

Understanding User Empowerment In Enterprise Systems Context: Is User Empowerment Predictive Of Enterprise Systems Success?

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Abstract

Empowerment has been an evolving construct for many years and is identified as one of the factors contributing to affective outcomes in the workplace such as increased worker effectiveness, satisfaction and performance. Prior research has generated considerable knowledge on empowerment from management and non-management perspectives. The adoption and implementation of integrated enterprise systems (commonly known as ERP systems), have resulted in dramatic changes in organisational processes. The implementation strategies focus on mapping processes and training end users in using the system but do not appear to focus on engaging the users in the change process. Perhaps the concepts of user empowerment as a focal point of the change management process could improve the successful use of such complex systems. This research program seeks to define the concepts of user empowerment, develop, measure and validate the constructs of user empowerment in an enterprise systems context. In addition, the program will study the correlation of user empowerment with enterprise systems success. The research alludes to several ways that user empowerment influences the enterprise systems success. Organisations need to understand that there are critical human factors involved in a successful implementation and thereby a successful Enterprise System.

1. Introduction

Of the many issues that merit research on enterprise resource planning systems (ERP) success, one of the least researched is the effect of enterprise user empowerment on Enterprise Systems Success (ESS). While some large companies have enjoyed significant gains, others have had to scale back their projects and accept compromised benefits, or even discard implementation of enterprise systems projects.

Conceivably the main cause for this is that the handful of large vendors of enterprise systems dominate the market, promote their products as best practice solutions. The adoption and implementation of integrated enterprise systems (commonly known as ERP systems), have resulted in dramatic changes in organisational processes. The implementation strategies focus on mapping processes and training end users in using the system but do not appear to focus on engaging the users in the change process. Although there have been several studies undertaken to measure manifestations and constructs of Enterprise Systems (ES) success, there is lack of empirical study on the effects of user empowerment on ES success. Perhaps the concepts of user empowerment as a focal point of the change management process during an ES implementation could improve the successful use of such complex systems.

This research program seeks to define the concepts of user empowerment, develop, measure and validate the constructs of user empowerment in an enterprise systems context. In addition, the program will study the correlation of user empowerment with ES success.

2. Literature Review

All ES vendors such as SAP, Portals, PeopleSoft, and Oracle are software packages that promise the seamless integration of all information flowing through a company, across all business processes including customer relationship, vendor management, accounting and finance, supply chain management, marketing, and human resources. ES have increased the ability of organizations to gather more information in greater detail and in real time, and widespread vertical and lateral dispersal of information throughout the organisations [1]. This expanded information makes the users more visible across the organisation and thus is viewed as a means of empowering the users [2]. It is on this potential relationship between ES Implementation and user empowerment that we will focus in the remainder of this paper.

Organisations using ES can be viewed under three distinct categories- those who have successfully

implemented ES; those who never succeeded; and those who are struggling in between the high-end successful organisations and the failures. The next section sets out to define empowerment and then understand the concept by studying its components.

3. Empowerment and Enterprise Systems Context

Empowerment of the employees has been a management goal since the 1980's [3] yet empowerment is an evolving construct and continues to attract management researchers and practitioners [4-12]. Empowerment has been interpreted across a wide spectrum of non-management disciplines such as healthcare, politics, women, minority groups, and education [13]. In management disciplines Conger and Kanungo were the pioneers in establishing a relationship between empowerment and workers' effort-performance expectancies [8, 14].

In the context of management disciplines, empowerment has been commonly perceived in terms of power and authority, rather than as a motivational process shaped by individual differences [4]. Organisations are constantly challenged to sustain and succeed in today's turbulent economic environment of fierce global competition, changing consumer needs, government regulations and globalisation. In such a climate of economic uncertainty organisations embrace change management initiatives in order to adapt and remain a performance driven business [2]. Empowerment is seen as one such practical solution to facilitate the change as it is often considered to be an integral part of a Business Process Re-engineering or Total Quality Management change initiatives [2]. Thus, empowerment is embraced as a management strategy by today's organisations, which aim at enhancing employee satisfaction and improve productivity of the enterprise, thereby contributing towards increased work effectiveness of the employees [15].

3.1. How does empowerment relate to Enterprise Systems?

Livermore and Ragowsky [16] highlight a number of challenges associated with ES implementations. The two key challenges as opposed to other systems are that ERP systems involve the whole organization and require a combination of technical and human expertise to select, develop and implement successfully. Secondly, ES involve re-engineering of the organisation's business processes thereby resulting in organisational cultural change. Given this argument, companies adopting ES need to focus on specific aspects of technical and human factors in order to translate

their efforts to anywhere close to an ES success.

The motivation to investigate empowerment is to understand the role of user empowerment as a predictor in ES success. This calls for an in-depth understanding of the user empowerment concept itself and its underlying constructs should be of paramount interest while studying the framework of user empowerment. The emphasis of the research program is to identify the relationship between the constructs of user empowerment and ES success measures. It is our belief that such an exploration will facilitate better understanding of the ES success' correlation with user empowerment. The next section examines the constructs in user empowerment.

3.2. The Paradigm of User Empowerment

Building on the work of Conger and Kanungo [4], Thomas and Velthouse [8] defined psychological empowerment as intrinsic motivation manifested in four cognitions reflecting an individual's orientation to his or her work role: meaning, competence, self-determination, and impact. Another conceptualisation of empowerment defines it as a pattern of experienced psychological states and argues that each dimension of empowerment adds a unique facet to an individual's experience of empowerment [8]. Conger and Kanungo's [4] definition of empowerment as, "a process of enhancing feelings of self-efficacy among organisational members through the identification of conditions that foster powerlessness" is now conceptualised broadly as a pattern of experienced psychological states [8, 17].

Psychological empowerment differs from the structural concept of user empowerment in that it focuses on intrinsic motivation [8] rather than the expanded discretion a user has over how his/her work is to be done in the immediate work environment [1]. Thomas and Velthouse [8] have explicated a comprehensive, cognitive model of "intrinsic task motivation" to describe the empowerment process in individuals. Cognitive variables, referred to as task assessments are impacted by empowerment. These tasks being an array of activities directed towards a goal. The four dimensions of task assessment are included as cognitive variables of intrinsic motivation. These are: impact, competence, meaningfulness, and choice. The model developed by Thomas and Velthouse provides a synthesis of Hackman and Oldham's [18] work on the motivation construct. Following Hackman and Oldham's propositions empowerment in workplace has been widely explored in relation to leadership behaviour [10, 12, 19-21], power and control as relational constructs [4, 22], power perspective in work groups [15], autonomy and decision-making empowerment [23], organisational downsizing [24, 25], and organisational culture [9, 26,

27].

Spreitzer [14] extended the work of Thomas and Velthouse [8] and hypothesised that a high level of four dimensions namely meaning, competence, self-determination and impact in an individual, result in a high level of empowerment. Further empirical research examined how these four dimensions of empowerment were differentially related to effectiveness, work satisfaction and reduced job related strain [11] but did not examine antecedents of empowerment [28] in context of organisation. The Spreitzer, Kizilos, and Nason's [11] study also was limited in that the researchers did not identify and test for outcomes that could appropriately serve as measures of success for the organisation because after all, the entire exercise of empowerment in workplace, is to gain strategic advantage in current turbulent economic environment [17]. Another area that remains left out of Spreitzer's outcomes of empowerment is lack of adequate measurement of effectiveness in terms of net compounded outcome emerging from empowered behaviours of employees.

The individual is the basic unit of analysis in this research on user empowerment. We pose the question on how this construct affects the organisation both as a process and as an independent variable. The user empowerment process must be embedded as part of design, training, and evaluation and must be an iterative process in itself. For an organisation to be empowered, information is a central component as Psionos et al. [2] state that employee decision making is critically dependent on the timely distribution of the right information in the cycle of various business processes. The logic here is that employees will be more understanding of the reasons for business decisions and as a result more committed to the organisation's action [3]. Simply informing employees via formal authority that they are now empowered, without providing training to develop needed skills and knowledge, will nearly always result in failure [29].

The characteristics of user empowerment within the ES context are: to encourage people to take a more active role in their learning with respect to the adopted ES; to take responsibility for self learning, and; to enable people's participation in demanding decision processes [30]. This latter aspect can be conceived as both self-initiated and initiated by others, making a commitment to common goals, taking risks and demonstrating initiative and creativity [31]. These characteristics suggest user empowerment to be a multidimensional concept similar to the empowerment construct [8, 11, 20, 28] and a dynamic phenomenon [32] that needs to be nurtured by the holistic organisational environment within which it operates [3].

User empowerment in ES context is in many

respects analogous with user involvement that has been widely studied in Information Systems (IS) implementation [33, 34]. User involvement is referred to participation in the IS system development process by representatives of the target group. Doll & Torkzadeh [34] report that end user satisfaction levels are significantly correlated with their involvement in the design of the system. Along similar lines, increased job satisfaction and systems usage are reported as being positively related to involvement in the development process by Lucas [35], or Baroudi et al. [36].

The next section develops and justifies the motivation for the research program and study by giving an overview of the perspectives on ESS and IS success models.

3.3. Justification for the Study

The value proposition of adopting ES from SAP, Baan, Oracle, PeopleSoft and their software packages enticed organisations to invest heavily in these systems. The key drivers in the increased trend to adopt these complex systems can be summarised as: fierce globalisation of business; legacy systems and Year 2000 system concerns; increasing national and international regulatory environment e.g. European Monetary Union; Business Process Reengineering (BPR) and the current focus on standardisation of processes e.g. ISO9000; scaleable and flexible emerging client/server infrastructures; and trend for collaboration among software vendors [37].

When an organisation decides in favour of a new Enterprise Systems, its implementation is a socio-technical process, affecting tasks, people, technology and structure [38]. Markus and Tanis [39] also identify this element and proposed the engagement of the users as a key variable. An organisational change process such as ES implementation may include many factors for success and one of the potential factors is empowering users. This logically follows from the fact that those affected by the change in technology (users of the ES) must be a part of the change. Workgroups and teams specifically, are more likely to be advantaged or disadvantaged by organisational change as compared to individuals. This clearly echoes AES CEO Roger Sant's philosophy on empowerment where he suggests empowerment makes decision making safer since the team feels it is fully accountable and will take more responsibility than if it feels that their manager is accountable [40]. Therefore it makes intuitive sense to consider a more collective measure of user empowerment such as workgroup and if it better facilitates ESS as compared to individual user empowerment. This latter aspect is a focal question of this research project.

Many authors identify change management as a critical success factor for enterprise system success, but fail to clearly articulate the means of engaging the user. Empowerment theory seen above may assist here.

Perspectives on ESS

Organisations have spent significant resources and many years implementing their ES and realised that it is an implementation that was extremely difficult and an expensive change to roll back [41-46]. Research points out that many high profile organisations failed in their ES projects implementation [41-46] [47-49]. The recent collapses and failure of such large scale complex ES implementations initiated several researchers to conduct ES implementation studies that implicitly and explicitly suggest the need to critically evaluate the risks and success factors of ESS [41-46].

Markus and Tanis [39] give a phased approach of an organisation's experience with an enterprise system, which Holland, Light and Gibson [50] echoed. The characteristics of an infused organisation appear to be related to the constructs of empowerment. Models of Information Systems success have been developed [51] and exploited in the Enterprise Systems success area [52] [53]. This research will use the established models as the dependent variable in the correlation study.

4. Empowerment Model

The four dimensions of meaning, competence, self-determination and impact, multiplicatively combine to create high psychological empowerment (see Figure 1) [54], which leads to the positive outcomes of effectiveness, work satisfaction and reduced job related strain. These terms are next detailed.

Meaning

According to the job characteristics model [18], the degree to which jobs are motivating can be measured through five core job characteristics: skill variety, task identity, task significance, autonomy, and job feedback. Hackman and Oldham's research led to the conclusion that "to the extent that a job contains these five characteristics, three psychological states are produced: experienced meaningfulness of the work, experienced responsibility for outcomes of the work, and knowledge of the actual results of the work activities. Spreitzer developed the above meaningfulness of work as the meaning dimension of empowerment. Meaning is believed to be a vital component of an individual's empowerment experience [17] since it acts as the fit between the requirements of one's work role and one's beliefs, values and behaviours [55].

Competence or self-efficacy, specific to one's work, is a belief in one's capability to perform work activities with skill [56]. An indicative outcome of competence would be self-confidence in one's ability to perform the task.

Self-Determination is a sense of choice in initiating and regulating one's actions and the ability to endorse one's actions at the highest level of reflection [57]. The self-determination theory evolved by Deci and Ryan [58] posits that self-determined individuals experience a sense of freedom to do what is interesting, personally important, and vitalizing.

Impact is a state of belief in individuals that they can influence the system, of which, they are an integral part of. Examples of indicative outcomes include *personal initiative* which is characterised by an individual's proactive attitude to work without prompting or direction from others [59]; *voice* which is a behaviour exhibited by group members making suggestions and speaking up in the interest of the company or group even when the group is not appreciative [60]; *taking charge* a discretionary behaviour where organisations motivate employees to go beyond the boundaries of their jobs to undertake constructive efforts that effect how work is executed [61]; *proactive coping* when individuals undertake proactive measures to avoid potential events that may cause stress [62]; and *empowerment* which is a direct result of a sense of belief that an individual's actions are influencing the system [14]. These elements are shown in the Figure 1 below.

4.1. The Research Scope, Questions and Aims

Although there have been extensive studies in ES implementation success, critical success factors of ES success [47] and measuring ES benefits [52, 63], there has been no prior significant research that links the user empowerment aspect of enterprise systems success. It is this gap in the research that this research program addresses.

The literature review to date has enabled understanding of existing models, theories and frameworks on empowerment in workplace. An in-depth analysis helped in clarifying the constructs of user empowerment and provided direction for identifying the research gap in the existing framework of the empowerment concept. Here the object of research is user empowerment and its strength in predicting ES success. The related investigative questions vary in their level of detail, purpose, and include:

- What constitutes user empowerment in an ES context?
- Is there a correlation between user empowerment

and ES success?

- Which factors assist or inhibit ES success?
- How can user empowerment be measured?
- What characteristics of user empowerment are vital to Enterprise System Success?

Thus, the specific aims of this user empowerment research are:

- to integrate measures of user empowerment extending Spreitzer's model and instrument;
- to assess the effects of user empowerment on change management practices in enterprise systems context, and;
- to develop and pilot an instrument for measuring user empowerment and correlate with ES implementation success.

4.2. Objectives of the program of research and investigation

This research project is a part of a larger program of research called Organisational Readiness for Enterprise Systems (ORES). There are three sub researches embedded within: the affect of organisational culture; leadership and risk aversion issues; and user empowerment. Each of these studies are inter-dependent.

The proposed study will contribute to the parent project "Organisational readiness for enterprise systems" across several of its phases. It is further aligned with several objectives of the main study and will seek to validate several of its propositions. The direct contribution to subsequent phases of the parent study is likely, however dependent on further coordination of team efforts. The research questions listed under objectives of the program of research and investigation (*section 3.2*) have been developed in accordance with the above research aims and propositions.

5. The Research Methodology

The use of an appropriate methodology for a piece of academic research is fundamental to the research's success [64, 65]. The research uses both qualitative as

well as quantitative methods. A multiple case study method is applied. The research will progress in three stages namely pre-pilot in an organisation that has recently implemented an ES; a pilot study within government public sector agencies and; finally the main study across different industry sectors. A survey instrument will be designed and developed for quantitative analysis. The pre-pilot is being conducted to validate the user empowerment survey instrument and will facilitate in validating the instrument for the subsequent phases of the study. The case study methodology adopted can be justified as below: subsequent phases of the study. The case study methodology adopted can be justified as below:

As Yin [66] advocates, a case study method is best suited to a research if it poses "how" or "why" questions criteria, the investigator has minimal control or no control over events, and the focus is a contemporary set of events. The proposed research meets all three conditions i.e. the questions ask "how" and "why" the researcher will have no control of events within the selected organisations, and both user empowerment and ES are contemporary phenomena.

As demonstrated in the literature review, the essence of the research program is concerned with ES stakeholders' (users of the ES) perceptions of their system's development, implementation, and ultimate success. It is not the intention of this research to examine in detail *why* the users hold these views. Thus, the most appropriate philosophy for this research will follow the positivist approach described by Robson [67], i.e. the formulation and testing of hypotheses. Hypothesis testing involves the collection of quantitative data, which is then analysed for statistical significance, using an appropriate technique.

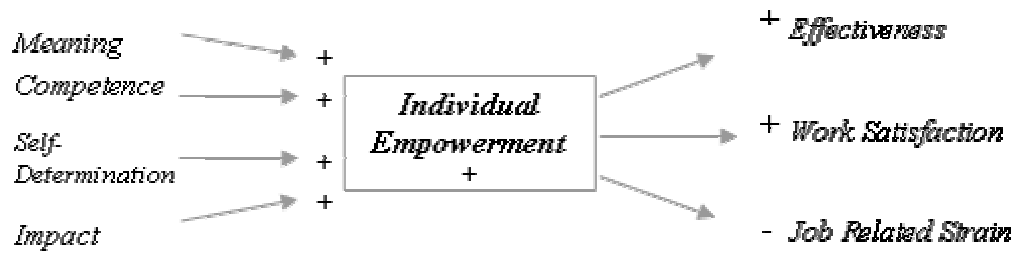


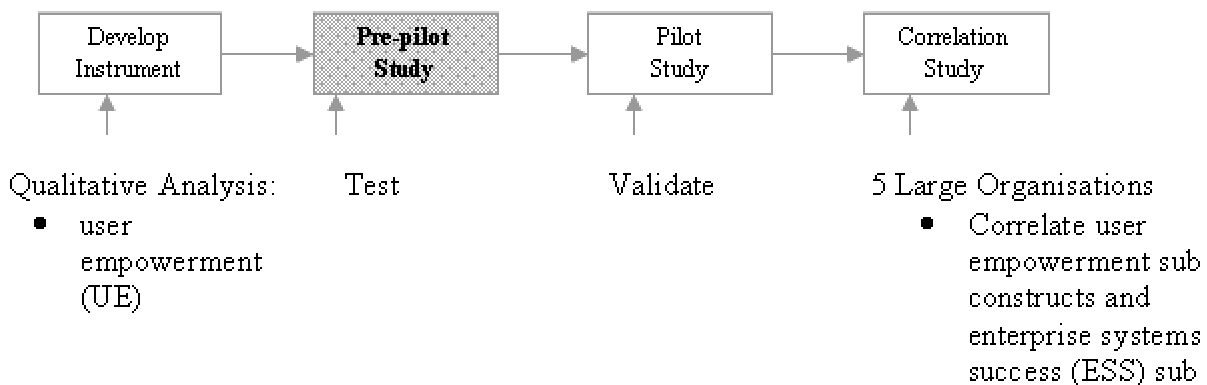
Figure 1. Partial Nomological Network of psychological empowerment in the work place [11]

Organisation Selection

A suitable number of organisations will be chosen from different sectors such as retail, higher education, banking, mining, defense and healthcare. The primary reason for choosing a cross section of sectors within the economy is to achieve a more generic implementation of ES picture across a diverse range of business processes. Another aspect to be considered while selecting these organisations will be the broad range of ES thus making the study generic for extended ES. The chosen organisations will all have implemented their ES (2-4 years ago) or will be in the implementation life cycle during the time when the case study will be conducted. In this time frame the ES success and the strength of user empowerment should be clearly evident for those who

have implemented ES. There are four categories of organisations that will be targeted in the data collection phase. These categories are:

1. Stalled adopters (organisations where the use of the ES has peaked or even stopped)
2. Adapters (organisations who adapt their business processes to suit the purchased ES)
3. Expanders (organisations who seek for additional business functionality)
4. Exploiters (organisations who seek strategic and innovative ways of deploying the ES technology)



**Figure 2: Study progression and phases
Data Collection**

Unit of Analysis

It is important to clearly define the units of analysis for measuring user empowerment and ESS and the possible correlation between them. Individual users will be the unit of analysis when measuring user empowerment.

Data will be collected via interviews, questionnaire and survey instruments. The selection of the instrument will be decided upon the nature of the variable being measured. The key informants who agree to participate through these instruments will be notified in advance about the ethical clearance, privacy and confidentiality issues regarding the data collected. The selection of target informants may vary within the range of users of the ES (i.e. senior managers, administrators, operational staff, and specialised staff such as payroll officers to

general users within various business processes of the organisation).

6. Conclusion and Outlook

This paper has presented initial framework of a study aimed at understanding and assessing user empowerment on ES success. The user empowerment constructs have been developed based on the work by [11, 14] and related empowerment literature in order to present a complete set of constructs that explain user empowerment in ES context. Further analysis will be done in relation to the measures of ESS [53] and user empowerment constructs. We are currently progressing with the pre-pilot study to be conducted within department of a large organisation that has implemented an ES. The rest of the study is as shown in figure 2 above.

The intended contributions of the research program are:

- To provide a definition of the construct user empowerment within the ES context.
- To develop, test and validate user empowerment instrument.

To Correlate user empowerment constructs and ESS constructs and finally to correlate user empowerment and ESS.

Note: * Full Paper will be Available on Conference CD-Rom

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