendin 1999). ERP systems are particularly problematic, due to their complexity, with employees often “unable to acquire sufficient knowledge or skills” (Wong et al. 2005) and therefore lacking knowledge about ERP functionality (Alojaiiri et al. 2013; Wong et al. 2005) identified poor training as a critical failure factor associated with ERP implementation. Even though we do not suggest that the ERP in Hardware Systems has failed, there are certainly deficiencies that exert a negative impact on day-to-day operations, leading to the situation where some employees choose to undertake overtime work to cover for their colleagues. Many employees noted that they have inadequate formal training in how to use the ERP. Such training often takes the form of on-the-job training and associated skills development, which are considered to be indispensable for a successful business (Silvennoinen and Nori 2017) and determining factors for successful system implementation, ensuring that employees have the competence to understand system functionality (Ignatiadis and Nandhakumar 2009). However, the question of employee competence was raised in this study, again reflecting weaknesses in the training regime. Lin and Hsu (2017) noted a significantly positive relationship between on-the-job training and work achievement, pointing out that it provides employees with professional knowledge and skills leading to workplace competence. However, such training needs to be conducted repetitively, since knowledge decays with time if not reinforced (Arbesman 2012). Informally, we did observe repetitive training: managers would provide additional training to their subordinates. However, it appeared that this was insufficient, with the result that some managers also needed to engage in overtime work to complete the tasks of others.

The OCB literature identifies a number of components. Those that are most relevant to the current case including helping behaviour, individual initiative and self-development (see Podsakoff et al. 2009), as well as some other new forms of OCB. These include ERP-related (1) workarounds and (2) problem solving, plus a broader sense of general OCB such as (3) job crafting by BPR, (4) building role models and (5) leadership. The interviews also reveal that the motivation to engage in such traditional and new forms of OCB can be expressed in what Farh et al. (1997) term “self-derived obligations”, i.e. the sense of responsibility that some managers feel to be associated with their position or role. Our conversations with these managers, as well as the CEO, suggest that these responsibilities accord with Lu and Koehn's (2015) implicit yet still morally obligatory responsibilities. The sense of harmony that Farh et al. (1997) refer to was also implicit among colleagues in Hardware Systems, a few of our interviewees mentioning it explicitly. A Planning Manager [W] mentioned the harmonious culture of the company and the Finance Manager [X] observed that the CEO treated all employees like family members. The material worker [SH] commented “we are like a big family”.

Sense of responsibility, although recognised in the literature, has not previously been associated with OCB. Although the volume of evidence in this study is limited, several managers repeatedly talked about their sense of responsibility to the company. This form of personal, implicitly obligatory responsibility appears to be a key driver of OCB behaviour that exerts a positive impact on both internal work processes and external work outcomes. The responsibility is manifested in, and thus may be seen as antecedent to, the action of intervening to help others; this means that when employees experience difficulties in their work, whether due to inability, lack of competence, lack of

time or sickness, a manager is likely to intervene to help resolve the problem. If necessary, the manager may provide additional training to the employee in the missing skills so as to enhance competence. When dealing with ERP problems, employees (both managers and workers) can create workarounds. Several interviewees explicitly indicated a desire to craft their jobs by redesigning the business process. Their professional sense of and responsibilities at work has spawned many positive forms of OCB, that subsequently introduced positive influences to both the soft and hard sides of organizational performance, including harmony and organizational agility. As a result of this intervention, customer satisfaction will be more assured. A key criterion for OCB is that the behaviour not be formally mandated or obligated in an employee contract. Our understanding of the way *zerengan* works is that it is entirely implicit, even as the individual senses that it is obligatory. The evidence we have presented suggests that this sense of responsibility primarily applies to more senior employees such as managers, which is consistent with the literature (Yeophantong 2013; Lu and Koehn 2015). Responsibility is normally commensurate with authority: more senior employees such as managers will feel a stronger sense of responsibility than their junior colleagues. We suggest that future OCB research should consider the sense of responsibility that employees may have that they believe to be associated with their formal job position, even if it is not formally required contractually. As Hardware Systems is a SME, we anticipate the lack of resources might actually result in higher levels of OCB. However, we do not have a contrasting or comparison case that we can analyse in order to make conclusive remarks on the causal relationship between resources and OCB, or the moderating effects of resources on the relationship between the sense of responsibility and OCB. Future research may examine such relationships and also how the sense of responsibility can be nurtured.

## Conclusions

In this exploratory case study, we have investigated the way OCB is manifested in a small Chinese manufacturing company in the specific context of ERP usage. While there are previous studies of OCB with respect to both ERP and Chinese organizations, we believe that this is one of the earliest to combine the two. While ERP itself is a well studied topic, an assessment of the way ERP use is affected, both positively and negatively, by OCB has hardly been touched upon. Moreover, although the Chinese concept of *zerengan* has been studied previously, it has not been formally associated with the OCB literature. Since *zerengan* includes elements of informal yet mandatory obligation (Yeophantong 2013; Lu and Koehn 2015) that may constitute a driver of other behaviours commonly associated with OCB, we suggest that a more rigorous investigation of the links between *zerengan* and OCB will be profitable.

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