

Building the hybrid organisation through ERP and enterprise social software



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ABSTRACT

This research traces the implementation of an information system in the form of ERP modules covering tenant and contract management in a Chinese service company. Misalignments between the ERP system specification and user needs led to the adoption of informal processes within the organisation. These processes are facilitated within an informal organisational structure and are based on human interactions undertaken within the formal organisation. Rather than to attempt to suppress the emergence of the informal organisation the company decided to channel the energies of staff involved in informal processes towards organisational goals. The company achieved this by harnessing the capabilities of what we term a hybrid ERP system, combining the functionality of a traditional (formal) ERP installation with the capabilities of Enterprise Social Software (ESS). However the company recognised that the successful operation of the hybrid ERP system would require a number of changes in organisational design in areas such as reporting structures and communication channels. A narrative provided by interviews with company personnel is thematised around the formal and informal characteristics of the organisation as defined in the literature. This leads to a definition of the characteristics of the hybrid organisation and strategies for enabling a hybrid organisation, facilitated by a hybrid ERP system, which directs formal and informal behaviour towards organisational goals and provides a template for future hybrid implementations.

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1. Introduction

Most research in the area of ERP implementation is focused on how to improve system performance [1] or alignment with business needs [23]. However Grabot et al. [12] state that the poor level of adoption of ERP systems is often considered as linked to a loss of social interactions between users of the ERP. ERP systems can be seen as representing the formal organisation, containing plans and subsequent actions which must be taken in accordance with these plans [36]. However social interactions take place in what is termed the informal organisation [17]. The term 'informal' is originally from organisation management theory, and refers to the emergent patterns of business behaviour that are relatively "loose", "spontaneous", and involve "casual social intercourse and comportment" [37]. Rules of conduct imply informal and implicit consents, such as customs, traditions, conventions, ethics, and authoritative relations. Usually, an informal organisation is used to describe a firm which is loose, flexible and embeds human

practices, rather than practical, holistic or logical [18]. Recently the importance of informal systems to provide better communication between people and enterprise systems has been realized. For example, [38] highlight the use of flexibility to support business processes to accommodate uncertainties in the competitive markets in a communication technology manufacturing firm. When there is a misalignment between the formal organisation, as represented here by the ERP system, and the needs of employees and the organisation then informal practices will emerge within any formal structure [13]. Furthermore Gray and Starke [13] state that it is important for managers to understand (rather than to attempt to suppress) the informal organisation and to channel its energies towards organisational goals.

This study evaluates the use of what we term a 'hybrid' ERP system as a mechanism for both improving the operation of formal processes and directing informal behaviour towards organisational goals. The use of the word hybrid is to distinguish it from a traditional (we use the term 'formal') ERP system. A hybrid ERP system consists of a formal ERP system in combination with enterprise social software (ESS) to facilitate both formal and informal activities. In general ESS provides a way of incorporating informal communication in firms, connecting people from

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different areas and solving business problems based on people's practical knowledge [39]. ESS enables individual-level interactions, such as discussion forums and blogs, through which people can ask questions and get responses from others. This means employees can participate in modifying work procedures and their ideas can influence the design of working methods. Thus, ESS improve business innovation and links with the concept of interpretive flexibility, in that people interpret, experience and contribute to the final form of business practice [5].

Implementations of ESS are often termed Enterprise 2.0 [26] which is a software application based on web 2.0 technologies such as wikis, workflows, forums and blogs inside the corporation's Intranet [21]. Grabot et al. [12] use the term ERP 2.0 to describe the integration of ERP and web 2.0 tools and provide further technical details on web 2.0 applications that can be integrated with ERP.

The article is structured as follows: A research methodology section outlines the use of the case study method and provides details regarding data collection activities. The case study findings section provides background detail of the case study organisation and traces the development of the ERP system within the company. The study traces, through the use of a narrative provided by interviews with company personnel, the implementation of a standard (formal) ERP system, the occurrence of misalignments between the formal ERP system and user needs and the subsequent development of informal practices within the organisation. This narrative provides an understanding of why the company needs a hybrid ERP system and is followed by a description of the implemented hybrid ERP system, consisting of the formal ERP system operated in parallel with an ESS application of a web-based discussion forum. However the company recognised that the successful operation of the hybrid ERP system would require a number of changes in organisational design in areas such as reporting structures and communication channels. The discussion section then evaluates, through a narrative provided by interviews with company personnel, the hybrid implementation in this organisational context. The narrative is thematised using the formal and informal characteristics of the organisation as defined by Gray and Starke [13]. This leads to a contribution in the form of strategies for enabling a hybrid organisation that directs formal and informal behaviour towards organisational goals and provides a template for future hybrid implementations.

2. Research methodology

Case study research typically involves data collection by a direct observer(s) in a single, natural setting that considers temporal and contextual aspects of the contemporary phenomenon under study, but without experimental controls or manipulations. Thus case study research is an example of a research paradigm known as interpretivism which aims to help *understand* phenomena, in contrast to rationalism which aims to *explain* or *predict* phenomena. A benefit of the case study approach is that phenomenon can be studied in their natural setting and meaningful, relevant theory can be generated from the understanding gained through observing actual practice [27]. Thus due to the exploratory nature of this research, the case study method is used as it provides a rich understanding of the context of research and the processes being enacted [10]. The method particularly fits a study that asks 'how' and 'why' questions [35]. The research investigates a company in order to understand 'why' they need a hybrid system of an ERP and ESS and 'how' this system relates to the formal and informal characteristics of the organisation. These characteristics are then synthesized to provide defining features of a hybrid organization.

The case study is of a company based in China. This country was chosen as the authors could gain access to company and the country represents a context in which the implementation of a market

economy has led to an increasingly complex and uncertain business environment [16]. Also informal processes are a significant feature of Chinese firms, as the business culture is shaped by personal and high-context communications, non-systemic decision-making and unstructured business processes [34,6]. Examples of the use of informal practice in Chinese firms are the use of 'workarounds' to adapt an ERP system to the needs of a Chinese context [22] and the business practice of 'guanxi' which is a network of relationships assured by trust and based on the exchange of favours [24,7].

This research adopts semi-structured interviews for a single case study data collection. The interviews focus on a specific topic, and the data collection technique was flexible enough for researchers to ask questions that were interesting for interviewees. The result of this approach is that interviewees feel comfortable in an open and flexible conversational environment [8]. Therefore the interviews in this study followed a 'topic guide' that was designed before the interviews were conducted. The interview topics concerned the company background, operating conditions and the information systems used in the firm (Appendix A). Some of the interviews were conducted across a group of employees and the interviewees who participated in the study had either used the ERP system or were involved in its implementation. The research also collected data from other sources to ensure validity, including company ERP system implementation documents, websites, presentations and organisation charts.

3. Case study findings

The Jinsheng Group is a service company that manages a portfolio of furniture shopping centres (malls) in the East China region. It has approximately 1500 employees and 3500 shop tenants located in 11 medium-sized malls which offer a wide range of home-furnishing and household related products. The company oversees operations from its headquarters (HQ), with each mall under management based within five geographic regions. Fig. 1 shows an organisation chart identifying the interview participants based at headquarters and at the Jiangdongmen Road Mall branch within the Nanjing Region.

The main service provided by the company is to let out the individual retail shops (stalls) within the centres to tenants in the form of furniture retailers. The company has the dual aim of increasing profits from individual shop rents and in marketing the shopping centre in order to increase overall income from tenants and consumers [19]. Thus winning a high market share of furniture sales is important to increase the rental income and thus tenants that can generate high sales volumes are particularly sought after. To drive these objectives, the firm requires both efficiency in terms of letting out the retail shops quickly and flexibility in terms of providing a fast response to changing market demands. An ERP system was adopted in order to support the day-to-day operation of the mall. This original version of the system, adopted in 2009 and supplied by Digital China, is termed the formal ERP system in this study and its function is now described in more detail.

3.1. The formal ERP system

ERP systems is applications software offered by firms such as SAP and Oracle and can deal with multiple business units including sales and operations planning, manufacturing, order processing, accounting and finance, human resources, customer relationship management and many more [28]. A key attribute of ERP systems is that they enhance knowledge sharing within and across organisations assisting firms to access multiple viewpoints on long-term and short-term objectives optimally utilising organisational resources [25]. In this study the formal ERP system is a service-based system developed by a local Chinese enterprise software company Digital

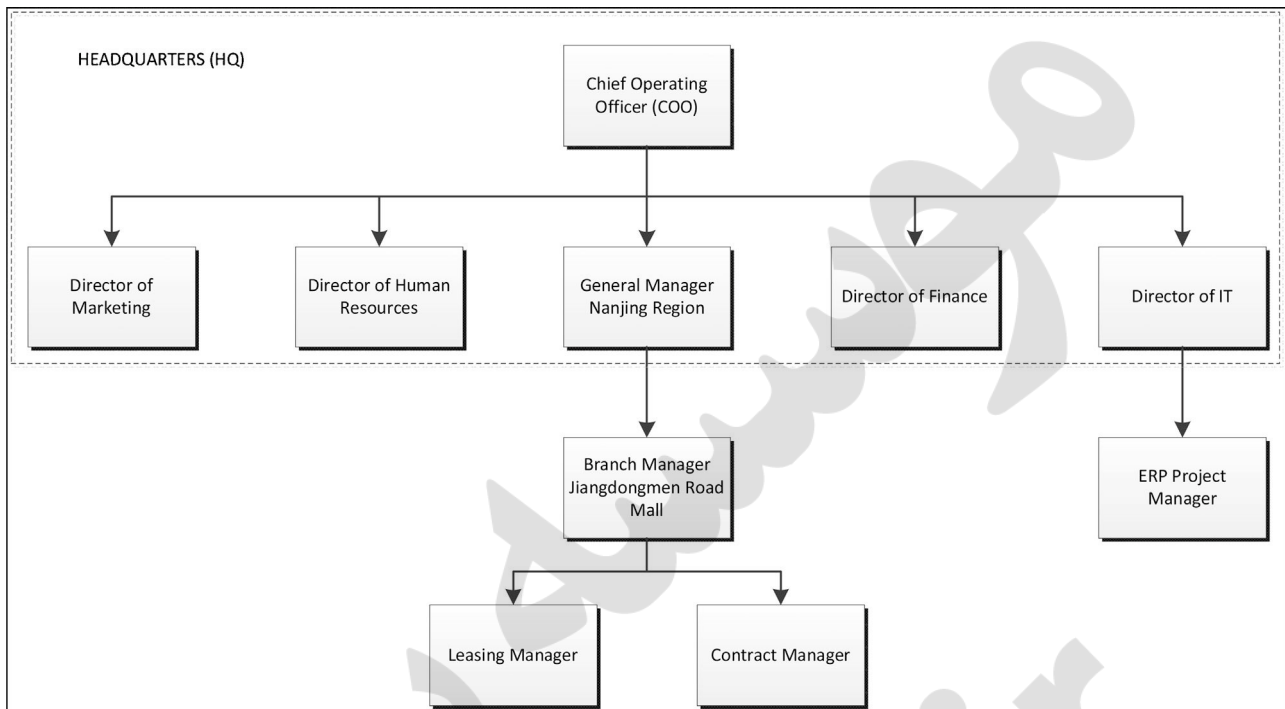


Fig. 1. Jinsheng Group Interview Participant Roles.

China, and implemented by Jinsheng HQ. The system covers the core business processes around marketing, operations and finance with a Business Intelligence (BI) functionality used to compare organisational performance across the shopping malls. The main aim of implementing the ERP was to integrate information across the group and so provide a high quality standardised service across all of the malls. Moreover, the company aimed to increase the speed of serving tenants, in order to let out shop space quickly and gain immediate returns from rental income.

The focus of this study is based upon two key modules of the ERP system that support customer service operations of tenant management and contract management. Previous to the introduction of the ERP system these processes had been handled differently within the different mall operations. The ERP system was intended to integrate and standardise processes in these two key areas of operation.

The tenant management module allocates the tenants to individual shops (stalls) within the store layout. The ERP system contains a layout of the shopping centre with the centre in this case on 6 floors with each floor containing shops in 3 sizes (small, medium, and large). The identification of a tenant and their leasing contract is linked to the unique identification of each shop. All tenants are served with a standard service that records tenant information and allocates shop space based on their requirements. The policy of allocating shop space is based on the available shop space and the floor (different floors will be allocated to different types of furniture retailers) and the size of the space that the tenant requires. If a shop space is available that fits the requirements of the tenant then a space will be allocated, otherwise the tenant will be required to wait until existing tenants have left.

The contract management module supports three contract services of creating a new contract, renew a contract, and ending a contract. Firstly the branch manager will approve the signing of a new contract or termination of an existing contract. Then, the Contract Management Centre records the contract information of each tenant using predefined contract service procedures. Each

contract is stored in the ERP with the standard terms, including the period of the lease, the size of property to be let out, the renewal of the lease, and the frequency and method of adjustment of rent. As soon as a tenancy contract is signed and stored in an ERP, it cannot be adjusted prior to lease expiry. Thus, the firm cannot adjust aspects of the contract such as the rental price or shop layout in response to the needs of tenants.

3.2. Misalignments between the formal ERP system and user needs

It became clear during the operation of the formal ERP system that it was not sufficiently adapted to the needs of the users in practice. To identify and help understand these issues a discussion is presented with relevant stakeholders.

One issue was that some tenants did not complete their tenancy period for their shop space in the mall. For example according to the Branch Manager of Jiangdongmen Road Mall:

"ERP was designed based on normal operational procedures, but when you're managing a mall, there are likely to be a lot of unforeseen events. In an ERP, it is easy to finish the contract when the contract expires, while most of time, tenants leave earlier . . ."

Thus even though some tenants have signed a contract with the firm, if their sales are lower than expected, the tenants might break the leasing contracts, and leave.

Another issue is fitting new tenants requirements for space around existing tenants in the mall. For example a new tenant may wish to combine two adjacent shop spaces which may impact on existing tenants who are still in contract. The Branch Manager of Jiangdongmen Road Mall gives an example of how the shop layout is adjusted in this situation.

" . . . if tenant A leaves, we need to react to the changes quick and find a new tenant immediately to fill the vacant stall. However, sometimes, tenant B comes in and intends to combine stall X and stall Y. If we terminate the contract of the current tenant C in stall Y, he/she won't have a sales account, so that the tenant (C) can't serve shoppers. So when we have a problem, the system will prevent the normal operations of our tenants . . ."

... The only solution is that we provide an informal contract that is not in the ERP system to tenant B, and we provide a virtual sales account to ensure the tenant can use the vacant stall X. When tenant C's contract is expired, we will provide a formal contract for the new tenant (B)."

Another issue is when the firm experiences changes in demand from potential tenants for shop space or changes in tenant shop sales that lead to changes in demand for shops. According to the Branch manager of Jiangdongmen Road Mall,

"The management of our malls in relation to the demand and supply relationship ... If there is urgent increase or decrease in demanding our mall, we need to quickly respond to the changes in order to ensure the stability of the mall's operation. We might consolidate or split the stalls in the mall in order to solve the problems."

The General Manager of Nanjing regional headquarters pointed out the approach to deal with the sales uncertainty:

"The sales of particular tenants are going up, which might cause an increase in the amount of stall demands from the tenants in the industry. On the other hand, some industries are on the way down, which might cause the decrease in the amount of stall demands. Thus, based on these kinds of circumstances, our mall manager will make modifications on production structure that they will put more emphasis on industries that are growing, while reduce the number of industries that are experiencing a downturn."

Most tenants' demands are unpredictable, since their sales can be influenced by irregular changes in government policies. Therefore, the informal solution to a demand surge at Jinsheng is to retain a high number of 'strong' retailers, who are the most influential furniture retailers in the local market. These tenants' sales will not be easily influenced by market factors and so the company provides longer contracts for them. This approach is essential in securing a healthy profit from these tenants. However, the varied contract duration contradicts the one-year contract policy in the ERP system.

Another issue is that caused by the business environment in which the company operates. For instance, the Chinese government has instigated a policy to encourage preferential treatment for small retailers. Thus the small retailers in the stores were given extended contracts and they were able to pay rental fees monthly rather than yearly. However currently the ERP system based contract cannot be changed in accordance with the special treatment provided to a particular groups of customers.

For example, the Chief Operations Officer stated:

"... the requirements of tenants are changeable. We cannot analyse the changes, and make predictions about market trends. If the government focuses on the real estate market, any changes of government policy will impact on sales in the shop and rents. For instance, now, the government is controlling the number of houses that people can buy, which has depressed the whole home-furnishing market. Sales have decreased recently, so demands have decreased as well. The other reason might be because of the urban planning by our city government. If the government re-plans the landscape, we only need to re-allocate the centre space. During the re-allocation, some tenants will leave as well. The irregular changes in government policies might cause us to have to deal with the irregular changes in tenants demands."

3.3. Areas where informal practices have arisen

As a consequence of the misalignments outlined in the previous section, informal practices emerged in two areas of the allocation of shop space to new and existing customers and the process of the

management of the relationship with a tenant through the tenancy period.

Firstly the issue of allocation of shop space to customers was seen to require a more flexible approach than the current standardised First in First out (FIFO) rule, which is a service policy in the system whereby the request of tenants are attended to in the order that they arrived without other biases or preferences. Instead employees and the company regarded a more effective approach was to tackle the issue using the intelligence and negotiation skills of personnel to achieve a compromise plan, rather than rigidly following the ERP-based space allocation solution.

According to the Leasing manager of Jiangdongmen Mall:

"... it's very important to make the most of opportunities that arise when looking for new tenants. A tenant can change their mind in a matter of minutes, and so immediately signing a contract with a tenant is the best way to get rid of vacant stalls. What's more, when it comes to making flexible adjustments to vacant stalls, HQ will carry out the relevant performance evaluation for the mall – but with ERP, contracts can only be dealt with once the lease on the stall has ended, so there's no way to immediately deal with vacant stalls."

Secondly, the relationships the company has with its tenants are a crucial factor in showing how managers should specify the services to different tenants and the nature of these relationships are difficult to codify. The formal ERP used attributes such as business size, market reputation, production scope, number and the size of stalls, and the sales volume of the tenants. However, subsidiaries also have to consider other factors when they provide the services to the tenants, for instance the treatment given to a tenant who agrees to pay rent in advance to assist a centre in fulfilling an urgent rent collection task from headquarters. The use of practical knowledge and the need for relationship management meant it was difficult to document all the attributes of a tenant and to categorise the services to the tenant in the formal ERP system. Consequently, these needs were met by informal activities implemented by frontline employees.

3.4. The informal processes

This section provides details of the informal processes within the areas of operation identified in the previous section.

The first type of informal process relates to shop allocation and classifies tenants into those that are treated to standard practice and those termed 'good relationship' (GR) tenants that receive privileged treatment. This process of segmentation is important because acquiring suitable tenants assists the firm in building a successful image, establishing an appropriate position in the marketplace and to win market share. The classification of tenants is based on a wide variety of tenant attributes, including company size, product range, market reputation, target market and the required stall size are attributes that are used to categorise the tenants. These attributes can be generally codified in the ERP system and an assessment made of the tenant. However the relative importance of these attributes will be dependent on the current operating conditions the mall finds itself in. For example when a shopping centre is operated in good conditions such that the demand for the stalls is greater than the vacant space, the firm will prioritise selecting the best tenants in terms of those who sell the products that satisfy the needs of consumers in the local market. If the demand of tenants has been falling sharply however, the store will focus on the need for space rationalisation and the re-allocation of existing retailers, so as to provide more choice of the stalls to new tenants, in order to let out the vacant space immediately. The key point is that the frontline staff who serve consumers in the front-end office notice the changes in the market

immediately and before they can be incorporated into the formal ERP system. Since the company is unable to gather real-time sales information for tenants, the firm relies on the experience of employees who serve in a store to identify the GR-tenants. The Chief Operations Officer provides an example of how employees use their experience to identify GR-tenants in accordance with sales condition:

"We need to rely on our store managers and marketing staff who always serve in the store. They communicate with retailers, observing retailers "sales, as well as doing research into the shopping interests of consumers in our stores and nearby store, as tenants are protective of their sales information . . ."

The second type of informal processes relate to the relationship with current tenants. One process allows a GR-tenant to sign and to renew a contract *informally*; for example, removing the need for the contract to be approved by senior managers, and removing the need for a credit check before renewal. The major reason for these procedures for these privileged tenants is to build a relationship with them, and also to ensure against the possibility that they might change their mind. As the General Manager of Nanjing regional headquarters stated:

" . . . we provide discounts, and speed up valuable tenant services with the aim of building relationships with those who are our major clients. When we set up new stores, they are able to set up branches in the stores. Thus they support the development of our company within a chain . . . |"

Another informal process occurs when changing agreements for an existing contract. Using the formal ERP system does not allow changes in a signed contract and the duration of the contract is usually one year. However when market interests shift or some tenants' sales are not as good as expected, the tenants will leave, or a store manager might convince these tenants to move to other low-level stores. Conversely, if a tenant has a high sales volume, a store manager might sign a longer contract with the tenant. Thus, the Contract Management Centre might extend or terminate some existing contracts *informally*, even if the contract has been signed. The reason for changing an existing contract agreement serves to set product structure flexibly in order to accommodate the needs of shoppers. As the General Manager recalled:

" . . . in the past, we were not referred to as a mall. We were called a market, because our products were relatively low-end. Now, as Jinsheng has developed, the quality of our products has continued to increase, and this has allowed us to accommodate the constantly changing needs of consumers . . . "

3.5. The hybrid ERP system

This section outlines the elements of the hybrid ERP system implemented by the case study company in response to the emergence of the informal processes outlined in the previous section.

The hybrid ERP system consists of the current formal ERP system in parallel with an Enterprise Social Software (ESS) application. The main element of the ESS component of the hybrid system is the enterprise communications software 'Office Assistant' (OA) which is a web-based discussion forum. This supports the retrieval of real-time information and permits the approval of any informal processes by expert groups or senior managers in headquarters. The OA system links with the ERP through a shared database, so informal practices are documented, rather than being uncollectable scattered information. Since the approved informal practices-related information cannot be typed into the ERP system directly, frontline staff use virtual contracts to record information. Thus the hybrid ERP system incorporates both

an formal ERP-based tenancy contract and a virtual contract held within the ESS. The two contracts are associated with two types of procedure. The formal contract has pre-defined system procedures, while the virtual contract involves informal practices that are not based on system policies. Fig. 2 elaborates the hybrid system in the Jinsheng Group that consists of the ERP (formal) and OA (informal) systems.

The formal ERP system enables standardised operations with contract management, 'sign new contract', 'end contract', and 'renew contract', while the informal system represents the human system that involves human intervention when there are uncertainties. The front end operation of the OA system includes "user input requests" and 'expert group confirmation" to enable the information transparency of the informal practices. Changes such as adjusting contract duration or re-allocating stalls will be implemented after experts authorise the changes. All of these will be documented in the virtual contract. In the back-end system, formal contracts and informal contracts are in a separate database. The formal contract contains contract information of stall location, rental fees, and contract starting time and end time, which is stored in the ERP system. However, the informal contract information is stored in a separate database and it will be recoded into the ERP system as soon as a contract is signed. At that point, the Finance department is able to analyse income/profits with real-time information. However, the contract contents and contract duration of an informal contract are not valid until the formal contract of the previous stall is expired. This is because the firm has the policy that one stall cannot be rented twice. If both the formal and informal contracts information is recorded into the ERP system, the firm might have duplicated data with the company not able to recognise which stall has been rented and which has not. Thus, the back-end system contains two separate databases. One stores the formal ERP system-based information that is actually used for supporting standard operations and financial functions. The database holding the informal information only serves to store data in the staging phase, which will be transferred to the ERP system database when the contracts have been validated.

Fig. 3 provides an example of how the ERP and ESS systems interact showing the mechanism for checking the knowledge-based information regarding a tenant on the ESS Office Assistant software before completing an operation on the ERP platform. This communication platform subsequently increased the coordination between departments, as the Finance director states,

"After the system is implemented, we have to work closely with other departments. Daily operations can only be completed according to system procedures if a tenant's contract is going to expire, at which point we have to verify stall rent, price and the date when the original tenant's contract was signed with the Contract Centre . . . Before clicking the 'CONFIRM' button on ERP, we check the above documents on the OA system. The approval procedures on the OA system are quite quick and easy to use, and I can also communicate with other departments through the document approval system."

Thus Web 2.0 technology allows communications during a business transaction to allow informal activities such as shop space reallocation to be undertaken by a community of experts from different branch stores, as stated by the Director of Marketing:

"Before, it was extremely rare that we arranged a large-scale shop space adjustment between two branches. Now, it happens frequently, because large-scale adjustment using OA and ERP is easy to carry out. It allows me to immediately find the people I need to connect with for work. More importantly, more knowledgeable people help us to achieve the desired level of adjustment activity . . ."

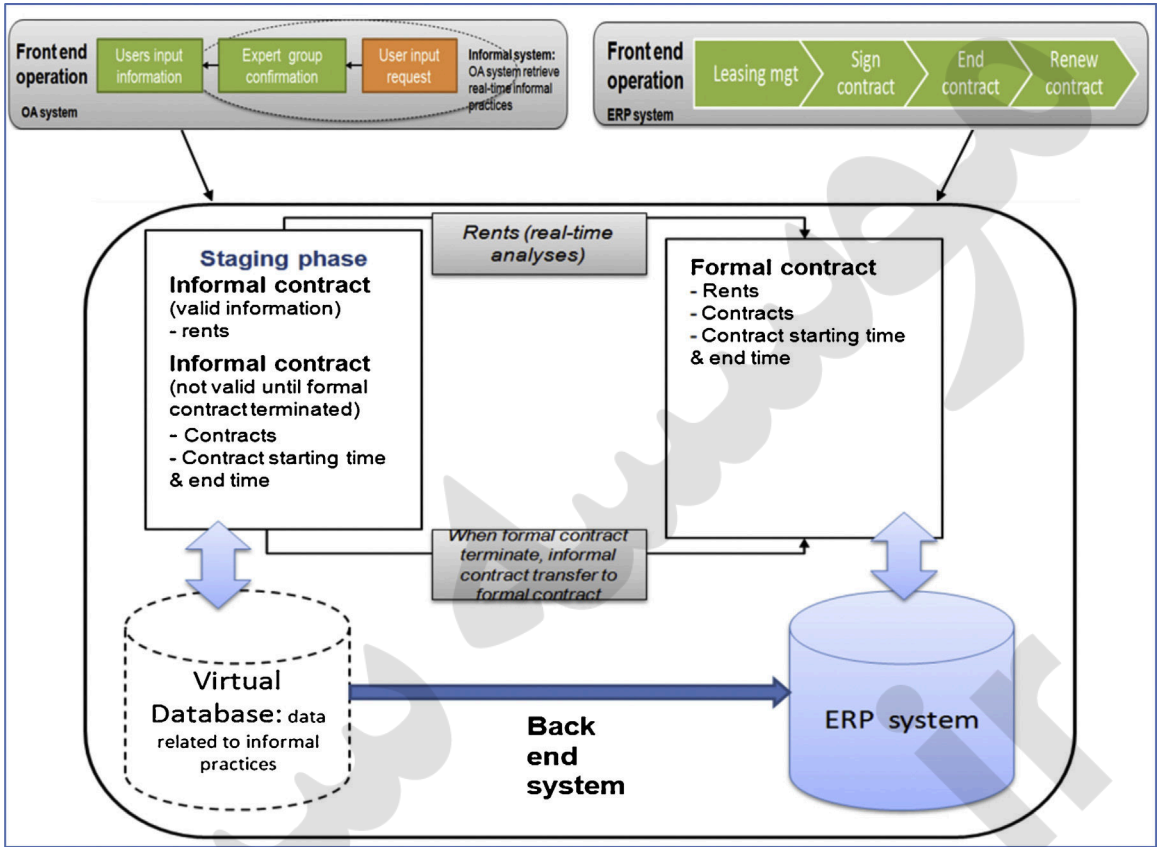


Fig. 2. The hybrid ERP system model at Jinsheng.

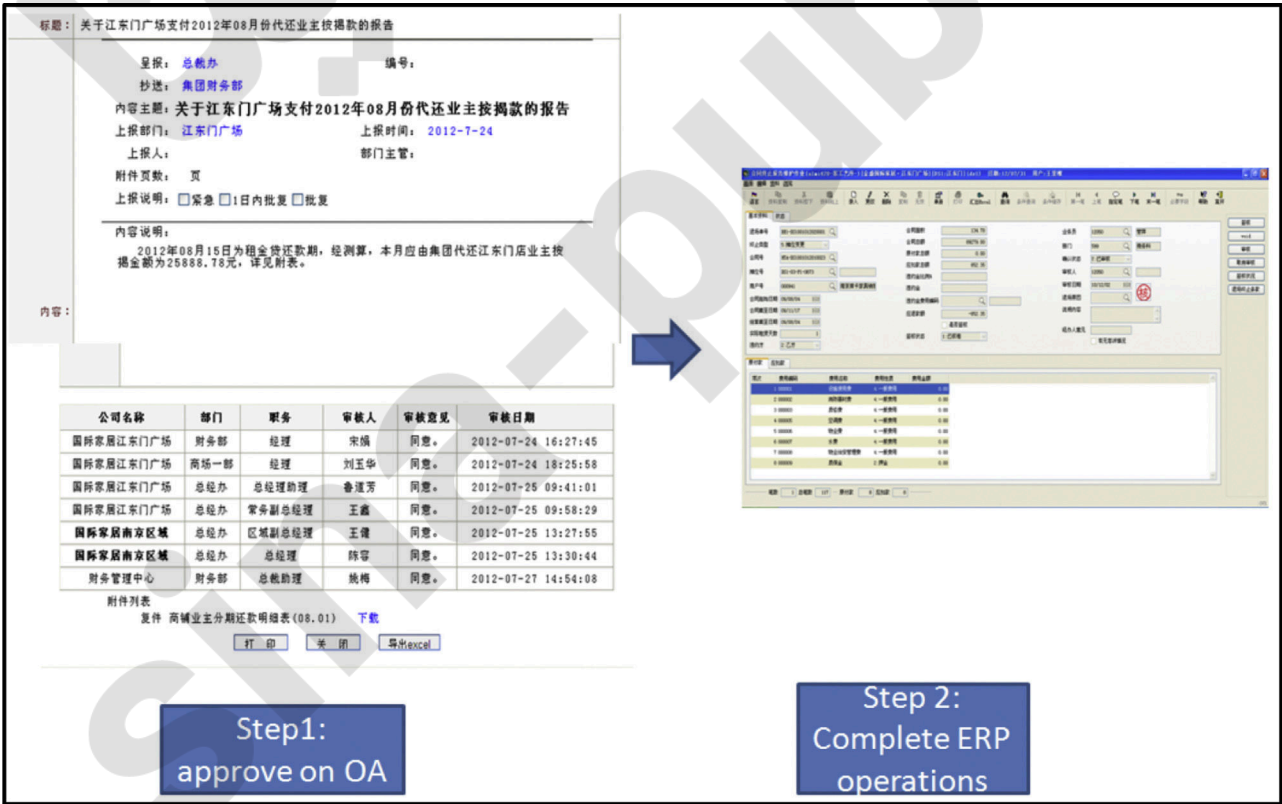


Fig. 3. Operations of the hybrid ERP system during a business transaction.

In summary the hybrid ERP system enabled the documentation of informal processes, the transfer of knowledge across operations in different parts of the organisation, synchronisation of formal and informal information through the use of virtual contracts and overview and validation by an expert group to ensure consistency between formal and informal processes. The study now focuses on the organisational context of the use of hybrid ERP systems (further technical details of the integration of ERP and web 2.0 tools can be found in Grabot et al. [12] in order to demonstrate how the hybrid ERP system relates to the formal and informal characteristics of the organisation. These characteristics are then synthesized to provide defining features of a hybrid organisation which provides a template in which both formal and informal behavior can be directed towards organisational goals.

4. Discussion

The informal organisation refers to the patterns of behaviour and influence that arise out of the human interaction occurring within the formal structure. Because the informal organisation can exert a strong influence on employee behaviour, it is important to understand its nature and ensure that it encourages behaviour in alignment with the organisation's goals. This section examines the introduction of a hybrid ERP system by analysing its organisational context from the perspective of senior managers. We compare the changes at Jinsheng made after implementation of the hybrid ERP system with the formal and informal styles of organisation which can be distinguished along a series of dimensions of organisation structure, position terminology, goals, influence, control mechanisms and communication [13]. From an analysis of a narrative thematised by these organisational characteristics we define the characteristics of the hybrid organisation and then present strategies for the implementation of a hybrid organisation that can be facilitated by a hybrid ERP system.

4.1. Organisational structure

This dimension of the organisation involves the design of the hierarchy and social relations within the organisational structure. In terms of organisational structure the formal organisation is goal-oriented and designed around general principles. By contrast, the informal organisation develops spontaneously. The patterns of working procedures are engendered by a wide variety of social and personal relationships, which result in an informal organisational structure that reflects individual goals rather than organisational goals. The rationale of functions and business processes are more

emotion-oriented than logic-oriented. Changes will occur through the collective and its members.

One of the distinctive changes at Jinsheng after implementation of the hybrid system is that the company changed its organisational structure through the setting-up of regional headquarters to enhance horizontal communications and foster established social networks. Communications between Head Office and regional headquarters are still hierarchical while the horizontal interactions between regional headquarters and between subsidiaries are increased (see Fig. 4 and Fig. 5). In the new structure the director at each regional headquarters is able to provide localised management governance for the subsidiaries, as they are within the homogeneous market at the same regional scale. At Jinsheng, each regional headquarters contains eight experts and one general manager, and they are from different stores in the same management region. Therefore, the new organisational structure fosters personal links between branch stores, which improves the collaboration between stores. Any informal processes undertaken at store level are approved by the experts at the regional headquarters. The experts can learn and share these experiences with other branch stores on the ESS, whereby the informal and personal contacts among subsidiaries across different units are increased.

This 'hybrid' organisational structure facilitates both formal and informal communications. The formal interactions between Head Office and regional headquarters can provide adequate management guidance for each regional management centre. The hybrid system enhances the horizontal links in both regional headquarters and subsidiaries. ERP integrates resources between different regional headquarters to improve horizontal interaction by providing one standard system platform. The regional headquarters allocates the experts from different branches, and they work together in one regional office through a single online platform. The informality of the mechanism is increased, since personal contacts among branch managers become more frequent in the firm. Consequently, relationship-based communication increases across different branch units and results in well-connected subsidiaries. Not only are the connections between subsidiaries physically enabled by the ERP system so that personnel can share standard reports on one system platform, but also, the subsidiaries are psychologically linked. This is because the regional headquarters supports the informal system, so as to enhance horizontal communications. Ultimately, this means that each subsidiary is not isolated, but rather, they have all aligned operations with the same objectives in the market context.

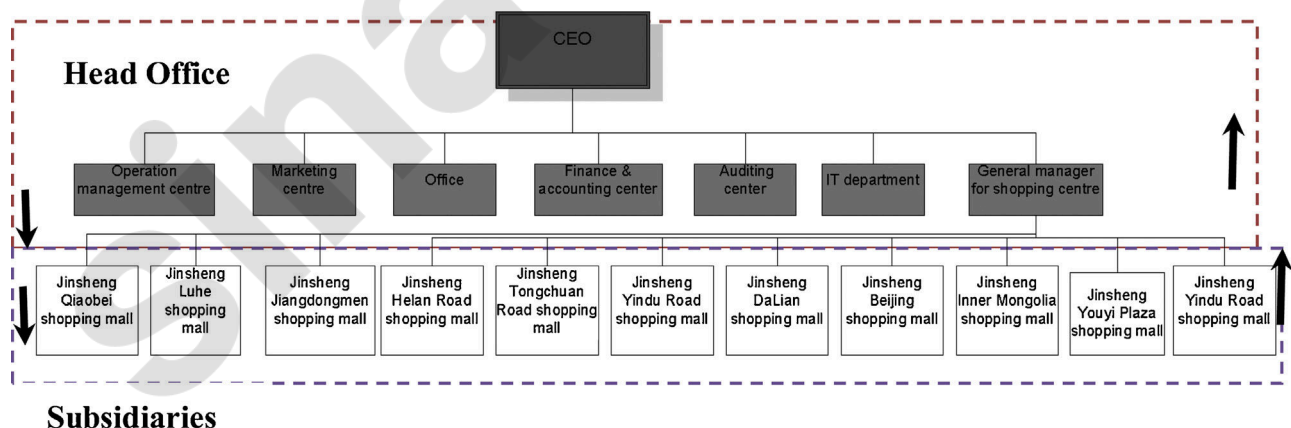


Fig. 4. Organisation structure before implementing the hybrid system.

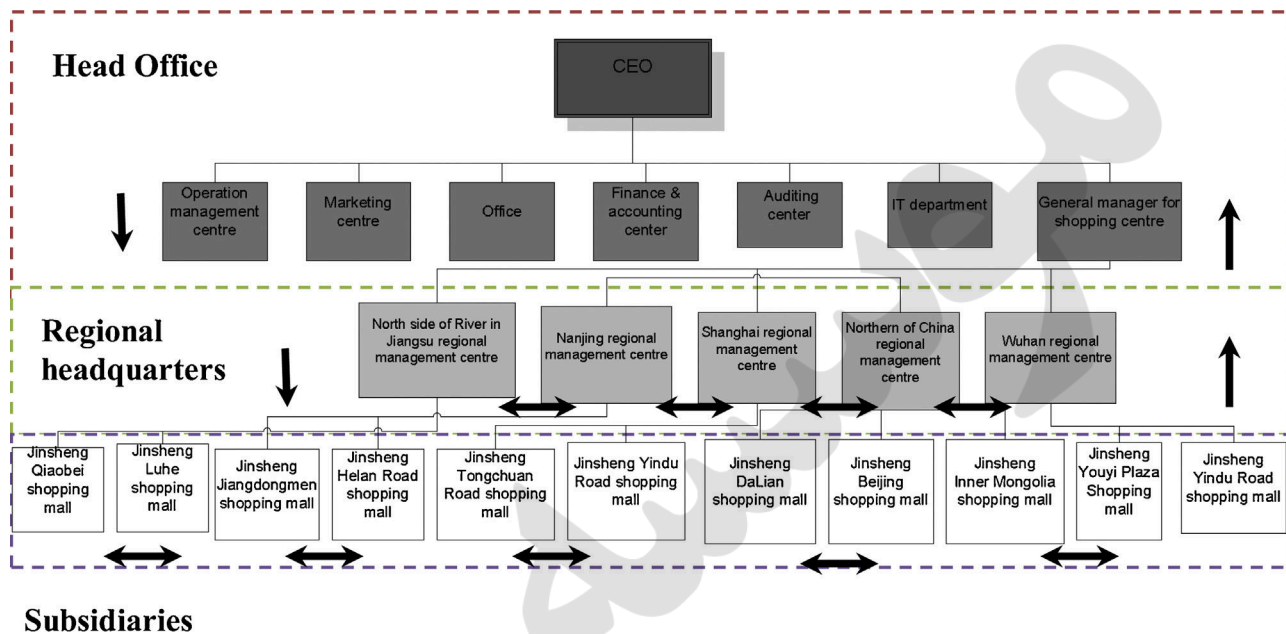


Fig. 5. Organisation structure after implementing the hybrid system.

4.2. Position terminology

The position terminology defines the relationship between the individual and the organisation. As shown in Table 1, the position terminology in the formal organisation is contained in a job specification while an informal organisation emphasises the role expectations from the job occupants and from their family, friends and colleagues [13].

Before ERP implementation, job positions in Jinsheng's shops were also ambiguously defined, and the vagueness left room for changes. For instance, the branch management team, Leasing Department, Marketing Department and Contract Management Centre all participate in leasing activities when the branch meets a problem, in order to achieve a certain letting quota. The initiative is called by management 'all-employee action' and it aims to collect all employees in a shop to work towards the essential targets of the mall. However, as the Branch Manager of Jiangdongmen Road Mall states:

"After the introduction of ERP, employees are stuck in their responsibilities and working with the system, so that 'all-employee action' would be hard to implement."

Thus using the formal ERP systems, the system-based procedures in each department are standard and clearly defined according to department responsibilities. Consequently, the job position will become clearly defined on the system in the light of departmental responsibilities. The management mechanism supports the firm in achieving its objectives so that different subsidiaries are with the same divisions and work on one system. As the HR director noted:

"A standard work division in each branch is requisite for a large premium home furnishing company that owns a chain of over 10 stores . . .

. . . Some of our newly-established stores work chaotically if we do not provide rational division of jobs. At the moment, the implementation of the ERP system has changed the situation, since the ERP also creates a management system and links which enable ordinary personnel to manage the mall competently when they start working there."

However, the informal system encourages personnel to carry out certain business tasks informally, i.e. without using the system, albeit after being authorised to do so by experts or senior managers. Thus personnel who have adequate experience of leasing shopping malls will not only follow the fixed working mode but will know when to change their prescribed role in the organisation in accordance with shop management targets. According to the ERP Project Manager:

"Our competitive advantage in the market is our employees. They have the ability to see the potential needs of the consumers and then they position the mall in accordance with the requirements of the market rather than following blindly whatever we ask them to do. Before ERP implementation, most of our employees in a shopping centre were able to work in any position in the market. When a shop is newly established, the job objective of every staff member is to let out vacant space. When a shop is under-performing, everyone will concentrate on re-allocating the shop space and promoting increased activity. There is no clear division between departments. Therefore, we currently have many entrepreneurs who can stand back and understand their roles in the organisation, how approachable they are, and how knowledgeable they are in different situations. The OA system in parallel with ERP enables these employees to implement their knowledge and enhance the management of a mall with situated actions . . ."

Therefore, the hybrid system enables the firm to change to a hybrid organisation mode with both formal and informal position terminology. The formal position is determined by the formal ERP system, which provides a rational division of labour and supports all stores that work to the same standards. At the same time, an informal position is also needed in the organisation so that those personnel with adequate shop management knowledge can meet their business targets in accordance with changing operating conditions. This can be facilitated by encouraging personnel to undertake certain tasks informally but in turn requiring authorisation by an expert group to ensure alignment with organisational needs.

4.3. Goals

Formal organisational goals are described by senior managers in relation to profitability or efficiency terms that can be quantifiably measured, while informal organisational goals are broadly defined by the social satisfaction of members. At Jinsheng, the personnel at Head Office always highlight formal goals such as economic achievements, return on investment, rental revenue, cost, rental space occupation rate and performance efficiency. The Chief Operations Officer stated:

"... 'numbers reign supreme', which means economic indicators take precedence in our company. We emphasise the rental revenue and operation costs ..."

However, low-level employees in the branch store concentrate on informal goals related to the satisfaction of external stakeholders (dominant actors such as tenants and shoppers). Most branch managers indicated the importance of tenants and consumers in supporting them to determine business goals. For instance, the manager assistant's perspective is different. The Branch Manager at the Jiangdongmen Road Mall said:

"There are two types of customers: our tenants, and the end consumer who buys things from the mall. We are likely to attach more importance to the latter's satisfaction. The end customers are the ones who actually buy the goods for sale in the mall, and they help spread our reputation by word of mouth. At the same time, tenants who satisfy the need for high sales in our mall help us to increase our reputation as well ..."

Sometimes, formal goals and informal goals are in conflict. Senior managers at Head Office focus on the actual rental profit and operation costs of a mall, whilst low-level personnel highlight the long-term achievements and the sustainable development of a mall. Thus, top management at Head Office is likely to rent out space for the large retailers to achieve a good return on investment immediately, and they make use of the ERP system to quantify the performance of operating a mall and enter this information into the system, so as to automate and reduce operating costs. By contrast, the employees in the branch store are concerned with the satisfaction of the local market, and often lease space to the small local furniture franchisers. The informal goal is to establish the proper position of a store, build its reputation in the market, and then increase rental revenue gradually, which is not completely in agreement with formal organisational goals. The company attempt to manage these potential conflicts by requiring authorisation of informal decisions from the experts and senior managers. In this way the hybrid ERP system can support the achievement of both formal and informal organisational goals.

4.4. Influence

This involves defining the *right* to influence behaviour provided by the formal organisation and the *ability* to influence behaviour derived from the informal organisation. In Table 1, the formal lines of authority are determined by a staff member's position in an organisation, whereas in informal organisations the personality of a person is relevant. This is related to communication within an organisation. The hierarchical lines of authority identify a formal communication structure, based on a top-down approach. On the other hand, informal communications are based on inter-personal relationships, which are poorly defined and rely on a bottom-up approach.

Before implementation of the hybrid system, the firm had reservations around decisions made through informal communication. According to the Chief Operations Officer:

"My feeling is that the company's long-term method of dealing with matters is through flexible communication, rather than doing things more systematically. Flexible communication can create high efficiency, but without a system and basic tools to support it, it's easy to make mistakes. We discovered a lot of problems with actual operations ..."

"... Before, we were able to operate better, if managers had a strong sense of what they needed to do, but most of the time they had a weak sense of what they had to do ..."

Thus, there needs to be a change from a less exacting approach to one in which regulations and rules are strictly followed ..."

The formal ERP system was seen as providing a framework in which most communications are task-oriented and based on position held in the company. This is because with a system of formal authority it is easier for senior management to translate its own authority into actual power and influence which directly guides the performance of employees. Their performance is rationally defined in the system. The Chief Operations Officer stated:

"If its bottom-up communication and you let employees talk about the way things are supposed to be, then that becomes meaningless rather than helping to put ideas into practice. The ERP transfers our management regulations and rules into a formal system, so as to guide our employees" performance ..."

However the need for informal communication and a bottom-up approach is still recognised as more appropriate in reflecting the real situation in the operation. As stated by General Manager at Nanjing regional headquarters:

"... the real situation is reflected by employees on the ground, and the senior management is too far from what's actually going on ..."

Here the ESS component of the hybrid system at Jinsheng supports the informal, bottom-up, flow of communications that are not well structured. The use of the ESS communication system enables employees to change their methods for handling problems depending on the situation. Through the authorisation procedures, mistakes due to informal influence can be reduced, since the experts in regional headquarters have a strong sense of the most user-friendly methods to sort out emerging problems.

Therefore, Jinsheng requires both top-down and bottom-up communication methods. The formal influence communication flow relates to top-down communication, and the informal influence flow relates to bottom-up communication which enables low-level employees to perform according to the situation. The hybrid system serves to support both these communications methods in the organisation.

4.5. Control mechanisms

According to Table 1 formal control and informal control are distinct. Formal control is related to regulations in the organisation to constrain the behaviour of members, while informal control is intended to influence employee behaviour based on social sanctions and norms [13]. Before the hybrid system is even implemented, there is a good deal of flexibility in the management of the mall. Special treatment is accorded to good-relationship-tenants under special operational circumstances, and this makes the tenants amenable to maintaining long-term cooperation with the firm. However, this does not mean that senior managers in the Head Office can tolerate arbitrariness in management. As the Directors of Finance and of HR at Head Office stated:

"... particularly for us, a lot of arbitrary changes will impact on rental income. The service we provide to tenants must be kept appropriate and effective, to increase the number of 'strong tenants' in the mall. By this I mean tenants who are major retailers"

or have an essential impact in the local market, and who are able to increase our rental income.”

“... low-level personnel and leaders can't abuse their authority, arbitrarily providing stalls to tenants, establishing the content of contract, and providing 'extra' services ... ”

Therefore, formal control exists in the organisation. Moreover, the ERP system is a managerial tool for top management to formally constrain the behaviour of subsidiaries, in order to avoid undesired flexibility. For example, top managers use the data from the ERP reports to evaluate performance indicators of employees.

At the same time, most middle managers in the branch stores pointed out the importance of 'emotional control' that extends the control mechanism to trust the self-organisational abilities of the staff. The first reason is that each subsidiary does indeed rely heavily on having capable employees to manage a mall and deal with emerging problems in the local market. Secondly, if the firm relies solely on formal control and constrains the performance of each subsidiary through the ERP system, it will lose the benefits of individual development, and even risk alienating local consumers. According to the Chief Operations Officer:

“The key is local consumers. Regardless of any control or analysis of indicators, ultimately we have to improve our services to end-customers ... Our target is the more sales for our tenants, the more rental income we can earn ... ”

Therefore, Jinsheng has an entrepreneurial environment that empowers entrepreneurs to operate a mall dynamically. Only in this way can the company dynamically change towards the interests of consumers and its brand can have long-lasting influence in the market. We call this hybrid control, as it is formal control extended with emotional control to foster the development of the entrepreneurial environment to accommodate local market requirements. The 'hybrid' perspective has also been discussed by Berry et al. [2], who state that emotional control mechanisms such as trust are embedded in the control system and are viewed as an alternative form of control. The informal system assists the firm to extend formal control with informal control. Frontline employees are encouraged to react to different situations flexibly, and to gain approval from senior staff doing so using Jinsheng's informal system (ESS). Therefore, as regards control and empowerment, the standardised ERP system restricts the freedom of action, to avoid undesired flexibility. However, the informal system in the firm releases the freedom to entrepreneurs, and trusts the abilities of

entrepreneurs, so as to satisfy the local requirements and provide a flexible response to uncertainties in the market.

4.6. Communications

Finally in terms of the *communication process*, the hierarchical lines of authority of formal organisations are defined as one of the major channels of communication [13]. This means that managers, supervisors, and staff should communicate through the organisational structure. By contrast, an informal organisation has the additional communication tool of the “grapevine” as a basis for social interactions. According to Koontz and Weihrich [20], it is fast but has low accuracy, owing to undocumented and unorganized management gossip.

The informal system (i.e. OA) improves the interactions between points further up and further down the chain of command. Low-level employees receive adequate support from experts/senior management so that they can immediately communicate with the experts/managers about work matters on the informal system. The hybrid system, as a communication platform that enhances both horizontal and vertical connections within an organisation, results in improving business collaboration through more frequent social exchanges. For instance, as the Contract Manager stated:

“... When work requires, there should be cooperation between departments. The system requires us to finish the approval procedures before signing certain contracts. In the case of approval procedures, the contract lists in the system benefit me in setting up contacts with other colleagues whom I did not know before ... ”

Regarding cooperation, as a supervisor in the Leasing Manager pointed out,

“coordination cannot be achieved without a spirit that everyone is willing to work together”.

The spirit of cooperation can be defined as a 'relationship' that is based on shared objectives/interests [14]. The informal system improves the provision of real-time information for low-level employees, which maintains a cooperative relationship between peers with a common business target.

4.7. The hybrid organisation

Table 1 provides a summary of the characteristics of the formal and informal organisation based on Gray and Starke [13]. In

Table 1
Comparison of the formal, informal and hybrid organisation characteristics (adapted from [13]).

Characteristics	Formal organisation	Informal organisation	Hybrid organisation
Structure			
Origin	Planned	Spontaneous	Hierarchical structure with horizontal linkages
Rationale	Rational	Emotional	
Characteristics	Stable	Dynamic	
Position	Job	Role	Achieve both job responsibility and business targets
terminology			
Goals	Profitability or service to society	Member satisfaction	Achieve both economic achievements and customer satisfaction
Influence			
Basic	Position	Personality	Contain both top-down formal influence flow and bottom-up informal influence flow
Type	Authority	Power	
Flow	Top-down	Bottom-up	
Control mechanisms	Threat of firing, demotion	Physical or social sanctions (norms)	Formal control extended with flexible reactions
Communication			
Channels	Formal channels	Grapevine	Staff communicate through the formal organisational structure but also use communication tools for social interactions
Networks	Well-defined, follow formal lines	Poorly defined, cut across regular channels	
Speed	Slow	Fast	
Accuracy	High	Low	

addition the characteristics of what we term the hybrid organisation are provided based on the case study analysis presented.

Table 1 provides a template for the design of a hybrid organisation facilitated by a hybrid information system such as the ERP and ESS platform outlined in this paper. What can be seen from the analysis is that there are important differences across a number of dimensions in formal and informal organisations between what could be considered the ‘how it should be’ of the formal organisation and the ‘how it actually is’ of the informal organisation. Misalignment between the formal ERP system and employee and organisational needs will lead to the emergence of the informal organisation. This is because when employee or organisational needs are not met the informal organisation will emerge whether or not management wish it to develop [13]. The study indicates that rather than attempt to stifle the informal organisation, managers should harness the benefits of informal behaviour. Thus the concept of the hybrid organisation is to capture the benefits of *both* the formal and informal organisation. The characteristics of the hybrid organisation presented in Table 1 provide a template in which both formal and informal behaviour can be directed towards organisational goals.

In summary this study puts forward the concept of the hybrid organisation and provides the following strategies followed in the case study company for its implementation. The hybrid system is considered in terms of the following organisational characteristics:

4.7.1. Organisational structure

This involves the design of the hierarchy and social relations within the organisational structure. In this case it was found that a hybrid organisation can be facilitated by setting up regional headquarters to enhance horizontal communications and foster social networks. ERP systems can provide a standardised platform that integrates information across the regions whilst branch managers can be encouraged to work together at a regional level to initiate informal communication.

4.7.2. Position terminology

This involves defining the relationship between the individual and the organisation. The introduction of an ERP system will formalise procedures and provide clearly defined job responsibilities. In this case it was found that a hybrid organisation can be facilitated by encouraging personnel to go beyond their job description and to undertake certain tasks informally to meet the changing needs of customers.

4.7.3. Goals

This involves setting formal goals for the organisation such as profitability and informal goals which can be defined as the social satisfaction of its members. In this case it was found that the formal ERP system assisted the maximisation of revenue through the efficient allocation of rental space but a hybrid organisation was facilitated by allowing employees, with the authorisation of experts, to allocate rental space for non-economic reasons such as to build reputation with customers.

4.7.4. Influence

This involves defining the *right* to influence behaviour provided by the formal organisation and the *ability* to influence behaviour derived from the informal organisation. A formal ERP system provides a way to transfer management regulations and rules into a formal system that is used to influence behaviour. A hybrid organisation can be facilitated by the use of an ESS which allows a bottom-up flow of communication from employees which gives

them the ability to change their methods for handling problems depending on the situation

4.7.5. Control mechanisms

This relates to controls such as rules and procedures in the formal organisation and standards of behaviour (norms) in the informal organisation. The formal ERP system provides a way for management to constrain behaviour, through the use of reports on employee performance for example. The hybrid organisation is facilitated by trusting employees to react to situations flexibly, such as according special treatment to good-relationship tenants, but to gain approval from senior staff through the use of the ESS.

4.7.6. Communications

This relates to the use of the hierarchical line of authority for communication to staff in the formal organisational and the use of alternative channels of communication (the ‘grapevine’) in the informal organisation. Here the formal ERP system provides a formal communication channel but the hybrid organisation can be enabled by using the ESS as a forum for social communication resulting in improved business collaboration through more frequent social exchanges.

5. Conclusions

Based on the study of Jinsheng Group, a service company based in China, this research traces the implementation of an information system in the form of ERP modules covering tenant and contract management. Misalignments between the formal ERP system specification and employee and organisational needs led to the adoption of informal processes within the organisation. These processes are facilitated within an informal organisational structure and are based on human interactions undertaken within the formal organisation. One of the attributes of the informal organisation is that when misalignments occur its development is inevitable and when this happens it is important for managers to understand (rather than to attempt to suppress) its existence and to channel its energies towards organisational goals [13]. The construct of the informal organisation may indicate why failures occur when firms attempt to correct misalignments by changing their existing management styles when adopting an ERP. For example an organisation with an informal culture may undergo a radical change in culture that moves from human-oriented behaviours to standardised operations supported by the ERP systems [3]. However Jinsheng recognised the value of informal processes and decided to harness the capabilities of a hybrid ERP system, combining the functionality of a traditional (formal) ERP installation with the capabilities of Enterprise Social Software (ESS). To ensure alignment with organisational needs informal user requests made through the ESS are held in a staging database awaiting authorisation by an expert group before being transferred to the formal ERP system. The discussion section then evaluates, through a narrative provided by interviews with company personnel, the hybrid ERP implementation in the organisational context. The narrative is thematised using the formal and informal characteristics of the organisation as defined by Gray and Starke [13]. This leads to a definition of the characteristics of the hybrid organisation and strategies for enabling a hybrid organisation, facilitated by a hybrid ERP system, which directs formal *and* informal behaviour towards organisational goals and provides a template for future hybrid implementations.

In terms of limitations of the case study research method employed, Meredith [27] outlines three ways in which

generalisability can be enhanced. These are providing a greater depth of observation and triangulation through the use of multiple data sources, including multiple populations in the original study to develop a more comprehensive theory and testing the original theory on alternative populations. It should be noted that in terms of generalisation a case study does not represent a sample from a population and if additional cases are undertaken it is not equivalent to increasing the sample size but rather to extending the survey to another population that probably has different parameters in some ways, but is similar in other ways. These additional cases could cover firms in different industrial sectors such as manufacturing and firms in different geographic regions. In this regard studies have indicated that country differences might influence aspects of ERP implementation and usage [31,30] and performance [29]. In this case both the Chinese business environment and the preference of Chinese employees to engage in informal practices [7] may impact on generalizability.

In summary the primary research outcome is a definition of a hybrid organisation that can be facilitated by the use of a hybrid ERP system if the organisational context of the implementation is considered. The hybrid organisation offers the potential to incorporate both formal processes and informal processes and direct both towards organisational goals. This study has found that the use of a case study investigation can provide valuable insights into real world behaviour and helps examine and understand non-standard (informal) forms of behaviour. The research is pertinent to current practice as ERP suppliers move to ERP 2.0 platforms with the integration of web 2.0 applications. For practitioners, our study defines the characteristics of a hybrid organisation (facilitated by the use of ERP systems in conjunction with ESS) that can provide a flexible response to changes in market conditions and customer requirements. The research provides a managerial perspective on relevant organisational considerations when implementing information systems such as ERP.

Appendix A. Interview topic guide

(1) Personal background

- What is your current position and responsibility?
- How long have you been in the company? What position?
- Have you use new ERP/OA systems daily? How long?

(2) The changes brought by enterprise systems An overview of the systems that you used

- What are the expectations for the new enterprise system (ERP/OA)(e.g. working procedures, communication, decision-making, relationship, cost, innovation, etc.)
- Have the system achieves you expectations?
- Are there any further changes/modifications of current ERP/OA systems?
- How does the system impact on your organisation and your day-to-day work?

Structure changes

- How do you describe your company structure?
- Have your enterprise systems transform your company/branch/group structure? How do you benefit/suffer from these transformations in day-to-day works? If no, why?

Strategy changes

- What does your organisation focus on: a independent growth or a coordination?

- Have your enterprise systems change your company/branch/group strategy? If yes, it becomes to be . . . ? What do you think about these changes? If no, why

Job contents changes

- How do you determine your company/branch/group's employees' job contents? Is it determined by work requirements or by top managers?
- Have your enterprise systems change your company/branch/group position determination? If yes, it becomes to be . . . ? What do you think about these changes? If no, why

Procedures changes

- How do you provide services to customers? Does it tend to be more customised or more standardised?
- Have your enterprise systems transform your company/branch/group working procedures? If yes, it becomes to be . . . ? What do you think about these changes? If no, why

Communication method changes

- What is about the communication and collaboration environment in your company? How do you communicate to your employees? How do you achieve the collaboration?
- Have your enterprise systems transform your company/branch/group communication method? If yes, it becomes to be . . . ? What do you think about these changes? If no, why

Others

- Have you have any other commons on the impacts of the enterprise system that you used? How do you benefit/suffer from the changes brought by the systems?

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