Universiteit Twente

Implementation of MS Project in a Sino-Western joint venture

– A case study of user acceptance

By

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ACKNOWLEDGEMENT

I would like to express my gratitude to all those who gave me the possibility to complete this thesis. I want to thank Mr. Mark Tempelman and Mr. Jan Tempelman for giving me the opportunity and permission to commence this thesis in the first instance. I have furthermore to thank the department of Communication Studies, University of Twente and the Sino-German Joint venture (JV) to do the necessary research work and to use the resources. I want to thank Mr. Stephan Loosen who gave and confirmed this permission and encouraged me to go ahead with my thesis. I am bound to the honourable Mr. Rik Voerman in his stimulating support.

I am deeply indebted to my supervisor Thea van der Geest whose guidance and help, stimulating suggestions and encouragement helped me in all the time and places (across half of the earth when I was in China) of research for and writing of this thesis. I would also like to thank my supervisor Jan van Dijk for his critiques and precious suggestions.

My former colleagues from the JV supported me in my research work. I want to thank them for all their help, support, interest and valuable hints. Especially I am obliged to Mr. Mingsheng Wang and Mr. Dawei Xu; Mr. Changchen Li was great help in difficult times. My father in law, Hero Zuidema, looked closely at the final version of the thesis for English style and grammar, correcting both and offering suggestions for improvement.

Especially, I would like to give my special thanks to my boyfriend Ynze Zuidema whose patient love enabled me to complete this work.

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Abstract

Information system (IS) researchers have begun to investigate how culture affects a variety of issues around adoption and usage of management information systems (MIS). There are very little case studies focusing on the influence of particular users' cultural context (other than the culture context in which the adopted MIS had been developed) that affects the adoption and implementation of a MIS. This area remains poorly explored. The UTAUT model creates a unified view and instrument that employs social psychological factors to give a better explanation and to determine user acceptance of IS; these factors by definition are value-loaded constructs. Moreover, culture has a significant influence on the value-based constructs. As a result, this study aimed to explore the conceptual validity of the factors included in the UTAUT model in context others than the Western culture, for example: Chinese culture context. This thesis is presenting the findings of a study which explores the conceptual validity and appropriateness of adopting the UTAUT model in a Chinese culture context. The results indicated that the Chinese national culture and organizational culture has great impact on the UTAUT factors. The implication of these results and the importance of taking culture into consideration in the constructs of the UTAUT model are also being discussed.

1. Introduction

Nowadays no one would argue that information technology (IT) has become an important cornerstone of an enterprise's ability to successfully compete in the global marketplace. As IT power and presence have expanded dramatically and companies have started to regard it as a competitive advantage rather than costs. It is considered more critical to the success of their business (Yusuf, Gunasekaran & Wu, 2006). Some estimates indicate that, since the 1980s, about 50 percent of all new capital investment in organizations has been in information technology (Westland and Clark, 2000).

Multinational corporations increasingly rely on information technology (IT) for conducting and managing their business (Wang, 1994). Particularly, the use of IT to support management information is becoming ubiquitous nowadays in multinational companies. Yet, for technologies to improve productivity, they must be accepted and used by employees in organizations (Venkatesh, Morris, Davis & Davis, 2003).

Microsoft Project (MSP), as one of the most well-known management information systems (MIS), is now the market leader in project management systems. MSP enables project planning, resource scheduling, multiple types of diagrams and reports, project costing, project control and project status update (Project Management Software Directory,n.d.). The implementation of such a Project Management System is a 'Triple Play' which combines people, technology and process (He, 2004). It embodies a complex implementation process, especially in developing countries like China, often taking huge amounts of time and funds involving a major production or business process reengineering exercise (Yusuf et al., 2006).

Because of the lower cost of labour and raw material resources, China has become a source of supplier of manufactured goods and industrial applications in the global market. As a result, China has discovered the need for management information systems (MIS) for the effective planning and control of operational activities (Xiande, Fujun & Scott, 2002).

In order to hold their competitive advantages in the future, quite some Chinese manufacturing companies particularly Chinese State-Owned Enterprises (SOEs) are facing immense pressure to transform their traditional way of managing operation to new managing ways– to be more efficient, to control costs, and further improve quality further, while doing more with less (Yusuf et al., 2006). To be successful, these manufactural companies must have a MIS in place that could manage and optimize their operation in all aspects.

Wang (1994) stated in her research that "The level of IT adoption differs from country to country, as are each country's key management information systems (MIS) issues" (p.341). In order to exploit the MIS for global business expansion, it is imperative that researchers and executives identify and address the key MIS issues not only in the Western cultural context where the MIS had been developed and adopted but also in the non-Western cultural context such as in China, where these MIS are highly demanded and gradually adopted.

In our research, we are aiming to conduct a case study that investigates users' acceptance of a newly implemented Management Information System (MIS). In this study we assume that users' acceptance of MIS is largely influenced by how the system is perceived by its users, moreover that user perception is greatly influenced by their cultural background. Hence we chose to adopt the Unified Theory of Acceptance and Use of Technology (UTAUT) Model (Venkatesh et al., 2003) as our theoretical foundation. The UTAUT model presents an integrated view of user acceptance and usage of information technology that is rooted in sociology and psychology. Furthermore we explore the conceptual validity of the factors that are included in the UTAUT model in a non-Western context.

The actual case study has taken place in a recently established Sino-Western Joint Venture (JV) located in the North-East of China. The main business of the JV is manufacturing. At the time when we were conducting our on–site research, the organization the business and its production operation of the JV was at its transition period. According to the Western decision makers of the JV, the purpose of implementing MSP in the JV is to compile and improve the traditional Chinese way of managing/monitoring production operation to the standard of its Western partner. The decision makers and implementation consultant are Westerners; the actual users of the MSP are local Chinese employees, who used to work for a Chinese State-Owned Enterprise (SOE).

In all, we are aiming at finding out how Chinese culture might influence the perception and interpretation of the UTAUT factors during a MIS adoption within a SOE culture context. In addition to that, we intend to find out some Chinese-specific difficulties/factors of MSP implementation/adoption so that practical implementation can be provided to the Western managers of the company. The empirical data material of the case study was collected based on face-to-face interviews of both Chinese users and Western managers. During the interviews, we asked our respondents open questions concerning the UTAUT factors and the organizational context where MIS implementation and adoption took place. Consequently, their personal views and personal interpretations are recorded as our raw material.

Finally, we try to help the decision makers to gain better understanding of

what determines the end-user acceptance in this case. As a consequence, we will offer some practical solutions.

This thesis is organized as follows. Chapter 2 explains our research background, Chapter 3 presents the research methodology, chapter 4 deals with research results; Chapter 5 concludes the paper.

2. Research Background

Information system (IS) researchers have developed a rich body of literature using theories, and models that investigate the factors and processes that intervene between IT implementation success and user acceptance. Such theories (i.e. the Technology Acceptance Model or TAM) provide sound predictions of usage by linking behaviors to attitudes and beliefs and intentions (Wixom & Todd, 2005). However, these prominent models in user acceptance literature (e.g. Unified Theory of Acceptance and Use of Technology or UTAUT) have all largely overlooked the complexity of cultural factors that may have an influence on user perception and eventually the usage of information systems. Furthermore the constructs that have been developed and included in these user acceptance models have not been specifically studied within a non-Western culture context. Therefore our research is an attempt to contribute to this particular concern and investigate it from an individual level within a particularly organizational and national context.

2.1 User Acceptance Approach

The focus on only the technical aspects of information systems, while overlooking individual behavioral problems, is in large part, responsible for informational system failure (Kukafka, Johnson, Linfante & Allegrante, 2003). Similarly, Zhang, Matthew, Lee, Huang, Zhang & Huang (2005) stated "the 'people element' is one of the most important factors affecting organizational IS implementation and deployment" (p.64).

During the last two decades, several influential research models that are grounded in behavior theory have been developed, and these research models are especially important in identifying factors to explain and predict user behavior (Kukafka et al., 2003). Moreover "These behavioral models have not only facilitated the identification of barriers that can interfere with end-user adoption, they have also guided the approaches that have been designed to overcome them" (Kukafka et al., 2003, p219).

User acceptance of technology has long been a traditional area of research in the information systems (IS) domain, (Li & Germain, 2006). As "Designing an

effective approach for increasing end-user acceptance and subsequent use of information technology (IT) continues to be a fundamental challenge that has not always provided straight-forward solutions." (Kukafka, et al., p.218). In addition, user acceptance and usage of the information system among many IS researches are also key measures of success, used as an indication of IS implementation outcome.

In the existing user acceptance models, various factors have been suggested by previous researches that have significant influence on users' acceptance and usage of information system. According to Li & Kishore (2006) among these identified factors, users' perceptions and expectations of the system are assumed to be the key factors. It is further claimed by Li & Kishore (2006) that "users' perceptions and expectations of a system [that] mediate the process by which a system is defined within an organization" (p.387), Consequently, the definition of the system often decides users' attitudes towards (i.e.. acceptance or rejection) and the use of the system (Davis, 1989; Orlikowski & Gash, 1994; Venkatesh & Davis, 2000; Venkatesh et al., 2003).

2.1.1 Existing prominent user acceptance models

A range of conceptual frameworks exist in the IS literatures for studying the factors that contribute to the formation of user perceptions and expectations of an information system (Venkatesh et al., 2003). Among many competing models which are used to predict information technology acceptance and usage, the recent developed Unified Theory of Acceptance and Use of Technology (UTAUT) model by Venkatesh et al. (2003) is an important model that should be paid attention to. The UTAUT model achieved to unify the various models of user acceptance and usage of information technology. That is to say, Venkatesh et al. (2003) integrated the elements of eight prominent models and created an umbrella, an instrument that covers all the factors that each model uses to explain or determine user acceptance. The eight prominent models are summarized by Zhang, Chan & Fang (n.d.) as below:

The Theory of Reasoned Action (TRA) focuses on attitudes toward behavior and subjective norms (e.g., see [Sheppard, Hartwick and Warshaw, 1988]). This model has served as the foundation for explaining and predicting human behaviors. Davis (1989) applied TRA to individual acceptance of technology.

The Technology Acceptance Model (TAM) was introduced by Davis (1989) to predict information technology acceptance and usage. He emphasizes that the user's behavioral intention to use a technology is affected by its Perceived Usefulness and Perceived Ease of Use of the technology. TAM2 extends TAM by including Subjective Norm as an additional predictor of intention in the case of mandatory settings.

Motivation Model (MM) demonstrates that general motivation theory,

extrinsic and intrinsic motivation, is an explanation for behavior.

The Theory of Planned Behavior (TPB) built on TRA by adding the construct of perceived behavioral control. TPB has been used and validated by many studies in predicting individual intention and behavior of technology adoption.

The Combined TAM and TPB (C-TAM-TPB) is a hybrid model which combines the constructs of TPB with Perceived Usefulness from TAM.

The Model of PC Utilization (MPCU) was introduced by Thompson, Higgins, Howell (1994) to predict PC utilization. Core constructs included in this model are: job-fit, complexity, long-term consequences, affect towards use, social factor and facilitating conditions.

The Innovation Diffusion Theory (IDT), a widely supported model used in a variety of fields, identifies five factors that impact technology adoption: (1) Relative Advantage, (2) Compatibility, (3) Complexity, (4) Trialability, and (5) Observability. Moore and Benbasat (1991) have adapted these factors and developed seven constructs for individual technology acceptance. These constructs are: Relative Advantage, Ease of Use, Image, Visibility, Compatibility, Results Demonstrability, and Voluntariness of use (e.g., see Moore & Benbasat, 1991).

The Social Cognitive Theory (SCT) was presented by Bandura (1986) to study human behavior. Compeau and Higgins (1995) applied it to the computer utilization setting. However, the nature of this model and the underlying theory allow it to be extended to acceptance and use of information technology in general. This model includes constructs of outcome expectations-performance, outcome expectations-personal, self-efficacy, affect, and anxiety" (Zhang et al., n.d,¶3).

Venkatesh et al., (2003) have integrated the above mentioned eight prominent models into a unified theoretical model (UTAUT) that captures the essential elements of them. Further on, they empirically tested and compared the UTAUT model with the previously established eight models by using data from two organizations. As the result the UTAUT model was found to outperform the other eight models.

2.2 The UTAUT Model

As shown in figure 1, the UTAUT posits three direct determinants of intentions to use: Performance Expectancy, Effort Expectancy, and Social Influence; two direct determinants of usage behavior: Intention and Facilitating Conditions, Attitudes toward Using Technology, Self-Efficacy,

and Anxiety are theorized not to be direct determinants of intention. UTAUT includes four moderators (i.e. age, gender, experience and voluntariness of use), which contribute to a better understanding of the complexity of technology acceptance by individuals. They empirically validated the model with longitudinal field studies of six different departments of large firms in different industries. The UTAUT model accounted for 70 percent of the variance (adjusted R2) in usage intention, better than any of the eight models alone (Venkatesh et al., 2003). The UTAUT model is held up as "a definitive model that synthesizes what is known and provides a foundation to guide future research in this area (p. 467)."

Figure 1. Unified Theory of Acceptance and Use of Technology
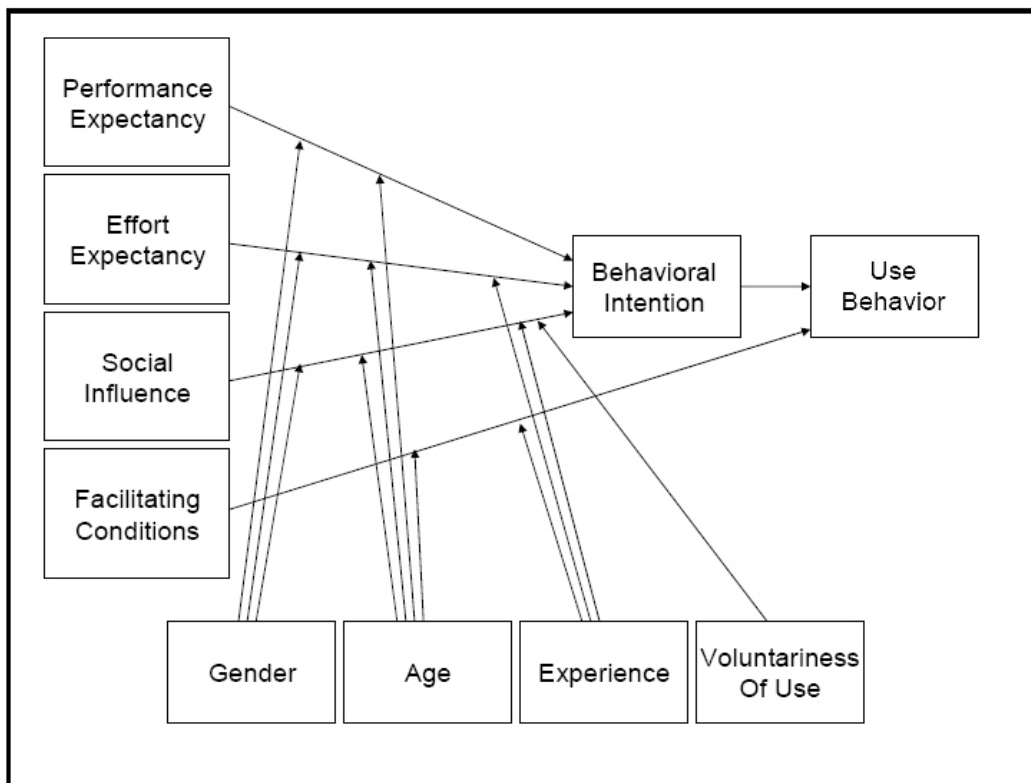
Note. From "User Acceptance of information Technology: Toward a Unified View" by Venkatesh, Morris, Davis, Davis (2003), *MIS Quarterly*, Vol27 No. 3, p.447.

Below we review the four key components in the UTAUT model, including Performance Expectancy, Effort Expectancy, Social Influences, and Facilitating conditions (Venkatesh, et al., 2003). The impacts of moderators in the UTAUT will not be included in our study.

2.2.1 Performance Expectancy

According to Venkatesh et al. (2003) "Performance Expectancy is defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (p. 447). It measures the degree to

which an individual perceives that using the system could help improve his/her performance, and this construct is similar to the usefulness construct in TAM model.

The Performance Expectancy construct is the strongest predictor of intention and remains significant at all points of measurement in both voluntary and mandatory settings. Moreover Venkatesh et al. (2003) expect that the influence of Performance Expectancy will be moderated by both gender and age.

2.2.2 Effort Expectancy

"Effort expectancy is defined as the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p.450). It measures the degree to which an individual perceives the particularly system will be easy to use and this is similar to the ease of use construct in the TAM model.

The Effort Expectancy construct is showed significant both in voluntary and mandatory usage context. However, "effort-oriented constructs are expected to be be[*sic*] more salient in the early stages of a new behavior, when process issues represent hurdles to be overcome, and later become overshadowed by instrumentality concerns"(Venkatesh et al., 2003, p. 450). Venkatesh et al (2003) expected gender, age, and experience to work in concert. Thus, they proposed that Effort Expectancy will be more salient for women, particularly those who are older and with relatively little experience with the system.

2.2.3 Social Influence

"Social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p.451). It measures the degree to which an individual perceives that the persons who he/she cares about feel he/she should use the system.

In mandatory settings, Social Influence appears to be important only in early stages of individual experience with the technology, with its role eroding over time and eventually becoming nonsignificant with sustained usage. The role of Social Influence in technology acceptance decisions is complex and subject to a wide range of contingent influences. Therefore Venkatesh et al (2003) expected a complex interaction with these moderating variables (gender, age, voluntariess, and experience) simultaneously influencing the social influence-intention relationship.

2.2.4 Facilitating Conditions

"Facilitating conditions are defined as the degree to which an individual

believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003, p.453). Thus, it measures the degree to which an individual perceives that organizational assistance is there to facilitate his use of the particularly system.

However, "when both performance expectancy constructs and effort expectancy constructs are present, facilitating conditions becomes nonsignifcant in predicting intention" (Venkatesh et al., 2003, p. 454).

The empirical results of Venkatesh et al., (2003) indicated that beyond what is explained by behavioral intentions alone, Facilitating Conditions do have a direct influence on usage. Thus, when moderated by experience and age, facilitating conditions will have a significant influence on usage behavior.

2.2.5 Constructs theorized not to be direct determinants of intention

Self - Efficacy and Anxiety are not included as direct determinants, and these two constructs are expected by Venkatesh et al. (2003) to behave distinctly from Effort Expectancy, i.e. "have no direct effect on intention above and beyond effort expectancy anxiety"(Venkatesh et al., 2003, p. 455)

Self - Efficacy in an IT usage context is conceptualized as computer self-efficacy, an individual difference variable that represents one's belief about her/his ability to perform a specific task/job using a computer (Compeau and Higgins quoted in Venkatesh, 2000). There is experimental evidence supporting the causal flow from computer Self-Efficacy to system-specific Perceived Ease of Use (Venkatesh & Davis, 1996). The link was justified on the basis that in the absence of direct system experience, the confidence in one's computer-related abilities and knowledge can be expected to serve as the basis for an individual's judgment about how easy or difficult a new system will be to use.

Computer Anxiety can be defined "as the apprehension or fear that results when an individual is faced with the possibility of using an IS" (Hackbarth, Grover and Yi, 2003, p.223). The study results of Hackbarth et al. (2003) support their hypothesis that "anxiety significantly mediates the effect of system experience on perceived ease of use" (p.223.). In other words, system experience contributes to the reduction of a user's anxiety in relation to the system and that the degree of computer anxiety significantly influences user attitudes toward the system (Davis, Igbaria & Guimaraes, 1995).

2.2.6 Behavioral Intention

Consistent with all of the intention models (e.g., see Shepppard, Hartwick, Warshaw, 1998 for an extended review of the intention–behavior relationship)

that discussed in the study of Venkatesh et al.(2003), Venkatesh et al. (2003) expected that behavioral intention would have a significant positive influence on technology usage.

2.3 Our specific application of the UTAUT Model

The UTAUT model is currently a very strong and competitive model in IT acceptance literature, more and more researchers and practitioners are likely to use it as a tool for prediction of IT acceptance and usage (Li & Kishore, 2006). Moreover, the UTAUT model is considered as a "useful tool for managers needing to assess the likelihood of success of new technology introductions . It helps them understand the drivers of acceptance in order to proactively design interventions (including training, marketing, etc.)" (Venkatesh, et al., 2003, p.425-426).

Although the UTAUT Model provides great promise to enhance our understanding of user acceptance, the initial UTAUT study focused on large organizations in a Western context and the scales used in the UTAUT model are new as they are a combination of a number of prior factors. To the best of our knowledge, no such a study has assessed whether these factors are perceived similarly across different (Western VS. Eastern) cultural groups. To be more specific, it has not been applied and studied in a non-Western context, such as in China. If the factors included in the UTAUT constructs are not robust and stable in various settings, they are most likely to influence the interpretation of research outcome (Li & Kishore, 2006). Therefore we would like to study whether the factors used in the UTAUT constructs are effective and perceived similar across different cultural contexts with regard to a newly implemented MIS. As a result, our study may also be able to tell whether the UTAUT model is a culturally informed technology acceptance model.

Based on the items that Venkatesh et al. (2003) used in estimating the UTAUT, we developed a guideline for interview. The reason why we employ face-to-face interviews to ask open questions instead of using the standard UTAUT questionnaire to our respondents, is that our research goal is not only to study the conceptual validity of the UTAUT factors, but we also intend to explore what lies beyond the surface. That is, what factor may influence the application of these factors within our case study context. Secondly, our respondents were selected from various job positions, which means, the respondents have different kinds of intake with the MIS. Hence they may look at the system from quite different perspectives. Last but not least, we would also aim to analyze the response from our respondents in terms of their different cultural backgrounds.

Overall, simply applying the UTAUT model as Venkatesh et al. (2003) did in their empirical study, can not serve the purposes of our research. However, when we developed our interview guidelines (See, Appendix A), we tried to

follow as closely as possible the instruments that Venkatesh et al. (2003) utilized in their study.

2.4 Cultural Context

Culture has a substantial and definite influence on individuals, organizations, organizational behavior and the management of organizations (Shanks, Parr, Hu, Corbitt, Thanasankit & Seddon, 2000). According to Thanasankit's study (as cited in Shanks et al., 2000) many difficulties have been faced when implementing and using Western technologies, management processes, information systems methods, and information system techniques in developing countries.

In our research context, the culture is a very important factor as we aim to study a MIS which has been developed in Western context but implemented in a Non-Western context. The research model and its factors we adopted for this study were developed and empirically tested in a Western context. So it might be the case that factors that play a role in other contexts than the Western are overlooked. Shanks et al., (2000) remarked that "culture differences will mean that factors important in one culture may be less important in another culture and vice versa" (p.538). Furthermore, cultures are distinguished on the basis of differing value systems (Hofstede, 1998). Attitudes, beliefs and perceptions, which are the basis for many factors distinguished in the UTAUT model, are by definition value-loaded constructs. Consequently, there is a good reason to explore the conceptual validity of the factors contained in the UTAUT model in none Western Cultural context (e.g. China).

2.4.1 Culture as a determinant of behavior

A useful way of understanding collective determinants of human behavior is to appeal to the notion of culture (Cabrera, Cabrera & Barajas, 2001). Shanks, et al (2000) define culture as "a set of shared beliefs within a country or community where a person lives" (p. 538). Hofstede (1984) defines culture as "the collective programming of the mind which distinguishes the members of one category of people from another" (p. 389).

According to Hofstede (1991) there are three factors that, at least to some degree, determine the behavior of a person in the workplace: national culture, occupational culture, and organizational culture. National culture is based primarily on differences in values which are learned in early childhood from one's family. These values are strongly lasting beliefs which are unlikely to change throughout the person's life. Occupational culture, which is obtained through education and working experiences between childhood and adulthood, is comprised of both values and shared practices. Shared practices are learnt perceptions about how things should be done in the context of some occupation. Consequently, shared practices are more adaptable than values.

Finally, organizational culture is based on differences in norms and shared practices which are learnt in the workplace and are considered as valid within the boundaries of a particular organization (Cabrera et al., 2001). For the purpose of our research, we have chosen to focus on national culture and organizational culture and their influence on the user acceptance of a Management Information System.

2.4.2 National Culture

National culture is an important issue in employing information systems for users from different cultural backgrounds (Cabrera et al., 2001). It is crucial for managers and researchers to improve their understanding of the role of national culture on Management Information Systems, as national culture influences IS above and beyond political, economic, and physical factors. (Ford, Connelly & Meister, 2003).

There are existing valuable methodologies and operationalizations of national culture; these methodologies, to a certain extent, have added to the understanding of national culture and its influence on MIS (Ford et al., 2003). The most well known researcher on national culture influence is Geert Hofstede and his national culture dimensions. Hofstede's approach allows national-level analysis and is standardized to enable multiple countries comparison. Ford et al., (2003) noted that Hofstede's National Culture Dimensions enable "IS researchers to gain a 'handle' on the difficult concept of culture" (p. 22). Hofstede (1991) argues that there are five dimensions that can be used to identify differences between one country and another. We are presenting the concept of five dimensions as adopted from Geert Hofstede™ Cultural Dimensions. In addition, the context of our case study is a Sino-Western Joint Venture located in China, thus it is helpful to briefly introduce some specific comments regarding the characteristics of Chinese culture.

2.4.3 Geert Hofstede Cultural Dimensions

Culture has been defined in many ways by different researchers. Hofstede's (1991) dimensions of culture are the most often quoted theories in relation to cross-cultural studies. Furthermore, Hofstede's dimensions are often mentioned when national culture issues are discussed within the IS field. Hofstede's original study is summarized by Markus and Gould (2000) as follows:

> During 1978-83, the Dutch cultural anthropologist Geert Hofstede conducted detailed interviews with hundreds of IBM employees in 53 countries. Through standard statistical analysis of fairly large data sets, he was able to determine patterns of similarities and differences among the replies. From this data analysis, he formulated his theory that

world cultures vary along consistent, fundamental dimensions. Since his subjects were constrained to one multinational corporation's world-wide employees, and thus to one company culture, he ascribed their differences to the effects of their national cultures (p. 35)

Below is the definition of each dimension that quoted from the official website of "Geert Hofstede Culture Dimensions" (i.e. http://www.geert-hofstede.com/)

Power Distance Index (PDI) that is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. This represents inequality (more versus less), but defined from below, not from above. It suggests that a society's level of inequality is endorsed by the followers as much as by the leaders. Power and inequality, of course, are extremely fundamental facts of any society and anybody with some international experience will be aware that 'all societies are unequal, but some are more unequal than others'.

China has a significantly higher Power Distance ranking of 80 compared to the other Far East Asian countries' average of 60, and the world average of 55. It can be said that China is more hierarchical and more centralized authority. In other words, it is indicative of a high level of inequality of power and wealth within the society. This condition is not necessarily forced upon the population, but rather accepted by the society as their cultural heritage (Shanks et al., 2000)

Individualism (IDV) versus its opposite, collectivism, that is the degree to which individuals are integrated into groups. On the individualist side we find societies in which the ties between individuals are loose: everyone is expected to look after him/herself and his/her immediate family. On the collectivist side, we find societies in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families (with uncles, aunts and grandparents) which continue protecting them in exchange for unquestioning loyalty. The word 'collectivism' in this sense has no political meaning: it refers to the group, not to the state. Again, the issue addressed by this dimension is an extremely fundamental one, regarding all societies in the world.

China has a low individualism ranking, it is manifested in a close and committed member 'group', be that a family, extended family, or extended relationships. Loyalty in a collectivist culture is paramount. The society fosters strong relationships where everyone takes responsibility for fellow members of their group.

Masculinity (MAS) versus its opposite, femininity refers to the distribution of roles between the genders which is another fundamental issue for any society

to which a range of solutions are found. The IBM studies revealed that (a) women's values differ less among societies than men's values; (b) men's values from one country to another contain a dimension from very assertive and competitive and maximally different from women's values on the one side, to modest and caring and similar to women's values on the other. The assertive pole has been called 'masculine' and the modest, caring pole 'feminine'. The women in feminine countries have the same modest, caring values as the men; in the masculine countries they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's values and women's values.

Shanks et al. (2000) argue that in a more feminine society such as China, managers generally use intuition as much as logical thinking to solve problems.

Uncertainty Avoidance Index (UAI) deals with a society's tolerance for uncertainty and ambiguity; it ultimately refers to man's search for Truth. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different from usual. Uncertainty avoiding cultures try to minimize the possibility of such situations by strict laws and rules, safety and security measures, and on the philosophical and religious level by a belief in absolute Truth; 'there can only be one Truth and we have it'. People in uncertainty avoiding countries are also more emotional, and motivated by inner nervous energy. The opposite types, uncertainty-accepting cultures, are more tolerant of opinions different from what they are used to. They try to have as few rules as possible, and on the philosophical and religious level they are relativist and allow many currents to flow side by side. People within these cultures are more phlegmatic and contemplative, and not expected by their environment to express emotions.

Long-Term Orientation (LTO) versus short-term orientation: this fifth dimension was found in a study among students in 23 countries around the world, using a questionnaire designed by Chinese scholars. It can be said to deal with Virtue regardless of Truth. Values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'. Both the positively and the negatively rated values of this dimension are found in the teachings of Confucius, the most influential Chinese philosopher who lived around 500 B.C.; however, the dimension also applies to countries without a Confucian heritage.

China has the highest ranking in the world regarding LTO; it indicates a society's time perspective and an attitude of persevering; that is, overcoming obstacles with time, if not with will and strength. This fifth dimension has

been also termed the Confucian dynamism (Hofstede & Bond, 1988).

2.4.4 Practical applications of Hofstede's Culture Dimensions

Hofstede's research on national cultural differences is valuable and has practical applications, as he stated on his website "For those who work in international business, it is sometimes amazing how different people in other cultures behave. We tend to have a human instinct that 'deep inside' all people are the same - but they are not. Therefore, if we go into another country and make decisions based on how we operate in our own home country - the chances are we'll make some very bad decisions"(ITIM International, 2006)

Hofstede's cultural dimensions framework is often employed to explain cultural differences in organizations and effective use of information systems (Ford, Connelly & Meister, 2003). Shank et al. (2000) pointed out that the outcome of Hofstede's culture dimensions is a key starting point in any analysis of culture and its impact on Information Systems.

In the context of our case study, we deal with a recent established Joint Venture (JV) between a Chinese State-Owned Enterprise (SOE) and a multinational company originated in Germany. The decision maker such as the General Manager (GM) is Belgian, the production supervisors are Dutch and German, the MIS implementation consultant is a Dutch person. So the decision makers are a group of mixed Western culture. The actual MIS system users are Chinese, i.e. from Eastern culture background. The majority of the Chinese employees of the JV are inherited from the previous SOE.

According to Burn (1995) the impact of national culture and its assumptions frame the way that those individuals and organizations within it accept and use information. Particularly in the Chinese context this is informed by the acceptance of Confucianism. As a result of our particularly research context, we expected a mix of Chinese ideology, Confucian behavior and Western management practices.

Table 1

International comparison data on cultural dimensions

Country	Power Distance Index score (PDI)	Individualism Index score (IDV)	Masculinity Index score (MAS)	Uncertainty Avoidance Index score (UAI)	Long-Term Orientation Index score (LTO)
Germany	35	67	66	65	31
Netherlands	38	80	14	53	44
Belgium	65	75	54	94	-
China	80	20	66	30	118

From Table 1, we listed and compared national culture dimensions of the selected countries that our respondents come from. We can learn that China is obviously different from the other three countries except in the dimension of Masculinity. It is safe to draw a conclusion that Chinese culture is basically different from that of Western countries.

As for the Power Distance dimensions, Chen (2004) remarks in his book that in high power distance cultures like China, employees "Expect managers to lead and are less comfortable with the delegation of discretionary decisions than those from low power distance cultures"(p.15), such as Germany and Netherlands. In other words, cultures that are high in power distance are illustrated by decisions being made by superiors without consultation of subordinates (and subordinates preferring this practice) and employees being fearful of disagreeing with their superiors; whereas cultures that are low in power distance will have a more participative and egalitarian relationship between superiors and subordinates (Ford et al., 2003).

With regards to the second dimension Individualism, Chinese culture which is low in individualism values the group's well-being more than individual desires; the belief is that it is best for the individual if the group is cohesive (Ford et al., 2003).

With regard to Uncertainty Avoidance, Zhang et al. (2005) conclude that the dimension of Uncertainty Avoidance has the strongest relation with the use of technology. They go on to state that "the inclination of members of a culture to avoid uncertainty and ambiguity profoundly affects the way in which institutions are organized and managed. Consistent with this logic, uncertainty avoidance will also likely affect the way in which individuals use ISs" (P.63).

In Western countries, a high score of uncertainty avoidance, as for example in the case of Belgium, indicates the society's low level of tolerance for uncertainty and ambiguity. Therefore people with high uncertainty avoidance level require more clear information and tend to deploy ISs across departments within an organization. They are used to sharing information to assist in decision-making (Zhang et al., 2005.) However, in the country with a low score as in China, people are more tolerant of unclear information, they are inclined not to share information with others and keep information for themselves. Consequently they are reluctant to use ISs that require real time information entry and information sharing across different departments (Zhang et al., 2005). In other words, as expressed by Chen (2004) "Security motivates employees more strongly than does self-actualization" (p.15).

Long-Term Orientation or "Confucian dynamism" was found to be particularly relevant to Asian culture. A long term orientation culture such as

China values virtues orientated toward future rewards, in particularly perseverance and thrift.

2.4.5 Organizational Culture

Organizational culture is imbedded within national culture. It is regarded as the unique factor that affects IS systems implementation success (Zhang et al., 2005). It can be thought of as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1996, p.12). Similarly Deshpande and Webster (1989) define organizational culture as the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them with norms for behaviors in the organization. Cabrera et al., (2001) conclude that Organizational culture comprises a set of social norms that implicitly defines what are appropriate or inappropriate behaviors within the boundaries of the organization.

Unlike national cultures, organizational culture can be, at least to some extent, modified. By the time a person enters the organization. The person's national culture is already in place. For this reason the organizational culture is particularly interesting from the point of view of implementing technology-driven changes (Cabrera et al., 2001). Moreover, recognizing the organization's dominant culture can help management assess their internal strengths and limitations of their strategies (Lund, 2003).

Our case study is based on a Joint Venture (JV) between a Chinese SOE and a German company that is located in China. Hence we would like to study more about the organization culture of Chinese SOEs. In their study, Ralston, Tong, Terpstra, Wang & Egri (2006) assessed the differences in the organizational cultures of the various Chinese ownership types. They particularly focused on the State-Owned Enterprise (SOE) ownership type, as SOE has dominated Chinese business since the People's Republic of China was founded. Their study shows that "there is a socio-culture influence-based China organizational culture. Their data showed that there are distinctive ownership type cultures that evolved from the unique business ideology influences" (Ralston et al., 2006, p.840). Furthermore their findings indicate that ownership type is the more important factor, supporting the view that the business ideology has a more significant impact on organizational culture than the social-cultural influences.

The JV we have chosen to be our research site was established less than a year ago, its organization and operation are still in a transition period. The majority of the employees of the JV have come from the Chinese SOE, including the General Manager (GM) of the SOE. Now he is the Vice General

Manager (VGM) of the new Sino-Western JV. During the research period of time (summer, 2006), the dominant organizational culture of this JV has remained a Chinese SOE culture according to the Western managers and Chinese employees. This is consistent with the finding of Vertinsky, Tse, Wehrung & Lee (1990)'s study that some norms of organizational design that reflect basic cultural values are resistant to change and converge.

2.4.6 Organizational culture of Chinese State-Owned Enterprises (SOEs)

According to Liu (2003) the organizational culture of SOEs is influenced by traditional Chinese cultural values and political ideologies. These influences are evidenced in the organizational structure, management system and the relationship between the individual and the organization.

2.4.6.1 Centralized management and informal coordination system of SOEs

A typical Chinese SOE is a highly personalized bureaucracy, with weak interfunctional coordination and little technocratic specialization (Boisot & Child, 1988; Shenkar, 1984; Lockett, 1988). A centralized management system at SOEs is required, in order to facilitate the transfer of policies from the state to thousands of SOEs and to facilitate the control of supply and production, as well as distribution of products (Liu, 1987), In accordance with the highly centralized management model, a huge administrative organ was established to carry out production planning, product distribution, political education and employee welfare in SOEs (Warner, 1995). A small group of senior managers usually the oldest rather than the most competent, tend to control rather than supervise the projects (Yusuf et al., 2006)

The study of Marinsons & Westwood (1997) demonstrates that the high power distances and paternalistic tendencies of the Chinese have resulted in very centralized and directive management systems, which combine discipline and benevolence. As a consequence, key decisions are made mostly and exclusively by the general manager.

Lin and Germain (2003)'s research shows that Chinese SOEs have an overall low degree of formalization, and they refer the important aspects of formalization as standards, quantifiable measures of corporate management, such as comprehensive control and informational systems and application of profit and cost target. Though formal procedures and policies reflecting bureaucratic demands exist and look harsh (e.g., job descriptions), they tend to be imprecise and unsystematic (Li, 1999). This is aligning with the finding of Martinsons (1996) that Chinese managers are less inclined to use systematic and formal planning procedures than their Western counterparts. Instead, they will rely more on extrapolations from experience and intuition.

Marinsons et al. (1997)'s results suggest that the coordination and control of

Chinese organization are achieved using informal, relational and implicit means rather then the formal, transactional and explicit approaches common to Western organization settings. In addition, electronic information exchange would also erode status-based hierarchies by diminishing the social context and cues, which features subtle relationship codes and bonds of Chinese management system. As a result, it makes the formal constitution of MIS in Chinese organizations both difficult and undesirable.

2.4.6.2 The individual relationships and the organization

Individuals were allocated jobs in SOEs according to the state central planning system in which lifetime employment (iron rice-bowl emplacement system) was a central feature (Warner, 1995). In other words, once one became an SOE employee, one would be employed forever.

According to Lin & Germain (2003) relations between the individuals and organization are built around friendship, personalized loyalty, and reciprocal obligations rather than the impersonalized application of rationality. Similarly, Liu (2003) remarks the relationship between individual and the working unit is affected by political ideology and traditional cultural values going back to Confucianism. The SOE has long been the epitome of the massive collective, where employees usually treated their organization as their family, exemplifying a Clan culture (Ralston et al. 2006).

A Clan culture according to Ralston et al. (2006) is like an extended family where leaders act as mentors, facilitators, or parent figures. Clan cultures are friendly places to work where people share a lot about their personal values and goals. Teamwork, participation, and consensus are encouraged in Clan cultures, which are held together by interpersonal loyalty, trust, commitment, and tradition. Clan cultures' high concern for people emphasizes the importance of interpersonal relationships, human resource development, team cohesion, and employee morale and commitment (Ralston et al., 2006).

Liu (2003) has also noted that SOE employees are supposed to view their factory as a symbolic family. And he demonstrates three implications regarding the family metaphor which we have reviewed and quoted as below.

First, a Confucian family implies hierarchy. Being a member of the family, and its relationships to organizational life requires that workers and leaders behave in accordance with the distinctive roles they hold respectively. Leadership has authority in the same way that the father of the family has power. Provided that both subordinates and superiors stick to their respective roles and abide by the explicit and implicit rules of proper behavior, order and stability are assured in this hierarchical structure (Chen & Chung cited in

Liu, 2003). Top managers in SOE enjoy status and power primarily because they are greatly respected by their subordinates (Yusuf et al, 2006)

The second implication is mutual obligations. The subordinate accepts the authority of the superior, whereas the superior reciprocates this obedience by showing appropriate concern for the subordinate. For example, top managers caring about their health condition, their private life. The concern shown to employees' personal benefits from the factory encourages the spirit of selfless contribution from employees to the factory and also fosters loyalty of the workforce.

The third implication of the family metaphor is harmony. Harmony is an essential component of Confucianism. Chinese believe that only Harmony among groups' members can produce fortune (Chen & Chung, 1994). Owing to the traditional lifetime employment, workers tend to perceive their relationship with leaders and co-workers as long-term. Whenever conflicts occur, harmony is the guiding principle to resolve problems because the Chinese saying is that harmony makes the family prosper (Liu & Chen, 2000). Social Harmony depends not only on the maintenance of correct relationships among individuals, but also on protection of an individual's face or integrity (Liu, 2003). Similarly, Martinson & Westwood (1997) also concludes that Social structural harmony is created and preserved by complex relationship networks. These in turn are sustained by status hierarchies, loyalty to people (more than principles or ideas), and norms of conformance, mutual obligation and reciprocity.

2.4.7 Management information systems and the Chinese SOE culture

To a certain extent the characteristics of the SOE's culture affect the information system implementation and adoption strongly and negatively (Zhang et al., 2005).

The study of Martinsons & Westwood (1997)'s research shows that Chinese managers make comparatively limited direct use of computer-based information systems. However, it is not because of "lack of technological sophistication, institutional factors or even comparatively smaller firm sizes" (p.216). They claim that this phenomenon might arise from a "misfit between the Chinese business culture and computer-based MIS" (p.216). The unique management systems of the Chinese and the way of information management sharing may substantially influence the use of MIS.

We have just discussed that the Chinese SOE culture is like an extended *family* culture where manager act as parent figures. And the family "represent a natural extension of oneself" in the Chinese culture (Allinson, 1989, p.6). In order to maintain *harmony* and balance of the *family* the Chinese have a "'situation accepting' tendency rather than the 'problem-solving' orientation

which prevails in Western societies" (Martinson & Westwood, 1997, p.219). As a result, the Chinese is inclined to accept their surroundings and concentrate on adapting to it.

This SOE culture characteristic has significant influences on business planning. As shown in Martinsons & Westwood (1997)'s research, "Chinese managers are less inclined to use systematic and formal planning procedures than their Western counterparts. Instead they will reply more on extrapolations from experiences and intuition" (p.219). Similarly Chen (2004) demonstrates that in terms of information search, "Westerners mainly use their five senses to gather information and facts about a situation and are more deductive; intuitive people (Asian) more often use ideas from the past and future for their data gathering"(p.15). Therefore decisions made by Chinese managers tend to be based subjectively on a combination of intuition and experience. As a contrast, MIS as a decision making tool represents problem solving in a rational and scientific way which requires formal planning methods and quantitative analysis.

This misfit between Chinese managers and MIS is further illustrated by Lin and Germain (2003), "Standardized, quantifiable measures of corporate management, such as comprehensive control and information systems and application of profit and cost targets, are important aspects of formalization. In this sense, Chinese SOEs have an overall low degree of formalization. Though formal procedures and policies reflecting bureaucratic demands exist and look harsh (e.g., job descriptions), they tend to be imprecise and unsystematic (Li, 1999).

Martinsons & Westwood (1997)'s research shows that Chinese employees are comfortable with limited access to information, because information is not perceived to be a public commodity. Furthermore, their management systems do little to promote the release of timely or accurate information. The ability to provide or withhold information is closely related to power and control (Martinsons & Westwood, 1997). Therefore a MIS is not in favor to the "tactic and personalistic Chinese management system which features subtle relationship codes and bonds" (Martinsons & Westwood, 1997, p.220).

Another finding demonstrating the misfit between Chinese SOE culture and ISs is illustrated below:

> Company D is a state-owned enterprise that relies on top manager's personal experience and intuition to make decision. Communication between departments is limited and orders are passed verbally, which results in low accountability recourse. People tend to be tolerant of unclear information (Zhang et al., 2005, p.70).

2.5 Research Question

We have discussed that there are many competing models to predict information technology acceptance and usage. Venkatesh et al. (2003) developed the UTAUT model with roots in sociology and psychology to determine user acceptance. The UTAUT model aims to provide a unified instrument that captured the essential factors of eight previously established technology acceptance models. Most of the models have been developed and applied in a Western context; it might be the case that factors that play a role in a context other than the Western are overlooked. The UTAUT model includes a number of demographic characteristics of individuals such as gender and age. However culture is not included in the model as a factor.

According to Hofstede (1998), cultures are distinguished on the basis of differing value systems. One definition of value is "a broad tendency to prefer certain states of affairs over others" (Hofstede, 1980, p.19). Attitude, belief and perceptions, which are the basis for many factors distinguished in the UTAUT, are by definition value-loaded constructs. Therefore from a theoretical point of view, there is reason to expect that the items that are used to measure the constructs in the UTAUT factors may be perceived and interpreted differently by individuals in Chinese cultural context. That is to say, culture might affect the perception and interpretation of individuals respond to items regarding to the UTAUT factors.

Although the UTAUT instruments have been empirically tested on two additional organizations that might include ethnically heterogeneous respondents (Venkatesh et al., 2003), it is not clear to what extent the UTAUT factors are valid in a non-Western cultural context.

This study questions the assumptions conceptual universality and equivalence of the UTAUT factors and therefore aims to present a study which explores the conceptual validity and appropriateness of the UTAUT factors by interviewing Chinese users and Western managers, who recently started using a MIS. The personal views of the people who are involved in the adoption decision and their interpretations of the organizational context in which the adoption and implementation of the MIS is taking place, as expressed in response to open interview questions, will form the empirical data material in this study. Their views and opinion expressed will be analyzed using Hofstede's culture dimensions and reviewed literatures regarding constructs of organizational cultural.

In sum, the cultural literature reviewed in this chapter does not allow directional hypotheses to be formulated for applying the UTAUT factors in a Chinese context. The literature we have reviewed does suggest, however that the perception of Chinese is likely to be different than people from Western

cultural background. So it is reasonable for us to address the following research question:

What are the influences of Chinese (organization and national) culture on the perception and interpretation of the UTAUT factors during the adoption of a MIS within a Chinese SOE culture context?

3. Research Methodology

3.1 Case Study

A case study examines a phenomenon in its natural settings, employing multiple methods of data collection to gather information from one or few entities (People, group, or organizations) (Benbasat, Goldstein & Mead, 1987; Yin, 2003).

According to Yin (2003) a case study is suitable when context is important, the phenomenon is contemporary and the researcher has no control over it. The research is largely exploratory and it addresses the "how" and "why" questions. Moreover the study of Chen & Hirchheim (2004) shows that IS researchers are increasingly interested in gathering rich data through the use of the case study method.

The reason why we adopted the case study approach in this study is because; a case study allows us to carry out an in-depth exploration of the difference between Western Manager and actual Chinese users' perception and interpretation regarding the implementation and adoption of a MIS within a Chinese SOE context. Therefore a case study is well suited to the purpose of our study.

3.1.1 Research site

Our research was carried out in a Sino-German joint venture located in the north-east of China. Joint Venture (JV) can be defined as legally and economically distinct organizational entities created by two or more parent organizations that collectively invest capital and other resources to pursue certain strategic objective (Pfeffer and Nowak, 1976).

The Sino - Germany Joint Venture is like many other Sino-foreign JVs are shareholding companies founded on the basis of pre-existing SOEs. The Chinese partner holds 30% share and the German partner holds 70% of the total share.

For the sake of the JV's desire for anonymity, hereafter we refer it as JV-X. The operation readiness of the JV-X occurred on Oct. 1st, 2005. It is engaged mainly in the manufacturing and sales of new units and services in the area of

turbomachinery and compressors. The service includes spare parts, erection, and commissioning and maintenance for both Original Equipment Manufacturer (OEM) and non-OEM turbines and compressors. Through this new JV-X, it is able to better meet the market demand for the most advanced industrial power generating units and turbomachinery, with the maximum extend of local equipment and suppliers. At the time of this study it had a workforce of over 300 employees.

The participants we have chosen for our case study at one hand are Western decision makers, namely the General Manager, The Production Supervisor, and the Implementation Consultant. On the other hand are selected Chinese employees who are the actual users of the implemented MIS. A detailed list of participants can be found in section 3.3.

3.1.2 Purpose of implement MIS

In our case the Microsoft Project (MSP) software has been chosen by the General Manager to be implemented in this JV-X. It has three main purposes: a) Use as a database for registration of routing cards. b) Plan the needed workload in production; keep control with an overall-planning (determine delays), so the projects can be managed; c) Measure efficiency of the production facility. Below we give a short introduction about what is MSP.

3.1.3 Microsoft Project

Microsoft Project is a specialized database that stores and presents thousands of pieces of data related to the project. Examples of such data include tasks, durations, links, resource names, calendars, assignments, costs, deadlines, and milestones. These pieces of information interrelate and affect each other in a multitude of ways. Underlying this project database is the scheduling engine, which crunches the raw project data the user enters and presents the calculated results to users. Examples of such calculated results include the start and finish dates of a task, the resource availability, the finish date of the entire project, and the total cost for a resource or for the project.

Moreover you can then manipulate and display this calculated data in various views to analyze the planning and progress of project. This information helps you make decisions vital to the project's success. You can also communicate your progress and provide the feedback necessary to keep your team and other stakeholders informed of essential project information, create and print reports for status meetings or distribution to stakeholders, and print or publish certain views or reports to your team's Web site. (Microsoft Office Project 2003 Inside Out eBook, 2004 p6-7)

3.2 Implementation background

The use of this MSP system in the JV-X is mandatory, that means, whether the quality of the system itself and the information outputs are satisfying or not, and whether users want to use the system or not, users have no choice but to accept and use the MSP. The MSP has been introduced and implemented in the JV-X one month before the starting of our research.

3.3 Data collection

In this research, semi-structured interviews are employed. Each interview lasted about 45-60 minutes. All structured interviews were tape-recorded; nevertheless there were also few notes from off-recorded conversation with informants just after the conversation. Therefore the raw data are mainly audio recording data and notes from face-to-face off-record conversation conducted at the company office. The final respondents consisted of three Western Decision Makers: General Manager (Belgian), Production Supervisor (Dutch), Implementation consultant (Dutch); and from a list of MSP users that were provided by the Dutch consultant. Fourteen Chinese actual users were selected, among them two key users were selected from each department that have implemented MSP. The age range of our respondents was 32 – 52 years of age. Thirteen participants had worked in the pervious state-owned enterprise before the establishment of the JV-X. Table 2 summarized the final respondents.

Table 2

Summary of respondents in the face-to-face interviews

Respondents	Nationality	Number
General Manager (GM)	Belgian	W1
Production Supervisor (PS)	Dutch	W2
Implementation Consultant (IC)	Dutch	W3
Project Manager (PM)	Chinese	C1-C3
Supplement Chain Management Manager (SCMM)	Chinese	C4
Production Operational Manager (POM)	Chinese	C5-C6
Employee Order Management (EOM)	Chinese	C7-C11
Employee Logistic (EL)	Chinese	C12-C13
IT Manager (ITM)	Chinese	C14
TOTAL :		17

Note: We gave each respondent a number. For example, W1=Western managers 1, C1= Chinese user 1.

The semi-structured interviews are arranged to ask respondents at one hand pre-established questions, and on the other hands open questions. It meant to give respondents a chance to provide in-depth open-ended information. The pre-established question guideline for both decision makers and actual users

were structured into three main sections as below:

1). Compatibility of current system versus MSP. This section aims at collecting general information with regards to how respondents perceive the differences between old management/operational practices and MSP. This information would help us to establish the understanding of the old management/operational practices of the Chinese SOE.

2). MSP Implementation process. Questions asked in this section were designed to ascertain users' view as to how they perceive MSP implementation. Such as what were the difficulties and conflicts they perceived so far. Therefore we could have better understanding of the implementation context. For example, the current organizational culture.

3) The UTAUT instrument. Open-ended questions were developed based on the items used in estimating the UTAUT by Venkatash et al., (2003). These questions were aimed to find out how do our respondents perceive and interpret the UTAUT factors within the implementation context. In addition, we intend to learn what specific Chinese attributes may influence the user perception and interpretation of the UTAUT factors.

3.4 Data Analysis

Original data are mainly audio recorded files; these files were repeatedly listened to ensure no omission during translation and transcription. All of the transcribed data were inputted into a "Microsoft Access" database according to the above mentioned sections and its sub items. The data analysis process is iterative; some responses can be condensed into one section in this process according to interviewees' responses. While reviewing interviewees' responses, new section can be found and added easily since "Microsoft Access" can generate tables automatically accordingly.

4. Result of the interviews

In this chapter we present the summarized answers from our respondents around three sections: a) Description of the implementation process of MS Project as perceived by Western decision makers and actual Chinese users. b) Description of the items used for estimating the UTAUT. c) The role of national and organizational culture in the implementation/adoption of MSP. The first and the last sections are described from two perspectives: The perspective of the three Western decision makers and the perspective of the fourteen Chinese users of the MSP.

4.1 Description of the implementation process of MSP

4.1.1 The old management practices

At the beginning of every interview we try to find out and understand the old management/operational practices. As a result we can compare it with the current practices that the recently implemented MSP brought into the JV. To achieve this goal, we asked the following questions: "Could you please describe the current situation, goals and activities concerning registration of routing card/Production Planning and determine delays/Measure efficiency of production facilities". Moreover, we asked respondents to comment on the advantages and the disadvantages of the traditional management practices from the above mentioned aspects. Last, the respondents were asked to recall any critical incident caused by the old management practices. We summarized the answers as below.

4.1.1.1 The paper-based information system

The old management system is a paper-based information system. The overall production plan including the routing card were made manually and copied manually. A routing card is a piece of paper tapped on the drawing of a component of a machine that is going to be produced for a project. What is written down on the routing card is the instruction of working process that needs to be completed for this piece of component.

Because of the manually and paper-based information system, the copying practices can easily lead to mistakes by the copiers. A typical incident recalled by six of our respondents, was missing a part of the instruction for a production and working process, because copier accidentally forgot to copy that part. The consequences were, when approaching the end of production – assembling, one component was finally found to be missing, so the whole product delivery date was delayed.

4.1.1.2 The Routing Card

Besides the instructions for the working process to operators, the routing card also includes the planned working hours for machine operators to complete each process. After each working process is completed, the operators have to fill in the actual working hours next to the planned working hours by hand on the routing card.

As a result, the routing card has the function of tracking actual working hours versus planned working hours. As recalled by respondent C8, who is responsible of making planned working hours, "Actually, some operators were secretly modifying the planned working hours I had written down on the routing card. For example, I wrote a 6, which means that this process is planned to finish within 6 hours time. However, some operators may change it to 8. The operators try to cheat on this because they want to gain more bonuses in the end." Another disadvantage of the old routing cards as

described by five respondents (C2, C4, C6, C9, and C11) is its fragileness. "The routing card has to be transferred together with drawing of the component between different operators in the production floor for quite some time. So if the routing cards were destroyed or got lost, sadly, there were no backups. The data on the routing card could not be recovered truly as it had been written down originally.

4.1.1.3 Project control and planning perceived by Chinese users

Concerning the question of keeping control with an overall-planning (determine delays), ten of our respondents (C1-5, C7-11) explained to us in a similar tone that "We have regular meetings (daily, weekly and monthly) for managers from different departments to discuss the progress of ongoing projects. During the meetings, attendances check their actual working progress versus planned. They communicate verbally with each other to coordinate the working progress. Meanwhile we memorize the information, without written memos or reports." Typical questions that were proposed during the meeting are, e.g. to procurement department is whether the material has arrived or not. Question proposed to the production department such as whether a component is ready or not for moving to the next stage.

Another issue brought up by eight of our respondents (C2-C5, C6, C8, C9, and C13) on project controlling is the project priority issue. When there are several projects put into production at the same time, with limited machine resources. Questions such as which project has priority is an unavoidable question. The respondents all expressed that when such an issue occurs, the frequent solution is "who has the highest hierarchy (biggest power) in the company decides." Ultimately, the big boss in the company is the General Manager. Hence, he decides which one goes first. "Our boss never consults the existing production plan. He takes decision solely based on his previous managing experience and following his intuition and experiences". Respondent C2 concluded that "Our old management practice is not a rational and scientific way of managing a project. Sometimes the big boss' decision may disturb the entire existing plan." Respondent C5 stated that "To be honest, the decision made by our boss is not always the best solution; however nobody dares to challenge his decision." "Everyone gets used to listen to and wait for decisions that come from the big boss; hence, nobody takes initiative to find solutions and take responsibilities consequently." stated by respondent C1. Another four respondents (C3, C7, C8, and C9) answered in a similar tone.

4.1.1.4 Measuring production facility efficiency

When we come to the question of measuring the production facility efficiency, nobody can tell us the existing method of how to measure it. Respondents C10, C11 and C14 told us that nobody seems to seriously pay attention to it.

Last but not least, each of our respondents consistently commented on the management practices during the interview. From their point of view (C2, C3, C5, C6, C8 and C12), we got the impression of the Chinese managers only take passive action. In other words, Chinese managers only take actions when face unavoidable conflicts. Managers and the local Chinese are not used to take initiative to think about foreseeable problems and subsequently plan for avoidance or solutions. Nine of our respondents (C1, C2, C4, C5, C8 - C13) expressed that they do not appreciate the old management practices from their previous Chinese General Manager, particularly with regard to production management. All of our respondents expressed clearly that they expect the German partner to bring advanced Western management practices and systems into the factory, to improve the working efficiency and productivity.

4.1.2 The implementation process perceived by Western decision makers

In this section we provide the answers from three Western decision makers (W1-W3). As described by the respondent W1, the implementation of Microsoft Project (MSP) in the JV-X was initiated by the General Manager (Belgian) together with a Dutch Production Supervisor (W2). They've chosen MSP because it is compatible with the functionality that SAP could provide according to their requirements. However, MSP does not require managing huge and complex subsystems compared to SAP. In addition, the cost of implementing MSP is much less than SAP. MSP meets the most important need of the JV-X, that is to compile the current paper-based information system to a computer-based management information system and ultimately to improve the project management practices and quality to the standard of its Western partner.

In a later stage, MSP is expected to be used as a tool to obtain real-time data. Subsequently assist in solving the focal problems that are related to production management. E.g. Improve planned working hours versus actual working hours; Machine resources management. Eventually, the data that users input into the system and then processed could meet the analytical needs of managers in the decision making process.

The General Manager and Production Supervisor invited a Dutch consultant (W3) to come to the JV –X to implement the MSP. The Dutch consultant stated that there was not a clear mission statement during his initial contact with the GM. After he had arrived on the site and talked with some informants from different departments within the company, he was then able to define the goal of MSP implementation by himself. Soon after he proposed his concept to the GM, an agreement is reached.

The Dutch consultant described the implementation progress as below:

"At the beginning, a kick-off meeting was organized by the GM and all the line managers from each department attended the meeting. During the meeting, I was introduced by the GM together with my plan and tasks regarding MSP implementation. Line managers were required to pass on the meeting minutes to their subordinates.

Soon after the meeting, I scheduled individual meetings for myself with managers from each department. The purposes of individual meetings were to collect information for system configuration, to introduce and discuss the functionality of MSP for particularly needs. Afterwards, I wrote a functional report and presented it to the GM. He agreed with my finalized concept. The finalized goals of MSP implementation are: a) Use as a database for registration of routing cards. b) Plan the needed workload in production; keep control with an overall-planning (determine delays), so the projects can be managed; c) Measure efficiency of the production facility."

The Dutch consultant then configured the system based on the information he obtained. After that the outcomes (routing cards) of the system were tested with operators in the factory. Soon after that, user instruction was completed by the Dutch consultant. Then user instruction meetings were launched, for different departments respectively. In addition, individual sessions to solve particularly difficulties were arranged upon requests. By that time, according to the Dutch consultant, the Chinese users were able to perform the basic functions of the system. Afterwards, they are assumed to practice and apply them in their daily job.

Due to the functionality request, the Microsoft Project server was introduced and discussed. Then the Dutch consultant finished his three weeks work in the company and went back to Netherlands. After three weeks time, he was invited to come back to the site for another two weeks. During this two weeks time he managed to set up and configure the MSP server. In addition, he made an adaptation of the existing user instructions accordingly; meanwhile he arranged training and coaching for several departments that were selected by himself.

When the Dutch consultant left, supply chain manager Mr. W was appointed as the project manager of MSP implementation project. He was responsible for ensuring and supervising the adoption and actual usage of the MSP. IT manager Mr. J was in charge of background support, with main focus on the technical support and maintenance of the MSP server. Mr. L was the assistant of the Dutch consultant during the implementation stage. He was then responsible for the front help, meaning the support of the actual usage of the system. By the time the Dutch consultant left, the system was running properly, displaying both Chinese and English characters.

Soon after the Dutch Consultant left, the IT manager updated the operational

system of the MSP server. After that we observed that the MSP server could not support Chinese characters as before, meaning that all the inputted Chinese characters became question mark signs. As a result, some employees were trying to practice and use the system, but stopped because of it. Other employees intended to learn and use the system but gave up because they heard from their colleagues what happened to the system. So eventually they decided not to invest time in getting to know the system until it is ready and stable.

At the time when we were finalizing our research outcome back in Netherlands. We heard from the Dutch production supervisor that the MSP system has been reinstalled with Chinese character support. "The use of MSP is still in a struggling situation, in the near future, two internal German experts will work full time on the system locally, to assist in the use of MSP" stated by respondent W2.

4.1.3 The implementation process as perceived by the Chinese Users

4.1.3.1 Being informed about the MSP

Fourteen Chinese respondents were questioned about how they were informed about the implementation of MSP in the JV-X. Among them, except two respondents (C3 and C7), the rest ten respondents told us that they did not get informed about the implementation of MSP clearly. "We got to know about the implementation of MSP only when we actually met the Dutch consultant during the face to face training session." as expressed by respondent C9. Ten respondents (C1, C3-C5, and C7-C12) commented on that they thought they should be informed better and clearer about the implementation of MSP. What they have all agreed is that they perceived a written official circular issued from the GM as the official way of communication, subsequently they considered it as being well informed.

4.1.3.2 Training for the MSP

Concerning the training part, almost all the respondents agreed that they had received a certain level of training regarding the MSP usage. However respondent C5 from the project management department claimed that he did not get any training but learnt how to operate MSP through a book all by himself. Two respondents (C1 and C2) claimed that they got an external training but it was too general and hence did not enable them to be able to use MSP. Respondents C6 and C 9 commented that "it was too crowded in the training room and we couldn't really see and hear anything, nevertheless we are too busy to spend time over there, so we just left". They explained to us that although they were not able to learn during the training, they are willing to learn as long as they have time. "You know we have extremely busy work to do everyday, so we can't imagine we have time to sit and play with a

computer." However ten respondents (C1, C3-C6-C8, and C10-C12) expressed that after they have got trained, they understood the basics about MSP operation and were able to perform simple tasks in their daily job. Six of our respondents (C2, C4, C7, C8, C11, and C12) stated that they do need extra training, particularly tailored training for their daily job. Nine respondents (C1-7, C10 and C11) mentioned that they want to have an internal MSP expert who is able to work full time with them, in this way they can be assisted and feel more confident to adopt and use the system. Finally, all the respondents agreed that the best way to learn to use the system is by practicing.

4.1.3.3 Negative experiences in the initial stage

Not long after the Dutch Consultant left JV-X permanently, all the respondents complained in a similar way that "for some reasons that we do not know, the system could not display Chinese characters anymore". Some of the previous data we have inputted into the system disappeared. So we have to redo everything that we had done. It requires huge amount of time to do this repeating job! Can you imagine how busy we were already without this extra job?" In addition to the issue of not displaying Chinese characters, five of our respondents (C7, C8, C10, C11 and C12) complained to us that the system was not stable enough to work with. For instance, the network connection between MSP server and each department was constantly broken down and no explanations were given. The internal network among several different departments has not yet been activated, so that they could not pass or share data with each other.

All twelve respondents felt that not all departments were putting the same effort on practicing and use of the new system. In other words, some departments did not involve in the implementation as they are supposed to be. All in all, except two respondents (C 2 and C3) the rest concluded that they couldn't see the actual functionality of the MSP as they had read from mission statement.

One agreed problem raised by twelve respondents was the language barrier. The operational menu of the MSP is in English. However except respondent C8 the rest respondents claimed that they do not have sufficient English language skills to manage it. A typical answer is "It is just too difficult for us to manage the English operational menu, we can't handle it".

When we asked our respondents to comment on their perception of top management support, everyone thought the top management had showed fairly support at the beginning of implementation stage. Respondents C4, C6 and C8 illustrated as "Our boss invited a foreign consultant to come here to implement the system, money and time were invested; It meant to us the support from top management." Afterwards eight of our respondents (C1-C5, C7, C9 and C10) complained that there were no follow up activities such as

technical support and tutorials after implementation completed. To be more specific, "After the Dutch consultant left; there wasn't any sufficient support available to us." Four respondents (C2, C5, C8 and C10) complained that long time after they have reported MSP issues to their manager, the problem still remain unsolved. Consequently, it forced them to stop practice and work with the system. Respondents C9 and C11 said to us "it seems to us nobody is capable of fixing these problems!" The longer time they have to wait the less support they perceived from their top management.

Although there were several unsettled issues, all the respondents generally expressed their positive attitude towards using the system. No exceptions, all the respondents agreed that the stability of the system and supporting Chinese character display are the most important issues at that time. Finally, our respondents suggested to top management that one should not push to use the system when it is not ready. On the other hand our respondents believe that best way to adopt and use MSP is to let GM dictate top-down.

4.2 Description of UTAUT factors within Chinese SOE culture

Questions regarding the UTAUT factors were asked to the fourteen Chinese actual users. The goal of these questions is to obtain information regarding the perception and interpretation of the UTAUT factors. We intend to analyze the conceptual validity of the UTAUT factors.

The interview questions were developed first in English and then translated into Chinese by the interviewer. The guidelines were followed as close as possible to the six factors used in estimating the UTAUT by Venkatesh et al. (2003) which we have discussed in the chapter 2.

Among the fourteen respondents, there is only one female respondent; Two out of fourteen were seniors who are older than 50. The rest of the respondents are all middle aged male, age range from 30 to 43. They have similar knowledge and experience regarding computer usage and none of them had experience in using MSP. In addition, it is mandatory for our respondents to adopt MSP in their daily job. Consequently, it is reasonable for us to exclude the four Moderators (Gender, Age, Experience and Voluntariness of Use) that are included in the UTAUT model.

Below we describe the answers we got from our respondent concerning the UTAUT factors.

4.2.1 Performance Expectancy (PE)

With regard to PE, we asked the question "Do you think to adopt the system is useful in your daily job?" With two exceptions (C4 and C9) the rest of the

respondents believe that MSP is actually more profitable for project managers. Hence it has nothing much to do with other departments. The other twelve respondents (C1 – C12) confirmed MSP as useful; they believe it will enable them to accomplish their task more quickly and more effectively. Ultimately, the system may increase the overall productivity. A common answer is "I think MSP may reduce my workload, I can imagine that I could get rid of many repeating tasks. More importantly, I do not need to go to my colleagues personally to ask for information over and over gain. The information I need can be simply found in the system" stated by respondent C1, C2 and C3.

In addition, all the respondents commented that the system makes the production data more visible and production control and planning process more transparent than before. As a result, huge amount of time and energy are saved for arguing responsibilities. Following we asked the question "Do you think using the system will increase your chances of getting a raise?" five respondents (C4-C8) start to laugh, followed with shaking their heads to indicate "no". Only three respondents believe that using MSP might associate with their chances of getting a raise. Nevertheless, three respondents (C4, C7 and C8) explained additionally, "No matter how good I am in using the system, without considering my overall working performance, I will never get a raise or increase of salary!" Ten respondents (C2-C11) stated clearly that they do not believe that the adoption and use of a new system is relevant for getting a raise. "I never thought like that"; "MSP is just a working tool like any other ones we use, such as AUTOCAD"; "You know it is just part of our job to use it, we don't think like if we know how to use it well, then we may get a raise!" responded by C2,C4,C10.

4.2.2 Effort Expectancy (EE)

To measure EE, we asked our respondents the question "Do you think your interaction with the system is clear and understandable?" Four respondents (C6-C9) did not think their interaction with the system is clear and understandable. Another two (C2 and C13) claimed that they couldn't tell at this moment whether their interaction with the system is clear and understandable or the system is easy to use, because they were not able to manage to practice and use the system. The rest ten respondents stated in a similar way "The training session is too short and general we needed more training and coaching, in order to have better understanding of the system."

Afterwards we asked to the respondents whether the system is easy to manage and easy for them to become skillful to operate the system. Two respondents (C7 and C9) claimed they had never looked at the system, the other twelve respondents perceived the MSP as being easy to learn and to operate. Five respondents (C1-C3, C6 and C10) particularly noted that when there is sufficient support for both hardware and software, it is absolutely not difficult for them to become skillful. Except respondent C1 the other thirteen

respondents strongly expressed their concern of the English operational menu of MSP. They were very insecure about their English skills and constantly repeating to us that it is the biggest barrier for them to adopt and use the system.

4.2.3. Attitude Towards Using Technology (ATUT)

In order to understand respondents' attitude towards adopting the system, we asked the respondents whether they believe it is a good/bad idea for the JV-X to adopt MSP. With no exception all the respondents agreed that it is a good idea. Typical answers can be summarized as "MSP is a Western advanced technology, so it must be good"; "I think the company has invested a lot of money and it is the decision from our boss, it must be a good idea. Otherwise they would not have done it!" From the functional perspective, respondents commented "I think it improves our traditional way of working. For instance, data that is related to production management are more prescriptive and visible to everybody. Furthermore it allows us to make meaningful analysis out of it."; "Everyone can view the same information from the system, nobody can keep information for themselves anymore."

Concerning the question whether they perceive using the system as fun/interesting. Except two respondents (C2 and C3), the rest of the respondents pointed out that they perceive working with the system as neither fun nor interesting. They stated that the system is just as any other tools they use for accomplish their daily work. Respondent C6 turned to respondent C7 "Is there any fun in our daily work?", "I don't think so!" answered by C7. Nine respondents clearly noted to us that they believe such a question is not relevant with system adoption and usage. The exceptional two respondents (C2 and C 3) explained to us that they believe MSP will bring convenience to their daily job.

4.2.4 Social Influence (SI)

We asked questions such as "Do you think the person you consider to be influential and important to your job think you should use the system?" It was agreed by all respondents that people who are influential /important to them think they should use the system. We then asked them to illustrate who are the people they believe are important to them. Answers are diverse. Four respondents (C3, C5, C7, C8 and C11) claimed managers are important and influential to them. Respondents (C1, C2, C6, C9 and C10) believe their colleagues and subordinates are important. The rest of the respondents considered anyone who are involved in their work.

With regards to the question "Do you think senior managers of the company have been helpful in the use of MSP? If not in what aspects do you perceive this as lack of support?" Five respondents (C3, C6, C8, C9 and C12) believed

that their senior managers have little knowledge about the actual implementation process and adoption of MSP. Three respondents (C3, C6 and C12) pointed out that their managers did not pay much attention to the actual adoption process. The rest of the nine respondents perceived that they did receive much support from their senior managers. For example, three respondents (C1, C2 and C3) claimed "Long after we have reported system incident to our manager. Of course we expected the issue to be solved as soon as possible. However, until now the issue still remains. We could not continue practicing and working with the system. We have no choice but to switch back to our old way of working! What a pity!"

At last, we asked our respondents how they rate the support from the organization. Although fourteen respondents agreed there have been certain support. However, soon after the system was up and running, there wasn't much support anymore. "Severe lack of follow up activities and support!" claimed by eight respondents. Mr J. is responsible for user support after the Dutch consultant left. Yet, he only had a six months temporary labour contract with the company. Unfortunately, he also left the company soon after the Dutch consultant had left. During the early implementation stage, Mr. J. was the assistant of the Dutch consultant and mainly engaged in verbal and documentation translation. At that same time he was also engaged with other minor projects besides of MSP implementation, so he was not able to work fulltime with the Dutch consultant. As a consequence, he was not able to complete all the detail information for the user support. After the Dutch consultant had left, he was assigned with many tasks besides of being the only user support personnel. Twelve respondents commented that Mr. J has not been recognized as giving strong and helpful user support. Overall, our respondents expressed they perceived severe lack of technical and user support after the implementation stage. Therefore they believe the top management does not care about the actual adoption process.

4.2.5 Facilitating Conditions (FC)

Regarding FC we asked to our respondents "Do you have the knowledge that is required to use the system?" Respondent C8 clearly pointed out that he believes himself did not possess sufficient knowledge. The rest of the thirteen respondents believe they possessed the necessary knowledge except the knowledge of understanding the English operation menu.

Secondly, we asked the question about whether they possessed the necessary resources to use the system or not, eight respondents believed that their computers were too slow to run MSP and hoped their hardware condition could be improved, so that they can have a better working condition before the MSP is fully in operation.

At last, we asked the question "Is there a specific person (or a group) available for assistance with the system difficulties?" With no exceptions the

respondents claimed that they did not perceive there was a specific person (or group) available for assistance whenever they have problems. Fourteen respondents stressed that they need a full time internal expert to support them whenever needed. This is critical to the success of the adoption and usage of MSP stated by respondent C2, C3, C7 and C10. Respondent C2 and C3 further explained that "When we met difficulties, we only could refer to and discuss with our colleagues."; "We felt our top management somehow did not really provide necessary resources in the actual adoption and usage stage".

4.2.6 Self- Efficacy (SE)

With regard to SE we asked our respondents if they "Could complete a job or task using the system if a) there is no one around to tell you what to do as you go? b) If you could call someone for help if you got stuck. c) If you had a lot of time to complete the job for which the software was provided. d) If you have built-in help facility for assistance." All the respondents agreed that it is the best if they could call someone for help if they got stuck. Respondent C3 claimed that he is able to complete a job if he just had the built-in help facility. Respondent C9 believed whether having a lot of time to complete the job is critical. Nobody considered "people around to tell them what to do as they go" has bad influence during the system usage. Respondent C7 told us he believed it is better to have someone around to tell him what to do during the actual usage.

4.2.7 Anxiety

We asked questions like "Do you feel scared to think that you could lose information using the system by hitting the wrong key?" and "Do you hesitate to use the system for fear of making mistakes that you can not correct?" to our respondents. Four of the respondents (C1-C3 and C5) expressed their concern at the beginning of the adoption process. They were indeed afraid of loosing information by hitting the wrong key. "The more we practiced with the system, the less fears we have" stated by respondent C4. "There is an undo function and a possibility to back up data files, I don't feel scared anymore!" responded by five respondents (C3, C6, C7, C8 and C11). All of our respondents agreed that they wouldn't hesitate to use the system because fear of making mistakes that they can not correct.

With regard to the question "Do you feel apprehensive/intimidating about using the system?" None told us directly that they felt apprehensive about using the system or felt the system was intimidating to them. However during the interviews two respondents (C2 and C4) explicitly stated "When the system is fully in operation, data that is stored in the system is visible to everybody. As a result, it enables individuals to forecast the future and think about possible solutions accordingly. Working experiences are not critical anymore. Our job can be replaced easily by anybody. Perhaps by then we

might be getting laid off". Another two respondents (C5 and C10) showed their concern of using the system well or not may associate with the evaluation of their overall working performance.

4.2.8 Behavioral intention to use the system

Our case study started just after the MSP implementation. Except two respondents (C7 and C9), the rest of the respondents have already adopted MSP. The two exceptional respondents claimed they did not have time to get to know the system due to heavy workload. Nevertheless, they advocated they have strong intentions to adopt the system. However, condition for the adoption to happen is when they have time and the system is stable.

4.3 The cultural context in the implementation process of MSP

With regard to question "Do you think the MSP fits into the current organizational culture and the management style of your company?" In addition to this specific question we were also able to find out concepts that related to cultural context through responses to questions from other sections.

4.3.1 Organizational cultures

4.3.1.1 Western decision makers' perspective on organizational culture

Western decision makers (W1 and W2) pointed out right away that the MSP does not fit with the current organizational culture and current management style. Hence may cause resistance in the adoption process.

W1 believed that MSP employed scientific methodology to process data. It requires intensive data collection and analysis. The working environment that MSP created is considered to be explainable, predictable and even controllable. Eventually it enables individuals to forecast the future and make decisions accordingly. This has significant impact on the overall traditional management practices. Chinese employees got used to be dictated top-down by the authority. The authority is assumed to be the only one to take decisions. The new practices come along with the system will definitely clash with the existing management practices and the organizational culture.

When MSP is eventually adopted and used by the entire company, it contributes to the development of an open information culture. Not many senior managers want to see such a thing to happen, because most of the information they believe really is information only for them. Much of it supposed to be remained in the head of the managers. Nevertheless, it is only communicated verbally to selected individuals. To the Chinese managers, the ability to provide or withhold information is closely related to power and

control.

Western manager (W1) told us the previous Chinese General Manager managing and doing business relied solely on his informal way of communication and his extensive personal engagement with the environment. Experience, intuition and insights from personal connections are used to assess situations and determine appropriate courses of action.

The Dutch consultant (W3) recalled, during the implementation stage, he perceived difficulties of collecting information from individuals. He described as "Some people are reluctant and hesitate to share information with me, others sounded very nice and friendly to me, however they just do not gave me the information they possessed."

4.3.1.2 Actual users' perspective on organizational culture

During the beginning of the implementation process, except respondents (C13 and C14) the rest of the respondents claimed that they expected to receive a formal written circular from top management regarding the MSP implementation. Eight respondents (C4-C11) said they were verbally informed by their line managers, six (C1-C3, C12-C14) heard it from their colleagues. After the implementation, the all the respondents told us that they were still expecting to receive a written circular from GM to inform them about future activities concerning MSP usage. "We believe the best way of communication with employees is to issue an official written circular. Then everybody would feel obliged to read and follow it!" stated by respondents C5, C7 and C11.

With regard to the management style, every respondent explicitly expressed that it is a centralized management style. Except respondent C14 the rest of the respondents told us although the previous GM is not the VGM, he is still perceived as the big boss among Chinese employees. "He still possesses big power, particularly among project management. We have to listen and obey him." All of our respondents stated constantly that their managers reply solely on previous working experience and intuition when taking decisions.

The Dutch consultant (W3) also discovered that the VGM possessed big power at that time and explained to us, once he scheduled a meeting for all the line managers regarding MSP implementation. None of the line managers showed up during the scheduled meeting. Similar occasions happened twice. The Dutch consultant was very unpleased and confused about what had happened. Sooner, he found out through private conversations with several Chinese employees. He was told by them that only when line managers perceived strong support from the Chinese VGM Mr. F, i.e. unless VGM explicitly tells them they have to support and cooperate with the Dutch consultant. They would behave accordingly.

Following the hint from the Chinese employees, the Dutch consultant told us he had a meeting with the VGM. They had a very pleasant talk and he got a clear message from the VGM that the MSP implementation would be fully supported. Soon after the meeting the Dutch consultant told us he definitely noticed the change of attitude from line managers. They were quite cooperative.

In terms of information sharing, nine respondents (C1-C3, C5, C7,-C11) perceived that as long as MSP is fully in operation, they might save huge amounts of time with regard to communication. All the respondents explained to us people get used to posses information for themselves. Therefore it is quite difficult and sometimes impossible to get the information from others.   One explanation from our respondents (C3-C5, C8-C10) is "How can we secure our jobs? We rely on our personal working experiences and knowledge. If the system is fully in operation, the knowledge and information I have possessed will be easily transferred to others. At that time we may have to worry about how soon we will be replaced!"

With regard to decision making, eight respondents (C5-C9, C11-C13) described their managers take decisions as "knock on the head". This expression illustrates how simple a decision is made.

Another aspect of the Chinese management style that was frequently mentioned by our respondents is that the Chinese line managers are generally passive in action. They do not have incentive to take decisions and take responsibilities by themselves. Lines managers got used to be dictated by the big boss. They only listen and obey to the Chinese VGM. In our off record conversation with local employees, we were told the big boss is responsible not only for the business side but also takes care of employees' private life, just like a father image in a family. One production worker on the factory floor told us the previous Chinese GM often comes to the production floor to show his concern of workers' private life, such as inquiring about the health and living condition of their family members. Another worker in the production floor told us "Once I got sick and had to be hospitalized in Beijing. The VGM traveled 400 Kilometers to come and visit me! I really felt being cared over. However at this moment our new Western GM never showed us his personal concern about our private lives. We have the feeling that the company only cares about managers and not the workers!"

4.3.2 National Culture Dimensions

During our face-to-face interviews, we did not ask questions specifically regarding national culture. However, based on the transcripts and off record observation/conversation with local Chinese employees, we are able to explore and identify concepts that can be compared and analyzed with

Hofstede's Culture Dimensions.

4.3.2.1 Collectivism

First of all, all the Chinese respondents frequently mentioned they have to spend huge amounts of energy and attention to maintain personal relationship with boss and colleagues. Respondent C6 explained "In this company, you may discover endless and incredible connections/networks among employees."

When we were questioning about personal preferences of our Chinese respondents, they often remain silent, or try to hide their desire. They often value the interest of the company as their own. "Do you think using this system well can increase your chance of getting a raise or increase of salary." Eight respondents (C1, C4-C10) did not answer our question. Respondent C11 and C12 said to us "It is just part of my job; I have to use it." Respondents C2 and C3 believe the productivity of the company can be increased dramatically by adopting MSP, thus the company might gain more profits and I may get a raise in salary accordingly!"

4.3.2.2 Power Distance

All the Chinese respondents agreed that they are used to listen and obey the decisions made by superiors without consultation with any of the subordinates. In addition, one of the Western decision makers (W1) pointed out that the Chinese employees get used to unequal power distribution. Moreover, respondents C6, C8, C9 stated that "We do not take any initiatives to make decisions. We just have to report issues to our boss and wait for him to tell us what to do"; "We do not dare to challenge big boss' decision, even when we think it might not be a wise one."

4.3.2.3 Uncertainty Avoidance

Last, regarding the dimension of Uncertainty Avoidance, all the respondents showed to us their tolerance of unclear information. They were also hesitating and reluctant to share real time information with each other. "We need to dig for information or sometimes even beg for information from our colleagues, they were not very cooperative"; "Some of the information we got from colleagues was not accurate and I have to find out the truth by myself!" stated by respondents C2 and C3. In terms of decision making, respondents C7 said "When it comes to the decision making process, our managers hardly consult existing information. They do not employ systematic analysis and cautious planning. They get used to reply their working experience and following their intuition." explained by respondents C4. All the Chinese respondents believe that relying solely on their experiences and intuition is enough to handle their jobs.

5 Conclusions

5.1. Chinese culture and MIS

Our findings illustrate the misfit between Chinese management practices that are deeply-rooted in the traditional Chinese culture and Western management practices that come along with MSP adoption and usage. The results are in accordance with the outcome of Martinsons (1996)'s study, a misfit exist between Chinese managers and the MIS. Chinese managers do not use computer-based information. They are less inclined to use systematic and formal planning procedures; instead they rely more on extrapolations from experience and intuition. Moreover, Chinese managers and employees from lower hierarchy than the General Manager are not used to take decisions by themselves. In other words, the authority in the eyes of Chinese is only believed and accepted from the top. It is also confirmed by findings of Hofstede (1998) and Liu (1987) that after adopting a MIS, it will enable them to find out specific outcomes of planned actions. Consequently, the delegation of decision making becomes natural and unavoidable.

In terms of personal connections, individuals in this company have strong cohesive relationships between everyone. Through our observation, nobody wants to destroy the harmony in their relationships; they would not raise their objections during face-to-face meetings or to bring disharmony. This attribute supported the conclusion that the Chinese culture has low individualism ranking in Hofstede's Cultural Dimensions. In addition, the Chinese respondents have the tendency of keeping information as a personal asset rather than organization resources. This tendency has strong clash with the system characteristics.

In order to ensure the smooth adoption and usage of MSP, the top management support is (and continues to be) crucial. In the actual implementation process, top management needs to align lines of authority and responsibilities. When the system is up running, top management has to guarantee sufficient help in both the functionality and front user support. During the implementation process the top management has to show their support unreservedly. In the end, there is a continual need to close the communication gap between decision makers and the actual users.

5.2 The influence of Chinese on the UTAUT factors

The main contribution of this study is to test the conceptual validity of the UTAUT factors in a non-Western culture context. The results have interesting implications when taking Chinese culture dimensions into consideration. We found that one item that assesses Performance Expectancy factor was not appropriately perceived and interpreted by Chinese respondents. To be more specific, the respondents were hesitating to express their personal preferences

and feelings. They claimed to us that they didn't think personal preferences are relevant with the adoption of a MIS. One explanation to this can be the Chinese culture is a collective culture, they are not getting used to express personal needs in public, they want to identify themselves with the group and therefore to state from the perspective of groups interests and needs.

We also found three out of four items which are used to assess Attitude Towards Using the Technology factor could not predict the intention to use in our context. The majority of our respondents did not consider adopting a system for daily work as interesting or being fun to them. They considered the system as any other existing tool they have been using to accomplish routine work. When they were asked whether using the system is a good idea or not, more than half of the respondents explained to us it is a good idea. They believe so because it was the decision made by their boss. Hence, it must be a good idea. Secondly, they believe in Western advanced technology. These findings prove that Chinese are extremely respectful and supporting towards authority.

The majority of the respondents rated the four items which were used in assessing Effort Expectancy factor as positive. However the Dutch consultant claimed he believed that several users definitely were having difficulties with adopting the system, because of their computer skills. Explanation of the differences can be that the Chinese people intend to save their face in front of other people, and they do not want to admit to themselves that they lack knowledge or competences. This explanation can be also applied to the findings with regard to Anxiety factor. Nobody directly responded to us that using the systems is intimidating or they feel apprehensive. However they stated serious concern of being replaced because of the system adoption.

Overall, the outcomes of our study suggest that there is a need to make reservations on the use of the UTAUT factors in a culture context that is different than Western culture context. We need to be more cautious and take culture factors into consideration when interpreting the results. By integrating the culture factor within the theory and model, we can have better understanding of the relationship between culture and behavior (e.g., MIS adoption and use). An awareness of cultural differences is critical to the implementation and adoption success.

The limitation of our study is that it can not generalisable, as it is a unique setting. Furthermore, one or more of the translation between English and Chinese (vice versa) might have introduced bias during the transcription and content analysis process. It would have skewed the results.

There is a general need for IS researchers to integrate the dimensions more closely with the theoretical developments of the UTAUT model. To strengthen the understanding of how culture affects the perception and

interpretation of the UTAUT factors, factors should be interpreted and validated particularly in culture context. Clearly, there are many opportunities for researchers to make meaningful contributions in this area.

Last but not least, there is much more to be learned about the implementation and adoption of MIS in an inter-culture context. Integrating Western Management Information Systems successfully into Chinese management practices does require strategic planning and increased attention to the culture background of actual users and its organizational context.

We have also made an attempt to contribute our study to the practical business industry (See Appendix B).

Appendix A

Interview Guidelines

<u>Questions Concerning Compatibility of the Old Versus New System</u>

1A. Could you please describe the current situation, goals and activities concerning registration of routing?

1B. Could you please describe the current situations, goals and activities concerning the kind of planning needed to control the workload in production?

1C. Could you please describe the current situations, goals and activities concerning to keep in control with an overall-planning (determine delays) so that the project can be managed?

1D. Could you please describe the current situations, goals and activities concerning the measuring efficiency of the production facility.?

2A. Could you mention the advantages/disadvantages or strong/weaker points of the current way of registration of routing cards?

2B. Could you mention the advantages/disadvantages or strong/weaker points of the current way of planning the needed workload in production?

2C. Could you mention the advantages/disadvantages or strong/weaker points of the current way of keeping control with an overall-planning (determine delays), so that projects can be managed?

2D. Could you mention the advantages/disadvantages or strong/weaker points of the current way of measuring efficiency of the production facility?

3A. Could you mention one critical incident/event around the registration on the routing card/ the planning of the needed workload and/ the measuring of efficiency of the production facility?

3B. Could you mention an essential conditions you believe can make current practice MSP work well?

Questions concerning the MSP Implementation Process:

4. Can you tell me something about the MS Project implementation at your department so far?

5. What was the quality of information regarding MSP implementation, how did you get informed?

6. Have you been trained? How is the training? Does the training give you a clear clue how you could use this MSP in your job?

7. What do you think are the factory floor expectation of what it means to implement such a system?

8. Do you think this MSP in a way similar to your previous way of working, if not what are the differences? Which way you appreciate more?

9. Did you know there is a strong support from top management regarding the use of the MSP project for the project management? If so, in which form.

10. How do you see your role in using MSP in operation, is it clear?

11. Do you think MSP can help you to work and collaborate with your colleagues from different department more than before?

12. How do you think of the way the decision makers implement such a system in the company?

13. Do you think MSP fits in the way how work is being done and managed in the company?

Questions concerning the UTAUT Instrument

PE: 1. Do you think the system useful in your job? If so, what kind of help does it provide?

PE: 2. Does the system in a way enable you to accomplish your task more quickly? Why?

PE: 3. Do you believe that a long-term using the system can increase your productivity/effectiveness in your job? Why?

PE: 4. Do you believe that the use of MSP can increase your chances of getting a raise? Or that you will be perceived by your coworkers as more competent?

EE: 1. Do you believe that your interaction with MSP is clear and understandable?

EE: 2. Do you feel it is easy for your to learn to operate MSP and become skillful?

EE: 3.Do you find the system is easy to use? If not, what is the most difficult part of using such a system?

EE: 4. Do you think learning to operate the system is easy for you?

ATUT: 1. Do you think using MSP is a bad/good idea for the company? And why?

ATUT: 2. Do you think using MSP is making your work more interesting?

ATUT: 3.   Do you consider working with the system is fun?

SI: 1.Who are the people you consider are influence and important to your job? Do you feel these people think you should use the system?

SI: 2. & 3.Do you think the senior management of this company has been helpful in the use of the MSP? If not in which aspect do you think is lack of support?

SI: 4. In general, did the organization has supported the use of the system?

FC: 1. Do you have the resources necessary to use the system?

FC: 2. Do you have the knowledge necessary to use the system?

FC: 3. Is this system compatible with the old system you used?

FC: 4. Is there a specific person (or a group) available for assistance with the system difficulties?

SE: 1.2.3.4.. I could complete a job or task using the system if 1) there is no one around to tell you what to do as you go? 2) If you could call someone for help if you got stuck. 3) If you had a lot of time to complete the job for which the software was provided. 4) If you had just the built-in help facility for assistance.

ANX: 1. Do you feel apprehensive about using the system?

ANX: 2. Do you feel scared to think that you could lose a lot of information using the system by hitting the wrong key?

ANX: 3. Do you hesitate to use the system for fear of making mistakes that you can not correct?

ANX: 4. Is the system somewhat intimidating to you?

ANX 5.What will be the best and fast way for you to assist you to best use of the system?

BI: 2. When do you predict that you would use the system in your daily job ?

BI: 3. When can you predict the entire company is able to use the system?

Summarized Questions:

1. If the project was done again, what is the most important thing that should be done better?

2. At this moment, what is the most important thing to improve the system?

3. In the future, what is the most critical aspect of the project that needs special attention?

4. If you could give some recommendations to the GM regarding MSP, what would you say?

Appendix B

Recommendations

From our case study of implementation of MSP in the JV-X, the following recommendations might improve effectiveness of future comparable projects.

<u>Pre – Implementation stage</u>

- A clearly defined goal and mission statement concerning MSP Implementation and all employees involved must know the plans and ´what's in it for me´.
- Sufficient on site research of the implementation environment, including software and hardware. E.g., the English language skills of the actual users, the overall computer capacity.
- Inform organizational members through a formal communication channel perceived by them (A written circular in this case), assure that various management levels would have adequate understanding of the goal of implementing MSP.

<u>Implementation Stage</u>

- Define an implementation team, point out the responsibility of each person during the implementation stage and after the implementation stage. Ensure these persons are able to work full time during the implementation period as well as afterwards if necessary.
- Involve the actual users from the beginning of configuration of the system e.g. the language of the interface of MSP is critical to the actual users.
- Research into the interests and needs of each involved departments and its traditional way of working.
- Sufficient training and coaching particularly focused on the needs of different target groups.
- Assure the necessary resources are available for the implementation team. E.g. a pre-installed computer with MSP, a server and the network.
- Define a step by step approach for the implementation of the system.

<u>Post - Implementation stage</u>

- Evaluation of implementation result by the management of each department.
- Define a realistic timetable when the system will be fully in operation and clearly inform the organization members.
- Inviting and encouraging users to make decisions based on the systems outcome.
- Follow up activities such as who is in charge for system usage and who is in charge for the system technical support should be confirmed by top

management and recognized by all the actual users.

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