Preface

Along with the development of knowledge economy and globalization of technology and economy, information acquisitions and sharing among business’s value chain would play a vital prompting effect on business performance. Information acquisitions and sharing cannot be described intelligently without exploring the fundamental features and problems of the collaboration. A building of globalized competition emphasizes integrated and synergic actions from all business partners’ activities to achieve reciprocal benefits (such as manufacturers, supplier, distributors, buyers, service agencies and so on) and their trading systems (Zheng, 2006). This is regarded as Inter-organizational collaboration.

According to the changing environment, a competitive advantage from information sharing will be performed by a balanced and collaborated regional opening pattern. Manufacturers and their partners are collaborating closely to gain benefits from resource sharing, e-technologies, risk management, information sharing and so on. To increase competition, many researchers have examined the concepts put forth in the area of collaboration relationships, especially the Inter-organizational collaboration, with its emphasis on its benefits to business success (e.g. Chen, 2012; Simatupang, et al., 2004).

Especially in the era of Internet and technology innovation, an accelerated new industrial process, characterized by globalization, information technology and sustainable acquisitions and sharing, is one main concern in the economic and society development model transformation. Singh and Waddell (2006) stated that ‘e-business opportunities have been out there’ that is the root of growth in the intelligent business world. Internet is used as an exciting real-time and on-line information acquisition and sharing medium which is dynamically cutting the launch time of new products or services and speeding the collaboration and changes of business activities, than via the traditional communicating channels. It helps reconcile the interconnectivity linking the external and internal to support decision processes and transactions across organization boundaries (Spekman & Carraway, 2006). Hence, e-enabled collaboration is a field in motion (Ratnasingam, 2004).
However, there are few reports and articles about the e-business adopted in the information sharing, especially in the collaboration activities. The book deals with the collaboration issues facing electrical organizations in China. The interaction between trading partners using wireless communications as e-collaboration (Chaffey, 2002). It illustrates how the Chinese organizations address the challenges of information acquisitions and sharing.

Collaboration is one challengeable business activity which requires a sound information acquisitions and extensive information sharing mechanism and sound organizational capacities (e.g. Zheng, 2006; Riemer et al., 2009). The resources limitation of manufacturing companies, especially these SMES, will drive the adoption of a cost-efficient solution for its growth and success – the e-business diffusion. Sound organizational capacities can equip collaboration with reliable and flexible responsiveness capacity, real time and effective communication capacity, facilitated innovative ability problem solving capability and so on (e.g. Barratt & Oliveira, 2001; Handfield & Bechtel, 2004; Wong, 2008; Riemer, et al., 2009). More and more scholars and enterprisers start to accept Inter-organizational collaboration mode. It can help enterprises maximize the use of information and knowledge dispersed internally and externally by communication and exchange.

Effective information sharing heavily depends on an atmosphere of trust, and a trustful flow of information which forms a critical factor to successful inter-organisational collaboration (e.g. Chui, 2009; Dong, 2009; Bowersox, et al., 2003), as well as on the level of technology diffusion, which manages and expedites the information flow between partners (El, 2001; Turban, et al. 2006). A trusting collaboration relationship would facilitate the adoption of information technology and bring a greater willingness to create knowledge-sharing, alliances, long-term stability and other additional value, especially due to high risks from globally distributed e-business work (e.g. Martinez, et al., 2004; Lin, 2008).

In hence, this book is aimed at organizations with local and international collaboration partnership/partnerships. Wenzhou electrical industry is challenged by several barriers and opportunities, and electrical organizations have looked to collaborate via e-enabled information sharing platform and mechanism as a mean to overcome these barriers, as demonstrated in Chapter 2 (Brief Introduction Of Wenzhou Electrical Industry Cluster). While collaboration has been explored by previous studies as identified in following Chapter 3 (Literature Review), there are no study that particularly concentrates on the joint impact of trust, technology diffusion and organisational capacity on collaboration and how the interaction among them affects business performance. This study seeks to fill this gap in the literature. The need to exploit organizational capabilities to preserve and enhance organizational information is clearly defined by this book. The book also encompasses the infor-
mation sharing environment – the influence from trust. Moreover, collaboration is increasingly more reliant on information and communication and is affected by the Internet and e-business technologies. Therefore, this book addresses three major issues relating to three major issues relating to the acquisitions and sharing of information to transform collaboration management and enhance business performance:

The main work of this book is to present a framework to understand how and to what extent Inter-organizational collaboration affects business performance, as illustrated in following Chapter 4 (The Research Model). We first introduce a set of constructs and attributes that show how to systematically influence on this challenges. Secondly, we elaborated the framework that define and combine Inter-organizational collaboration with information sharing thought. It also helps making the execution of collaboration more systematic and actionable. The focus of the research model is on the role of collaboration on business performance, and three variables or constructs (trust, technology diffusion and organisational capacity) are adopted to investigate their roles on collaboration and, subsequently, their effect on business performance. Therefore, the research model comprises five variables which are e-collaboration, trust, organisational capacity, technology diffusion and business performance. The research model evaluates: (1) the impact of two variables (trust and organizational capacities) on collaboration, (2) the impact of collaboration on overall business performance, and (3) the mediating effect of technology diffusion.

The contents of this book are based on the researches of the electrical industry cluster in China’s Wenzhou region, where approximately 80% of the electrical manufacturers are located. Wenzhou’s electronics industry is highly export-oriented and follows a globalization strategy. The selected area is very important and relevant contributions in improving business value chains particularly in the electrical industry is of immediate need and application. China as a giant manufacturing force plays a vital function in globalised economy and indeed any improvement in its performance would benefit the world’s economy. The richness and quantity of information acquired and shared from organizations and their business partners, if properly processed, can in itself provide valuable collaboration and help draw inference from existing collaboration.

Research methodology refers to the techniques of data collection and analysis used to solve a specific research problem or answer research question and guides the research for acquiring knowledge and new insights on the phenomena under investigation. The three most common methods used in information systems research are quantitative, qualitative, and mixed methods. This book employed mixed methodology with which we use pilot study and semi-structured interviews to investigate in greater depth of the collaboration phenomena, the applicable variables and their indicators and suitability of questions for the questionnaires. Quantitative method-
ology was used to collect from CEOs and senior managers of randomly selected organisations in Wenzhou area. Three hundred ninety-five usable questionnaires were collected, a response rate of 80%.

Data was collected in two phases, as discussed in Chapter 6 Methodology. The first phase consists of a qualitative method and the second phase involves a quantitative based approach. The qualitative phase comprises a series of pilot study interviews. The stage confirms the importance of five constructs affecting business performance. Wenzhou’s electronics industry is highly export-oriented and follows a globalization strategy. In China, the electrical industry forms 6.08% of the total manufacturers and contributes 6.2% of the gross industrial output value in China (NBSC, 2010) and is regarded as one of China’s largest export earners (ZNNES, 2010). China’s electrical industry has gone through a period of restorative development since 2008. The number of electrical manufacturers in Wenzhou city and the value of their products make the city as a perfect industrial cluster for researching and answering our research question, which in turn can be generalised over the manufacturers in China. The pilot study procedure reduces the large number of indicators to only effective ones for each construct (as shown in Table 7-7 in Chapter 7 Pilot Study Findings). It also made the questionnaire shorter and more understandable to the respondents (Appendix A).

In the second phase, a questionnaire was developed based on these constructs. Questionnaires were mailed to 500 Wenzhou electrical organizations listed in the Wenzhou SME Association directory. WSMEA also assisted the selection of six most influential and reputable electrical organisations for pilot study and facilitated the communication and consent of CEOs for interview. Face to face or a call contact followed by emails was used to collect the filled questionnaires from respondents.

The data have satisfied validity and reliability tests using Confirmatory factor analysis (CFA) which is used to examine the fitness of the structure, constructs and attributes. Cronbach’s alpha is calculated to be 0.895 with level of significance  \( \rho = 0.000 \), which is higher than the recommended Cronbach’s alpha threshold of 0.8. The Structure Equation Modelling (SEM) approach with Maximum Likelihood estimation method was chose for data analysis and AMOS software was selected for this purpose. The model fits the suggested threshold values reasonably well (such as \( X^2/df \) (CMIN/DF) (equal to 2.706) is less than the upper threshold of 3.0; GFI = 0.919, NFI= 0.923, CFI=0.95, IFI=0.950, NFI=0.923, CFI=0.95, are greater than the recommended 0.9 threshold). Moreover, the mediation tests were performed to investigate the effect of the collaboration and e-business diffusion.

A total usable dataset of 400 was received, of which 395 responses were usable (signifying a response rate of 79%). Maximum likelihood (ML) estimation technique is one of the most accurate data imputation procedure underlying the missing data and to make the most reasonable estimate possible, according to the
Hair et al. (2009). Via validity, reliability and confirmatory factor analysis tests, three antecedent constructs were identified, namely, trust, organizational capacities and e-business diffusion dimensions. Hence, six research hypotheses and mediators have been identified and tested by the Expectation Maximization (EM) in SPSS uses ML technique and would be used to estimate the missing data and estimate the parameters such as means, stand deviations or correlations, as identified in Chapter 8 (Data Analysis and Validation of the Model).

The most valuable findings from the quantitative phase indicate that trust and organizational capacity can significantly affect collaboration (standard coefficient of 0.15 and 0.55, significant relationship $\rho<0.001$); and organizational capacities also have positively affected e-business diffusion (standard coefficient of 0.62, significant at $\rho<0.001$). The results indicate that collaboration fully mediates the relationship between organizational capacity and business performance (significant at $\rho=.486 > 0.05$); and e-business diffusion is also a full mediator for the relationship of organizational capacity and business performance (significant at $\rho=.486 > 0.05$). The study shows that collaboration may not have a positive relationship with e-business diffusion (standard significant at $\rho=0.418>0.001$).

**MAIN FINDINGS OF THE RESEARCH AND MANAGEMENT ENLIGHTENMENT**

These books build a conceptual model for the collaboration research linked to the overall business performance via adopting e-business. Basing on the above literature review, pilot study, research model test (hypothesis and mediation tests) and statistical analysis, this research discussed the facilitating roles from trust, organizational capacity and e-business diffusion from the globalization and e-business management view. The target audience of the book could be perfect for managers, policy-makers and scholars.

The main findings are following, as discussed in Chapter 9 (Discussion and Conclusion):

1. Trust can directly improve the business performance in the electrical industry. However, the attribute of ‘Benevolence’ does not affect trust level, in the presence of other selected attributes. It is an intangible intrinsic benefit. These findings from the pilot study also released the perspective of benevolence and win-win friendliness for information sharing, collaborations, alliances and long-term stability are undervalued.
2. E-business diffusion can directly improve the business performance in the electrical industry. However, the attribute of ‘Trialability’ has no significant
effect. Organizations are aggressive and prefer installing innovative systems immediately, but inadequate pre-testing would bring risk in implementation.

3. Trust and organizational capacity, intangible qualities, will facilitate the collaborative effort, consequently improving the business performance. Without collaboration, the value of trust and organizational capacities on business performance cannot be directly quantified.

4. The efforts of the organization to improve organizational capacities will be significantly enhanced when there is suitable e-business diffusion among the collaborating partners. Only if sound e-business or e-collaboration is performed, organization’s effort on improving organizational capacities would be visible. However, without qualified organizational capacities, e-business will not significantly advance the performance of collaboration.

The traditional Wenzhou’s export-oriented economy is threatened by excessive external environment and internal weakness and is persuaded to build core competitiveness. No individual organization can successfully solve these challenges in seizing the global market. The adoption of collaboration within organizations’ value chain, via satisfactory information sharing, trusted Inter-organizational relationships, supportive organizational capacities and capable e-business innovation, is an indisputable competing power.

This study recommends that in order to improve the performance of Inter-organizational collaboration in Wenzhou’s electrical industry, organizations need to focus on improving their trust and organizational capacities, but the effort in improving business performance by promoting organizational capacity and trust cannot be significantly achieved without collaboration. This research highlight a successful transition of the beneficial outcome of trust is a push for collaboration. A higher level of trust corresponds to greater willingness to be involved in information, knowledge and resources sharing and even risk undertaking. Manager should enhance organization’s competence, goodwill and other invisible trust from interaction. The consideration of trust also fostered appropriate behaviours and organizational capacities, such as open communication, acceptance of innovation and learning from partners. Sound collaboration management within trusted information sharing environment would determine the spirit of collaboration and innovation.

Organizations should also bridge the gap among partners’ interactions to facilitate a quick collaborative decision-making via their external collaborative network, as discussed in Chapter 10 (Research Innovation and Management Enlightenment). E-business diffusion is considered as one of the main attributes for enhanced business performance, such as speed work processing, improve productivity, enhance market performance and service levels, upgrade R&D of products and services, but reduce headcount. However, having a high investment in IT system but without
sound organizational capacities would not result in a significant effect on business performance. It is a misuse of investment to adopt e-business collaboration without a sound level of organizational capacities. These organizational capacities mainly include relationship management, learning capability, innovation capability, communication capacity. A reason for this may be that e-business diffusion needs managers’ additional efforts in clarifying the relative advantage, providing complicated instructions, reducing the complexity in operation, and increasing techniques’ fitness with e-collaboration activities and users’ confidence.

ORGANIZATION OF THE BOOK

This book mainly contains seven chapters: introduction, literature review, the research model, research methodology, pilot study findings, data analysis and validation of the model, discussion and conclusion. At the end of each chapter, key words and corresponding definitions (according to the Cambridge Business Dictionary, Collins Cobuild International Business English Dictionary and BusinessDictionary.com) are displayed to increase the readability of this research work.

This first chapter has discussed the background of this study which includes the research problem and questions, significance of this study, research methodology, and definition of key terms used throughout this book.

Chapter two would briefly introduce the unique value of the research in Wenzhou electrical industry cluster. It firstly presents the famous Wenzhou collaboration culture, development history and SWOT analysis for China’s electrical industry, socio-economic, and psycho-social foundations of collaboration in this Wenzhou. The analysis of business transforming experiences through the life-cycle of Wenzhou electrical industry and these entrepreneurs in this geographical placement will provide a worthy model for the upgrading of traditional industries in China.

Chapter three is about the recognition of collaboration. It covers the topics of various facets, foundations and the motives of the collaboration. The complexity of the collaboration is from definition, elements, and industry practices, the challenges and complexities of collaboration at the global level. This chapter analyzes the foundations of collaboration from economical perspectives, political perspective, legal environment, business forces, cultural perspective, psycho-social perspective and technological perspective. This chapter also contribute to further understanding of the significance of collaboration by examining the role of e-business and e-collaboration in business performance.

Chapter four discusses the relevant literature on collaboration, trust, organizational capacities and business performance. Firstly, the interest of this study is on the Inter-organizational collaboration which encompasses a network of many
trading partners involving manufacturers, distributors, customers and suppliers and so on. The importance of collaboration posted as beneficial means to knowledge and information sharing, efficiency in competition and business success is readily understood. Especially in the recent global economic meltdown, and taking the electric industry in the area of Wenzhou China as an example, the challenges and complexities of collaboration at the global level reflects the need to coordinate both the management of the collaboration elements and specific collaborating environments such as the level of rust and e-business adoption.

The trust which links the organization to its trading partners addresses the reliability of organizational behaviours and process within the organization’s environment (Martin, 2002). It will be appropriate to assume that trust is essential to Inter-organizational collaboration relationships and significantly contributes to the long-term performance of an organization. Organizational capacities focus on factors influencing the collaboration adoption and support innovation as a whole. In order to further characterize collaborative relationships, the role of the different attributes of organizational capacities needs to be further tested.

Moreover, the significance of the diffusion of e-business brings a fundamental shift in business performance. Modern organizations are now relying on the use of e-business initiatives to communicate and collaborate with each other for various business ventures, which signifies the importance of e-business adoption in this study. The attributes of e-business diffusion is based on the five variables from Rogers (1995) concerning the rate of innovation adoption. This research is interested in determining how e-business diffusion influences the implementation and performance of Inter-organizational collaboration.

However, there is no prior research that has studied each and every dimension at the same time. Based on the above argument, this study will incorporate appropriate attributes from these dimensions that relate to the research questions. Therefore, in following Chapters, a theoretical research model is developed and discussed, together with the hypothesis and revised attributes according to the pilot study.

Chapter five displays the factors and hypothesis relationships derived from the conceptual model. It shows the interactions between the collaboration and business performance outcomes, the impact of two antecedents (trust and organizational capacities) on collaboration, the impact of collaboration on overall business performance, and the mediating effect from e-business diffusion.

Chapter six reviews the research methodology approach for data collection and analysis. The main procedures are qualitative and quantitative data collection methods. The sample selection and questionnaire development processes are then discussed, followed by a discussion on the data analysis technique used in this study.

Chapter seven presents the pilot study interviews with the six electrical manufacturers in Wenzhou and the findings from the qualitative data collection, which
is the first phase of this study. A summary of the findings are then provided. The discussion will focus on three perspectives: challenges from the innovation inside the organizational capacities for collaboration, the drivers and barriers to trust in the industry, as well as from e-business diffusion.

Chapter eight investigates the revised attributes to the five constructs of the model according to pilot study. Relationship management, learning capability, communication capability and innovation capability are selected as the main attributes of the organizational capacities in relation to inter-organizational collaboration. The five typical attributes in the DOI theory are selected for measuring e-business diffusion, which are: relative advantage, complexity, trialability and observability. Organizational effectiveness, product and service measure, financial measures, market measure and customer satisfaction measure are mainly perceived as business performance measures.

Chapter nine discusses the empirical findings from the quantitative data analysis gathered through the survey questionnaires. Data analysis and validation of the model are also presented regarding the testing of hypotheses testing and mediation by Structured Equation Modelling (SEM) method. The testing of the measurement model covers tests of content validity, convergent validity, discriminate validity and reliability.

The last chapter (Chapter ten) concludes with a discussion of the findings, conclusions, research innovation and management enlightenment, contributions and limitations of the study. As the two antecedents of collaboration exist, trust and organizational capacities are identified as the key drivers to the successful outcome of collaboration and e-business adoption as rationalized in the literature review. The empirical evidence from this research implied that these diffusion attributes do not translated properly into the Inter-organizational collaboration. This result may be rationalized by the inability of these organizations to nurture an e-business diffusion culture with their trading partners. A combination of the sound organizational capacities and constructive e-business diffusion is the best viable approach to contribute to a major improvement in business performance.

CONTRIBUTIONS OF THE STUDY

This research is useful to e-business adoption and diffusion in the manufacturing industry due to the importance of trust and organizational capacities—which can be the basis for future decision-making in Inter-organizational collaboration expansion. This research contributes to the literature by offering a further understanding of e-business diffusion theory and trust theory in the context of a developing country (China). This study will provide useful guidelines for organizations to assess their
theoretical application of e-business diffusion by examining the mediating effect of organizational capacities construct on overall business performance improvement. This study also contributes to the knowledge by extending previous research on measuring organizational capacities, e-business innovation and trust environments towards adopting an effective collaboration performance by conceptualizing them as multi-dimensional constructs. Future work can be undertaken to test the applicability of the result via multiple organization representatives and cross-cases studies.

The findings in this research have theoretical and practical contributions:

- Theoretical contribution:

  Limited research studies have revealed how collaboration can be adopted to foster business performance. This research contributes to two theories (DOI Theory and Trust Theory) and Inter-organizational capacities in the era of globalized collaboration.

  Findings on the influence of trust on collaboration have given rise to a new idea positing a positive influence of trust on collaboration from different perspectives of study. The benevolence trust is found to diminish as collaboration partners increased. This is probably because in the environment of high social uncertainty and cultural diversity, organizations have to rely on the contract; but on the other side, in a sound trusted relationship, a belief in the task achievement by their partners’ competence becomes more important, regardless of their contracts. Failure to comply could result in the loss of business partners.

  Moreover, this research has succeeded in developing and testing a new conceptual model by adopting the diffusion of e-business theory in collaboration. The model is comprehensively tested using two research methods, namely, pilot study and survey questionnaires, which facilitated triangulation of the results. From the pilot studies and questionnaire survey, compatibility and trialability in diffusion of e-business are not identified as significant attributes. The reason here is, in the Chinese electrical industry, innovation is regarded as an incompatibility and the relative advantage from the innovation is the determining attribute.

  Little research has employed SEM to systematically measure these correlated relationships among trust, organizational capacities, collaboration, e-business diffusion and business performance. The interest of this study is to identify the existence of a gap between the prediction or expectation and the actual performance as perceived by the subject of the study. This study shows that SEM methods can be clearly and easily improvised and applied to determine these relationships. Finally, a clear explanation of the relationship between diffusion of e-business and collaboration is obtained, in which organizational capacities are identified as one of the key elements that increases collaboration performance between partners. Diffusion of e-business indirectly influences adoption decisions by becoming one of the determinants of business performance.
Practical contribution

Collaboration and innovation processes in China electrical industry are typically taking place by chance. Few electrical product manufacturers have managed a sustainable collaboration process to enhance their business performance. Collaboration faces numerous variations in business management practices where e-business innovation arises primarily. This research seeks to explore how trustful Inter-organizational relationships are facilitated by trust atmosphere and organizational capacities in the electrical industry, and how the diffusion of e-business has been adopted.

The findings and final conceptual model developed from this study could provide the management of an organization with a better understanding on collaboration and how it relates to the issues of trust, organizational capacities and the diffusion of e-business with their collaborating partners. Trust and organizational capacities factors appear to have strong influences on the partners’ business-to-business collaboration relationships, excepting e-business diffusion. Positive relationships between the interaction of trust and organizational capacities suggest that relationships built on trust and organizational capacities allow the collaboration relationship to prosper.

A better understanding of the individual components of the conceptual model will allow managers to make better collaboration and e-business adoption decisions. Thus managers should make certain that the collaborating partners provide ample organizational capacities to manage these e-business technologies and systems. Small and medium size organizations may have less e-technologies resources and innovation capability and rely heavily on their partners for information and knowledge sharing in this realm. Collaborating partners can work together effectively and mutually benefit from enhancing the learning capability, communication capability, innovation capability and relationship management capability.

It is important for electrical organizations to consider their collaborating partner’s position when making an e-business adoption decision and ensure that their suppliers or customers also benefit from the implementation. In other words, organizations’ efforts in improving trust and organizational capacities cannot produce significant results on business performance without the adoption of collaboration activities.

By understanding the dynamics of trust and organizational capacities, organizations can strategically adjust their social relationship with each other to achieve a desired collaboration outcome. Having a well-balanced element of trust and organizational capacities between each partner in the collaboration will allow each party to reap the benefits of greater support utilizing new technology. Trust and dependency between partners will also help them forge a bond to ensure the success of their relationship and e-business initiative.

Finally, the findings can be used to benchmark the Chinese electrical industry practices against those practices used in developed countries. When formulating
policies on e-business adoption within the value chain, managers must consider certain environmental, organizational and technological factors that influence adoption within their organization, and within their partner's organization. Understanding these factors can ensure effective adoption and forge stronger, longer-lasting Inter-organizational relationships. Managers must study the situation within China, rather than rely strictly on research from other countries due to the differences in adoption decisions.

This research framework addresses not only the analytic aspects behind the collaboration, but also the important organizational capacities, diffusion of innovation and trust aspects of how to bring Inter-organizational collaboration and its business partners on this journey with a willingness to execute these information acquisitions and sharing in action. Hence, understating how to build collaboration, as well as an understanding of the importance of influencers, are highlighted and brought to the core of this book.

Collaboration opportunities have been out there. As they have been explored, the information universe has been expanding. This expansion, we believe, is the root of growth. Yet poor understanding exists both in theory and in practices as to how to systematically create and manage Inter-organizational collaboration, we incite you to read this book to learn how you can be a diver if this expansion in the future. The book orient readers to the proper direction, not only understand the environment for information acquisitions and sharing in the 21st century but also to the management of the successful information-based collaboration across organization borders supported by e-business technologies. This book hope to disclose the influences and mechanisms of collaboration as it is developing and changing as the 21st century unfolds. This challenge can also be seen as an opportunity for business performance.

With the phenomenon of e-enabled information acquisitions and sharing, the author have drawn from experience of collaboration in the private sector for intellectual contributions, in additions to findings from research work by both new and experienced academics to provide a broader framework for discussion. Therefore, that makes it is worth of study about how the acquisition and sharing of information apply the benefits from Inter-organizational collaboration via e-business diffusion.

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