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A Proposed Framework for Influencing Factors of Partnership in E-Taiwan Collaborative Commerce

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Abstract: This paper attempts to integrate concepts of a collaborative commerce and inter-organizational relationship to build a framework for influencing factors of e-Taiwan collaborative commerce partnership and empirically explore it. The importance for five dimensions of the Research Model based on seven top representatives of interviewed six Taiwanese companies engaged in E-Taiwan is summarized. Statistical analysis is used to decide which factors are vital for the success in three phases of partnership in e-Taiwan. Data are collected through a survey of organizations that are actively involved in the planning or operation of E-Taiwan collaborative commerce. The result has been shown the influencing factors are not the same in three phases of partnership in this collaborative commerce. It implies that to manage a collaborative commerce must have different strategies to select, develop, and maintain participants.

Keywords: Collaborative commerce, Partnership.

I. Introduction

In the past years, many organizations have tried to expand or broaden their supply chains in collaborative commerce. However, successful collaborative commerce is a challenge among the industry around the world, it maybe partly dues to the slow world economy making financing much more difficult for collaborative commerce, but organization behavioral adjustments should be also considered. Transitioning from traditional transaction approaches to an e-business model and adopting new technology present many organizational challenges. Building an Internet infrastructure and attracting more participants initially may not ensure the longevity of a collaborative commerce.

Therefore, this research tries to cover the findings of studies on collaborative commerce and organization behaviors. The research methodology is comprised of three approaches:

- (1) Literature review for building a Research Model.
- (2) Interviews with top-level executives in leading Taiwanese companies engaged in collaborative commerce to validate and justify the Research Model.

- (3) Questionnaire survey based on the research model and statistical analysis to explore the influencing factors of e-Taiwan collaborative commerce partnership.

II. Literature Review

Within the literatures, it is shown that appropriation of information technology such as e-marketplaces justifies organization behaviors [6, 11]. As to the relationship styles of business partners, scholars propose many types such as arm's length, joint venture, supply chain and so on [2, 3, 8, 9, 12, 15]. Two major schools of thought have pursued the study of information technology and organizational changes. The decision-making school [17] emphasizes the cognitive processes associated with rational decision making and adopts a psychological approach to the study of technology and change. Institutional school [13, 16] emphasizes the role of ongoing discourse in generating social constructions of technology, with a consequent emphasis on human interaction in studies of technology effects. Several theoretical views synthesize these competing schools to form the social technology perspective. Adaptive Structuration Theory (AST) proposed by DeSanctis and Poole [6] in 1994 provides a model that describes the interplay between Advanced Information Technology (AIT), social structures, and human interactions. AST focuses on social structures, rules and resources provided by technology and institutions as the basis for human activities.

The constructs of AST [6] are (1) structure of AIT including structural features and spirit, (2) other source of structure including task and organization environment, (3) group's internal system including styles of interacting, knowledge and experience with structures, perceptions of others' knowledge and agreement on appropriation, (4) emergent sources of structure including AIT outputs, task outputs and organization environment outputs, (5) new social structures including rules and resources, (6) social interaction including two subsets: (a) appropriation of structures including appropriation moves, faithfulness of appropriation, instrumental uses, and persistent attitudes toward appropriation, and (b) decision processes including idea generation, participation, conflict management, influence behavior and task management, and (7) decision outcomes including efficiency, quality, consensus and commitment.

AIT brings social structures which enable and constrain interaction to the workplace. META Group) [1] proposed collaboration commerce into four functions as Design Collaboration, Marketing/Selling Collaboration, Buying Collaboration, and Planning/Forecasting Collaboration. According to the definition of META Group, E-Taiwan collaborative commerce can be treated as one type of AIT for the modern organizational market; it combines computing, communication, and business trading decision support capabilities to aid in buyer-seller groups idea generation, planning, problem solving and decision making. This research attempts to explore “E-Taiwan Collaborative Commerce” proposed by Ministry of Economic Affairs of Taiwan, including plan A, B (Industrial Automation and e-Business Promotion Program, iAeB), C (Cash), D (Delivery) and E (Engineering Collaboration). They are collaborative operations to link with business process, content and domain knowledge exchanging that includes e-procurement, e-financing, e-payment, e-global funding, e-logistic, transportation planning, synchronization, design change and information sharing etc. The scope of “E-Taiwan Collaborative Commerce” denotes “the Center of Knowledge/Processing Transaction” of collaborative commerce. According to the definition of our functions of META Group, “E-Taiwan Collaborative Commerce” can be classified as a kind of collaborative and AIT.

Structural features are the specific types of rules and resources, or capabilities offered by the system. Features within “E-Taiwan Collaborative Commerce” might include anonymous recording of business transactions, periodic data collecting and analyzing, and negotiation within business groups. Those features govern exactly how information can be gathered, manipulated, and managed by members in E-Taiwan Collaborative Commerce. Features of e-marketplaces bring meaning and control to group interaction. There currently is burgeoning interesting in e-marketplaces and their potential role in facilitating organizational and social changes. Once Collaborative Commerce is applied, the technology should bring productivity, efficiency, and satisfaction to individuals and organizations, but the social evolution of structure within industrial and human institutions are also changing. Social technology perspective as AST can be an analytic principle to explore the influencing factors for “E-Taiwan Collaborative Commerce”. Based on the meaning of each construct in AST, initial dimensions for the Research Model are listed as Table 1.

III. Research Model

Researches related to E-Taiwan collaborative commerce focus on finding characteristics and functions. The findings in literatures include information transparency, cost reduction, interdependence, partnership compatibility, low logistics costs, etc [4, 5, 7, 10, 14]. The influencing factors of each dimension are summarized in Table 2. The relationship styles of buyers-sellers in organizational.

Table 1. Initial Research Dimensions inspired from AST

Major Constructs of AST	Initial Dimensions for the Research
Structure of AIT	Characteristics of E-Taiwan
Other Source of Structure	Initial Leader of E-Taiwan
Group's Internal System	Members of E-Taiwan
Emergent Source of Structure	Industrial Environment
New Social Structure	Derivative Problems of E-Taiwan
Appropriation of Structure	Functions of E-Taiwan
Decision Process	Phases of E-Taiwan

Markets proposed as five relationship styles of partnership in e-marketplaces are also defined. They are (1) arm's length, (2) buyer-seller relationship, (3) trusted partnership, (4) joint venture and (5) value chain [9].

Expert depth interview is employed to validate the Research Model. Then a primary questionnaire survey is conducted to analyze which influencing factors are vital for the success in three phases of partnership in E-Taiwan Collaborative Commerce, including a question about the relationship styles of partnership in E-Taiwan Collaborative Commerce in order to exploit participants' perspectives. Six top representatives of Taiwanese companies related to E-Taiwan are selected for expert depth interview to validate the Research Model. The companies interviewed are MiTAC International Corporation (plan B, C, D, E), Hewlett-Packard Development Company (plan A), Futaba Technology Development Corporation (plan D, E), China trust Commercial Bank (plan C), Systex Corporation (plan A,B, C, D, E) and Advanced Semiconductor Engineering, Inc.(RossettaNet). The importance of each research dimension based on opinions of seven executives of the interviewed companies is summarized in Table 3. The importance of All research dimensions are bigger than 75% that is set to be significant (i.e. significant dimensions must have three out of four interviewees mention at least). Based on the importance voted by six executives, the Research Model is proposed as Figure 1. Business model is an additional factors proposed by these seven interviewed representatives.

Table 2. Influencing Factors of Research Dimension

Research Dimension	Influencing Factors
Characteristics of E-Taiwan Collaborative Commerce	(1) information transparency (2) capability of information integration (3) ability of improving for transaction quality (4) cost reduction
Initial leader of E-Taiwan Collaborative Commerce	(1) credibility (2) *business model
Members of E-Taiwan Collaborative Commerce	(1) information sharing (2) ability of communication (3) exceptional management (4) commitment (5) trust (6) strong partnership (7) coordination (8) interdependence (9) compatibility of partners (10) performance expectations met
Industrial Environment	(1) e-business capability (2) standards setting
Derivative Problems of E-Taiwan Collaborative Commerce	(1) reform of business procedures (2) reform of organizational structure (3) degree of information transparency (4) compatibility among systems (5) security (6) *consistence of standards
Functions of E-Taiwan Collaborative Commerce	(1) inventory reduction (2) improvement of purchase order forecasting (3) accurate customer demand (4) e-payment (5) e-financing (6) e-global funding (7) reducing the financial cost (8) transparency of transportation (9) low of logistics costs (10) improving the quality of delivery (11) inventory control (12) transportation planning (13) quality of delivery (14) management of design change (15) reducing time-to-market (16) reducing the cost of design (17) development (18) computer-supported (19) collaborative design

* proposed by seven interviewed representatives.

IV. Primary Questionnaire Survey and Research Findings

Since the Research Model is justified and validated, the questionnaire survey is deployed next. In the questionnaire, questions (36 items for plan A, 39 items for plan B, 42 items for plan C, 46 items for plan D, and 38 items for plan E) are developed to related to the forty influencing factors of seven

dimensions in the proposed Research Model. Items appearing in the question are measured in five-point Likert-type scales. Data are collected through a survey of organizations that are actively involved in the planning or operation of E-Taiwan Collaborative Commerce. Thirty-four questionnaires are delivered and all recycled and considered effective after examination. For avoiding bias from extreme values, the geometric means instead of average means to evaluate answer values of questionnaire surveys. This research is hence used it to decide which factors are vital for the success in three phases of partnership in E-Taiwan Collaborative Commerce. The geometric mean of opinion values to each question is converted into percentage form. Questions with the percentage bigger than 75% are considered significant in this research. Influencing factors related to those significant questions are the crucial factors this research aims to find. According to the primary analysis, the crucial influencing factors of three phases of partnership in E-Taiwan Collaborative Commerce are summarized in Table 4.

Table 3. Importance of Research Dimension

Research Dimension	Number of factors mentioned by experts	Sum of importance among factors	Importance of dimension
Characteristics of e-Taiwan	27	28	96%
Initial leader of E-Taiwan	13	14	93%
Members of E-Taiwan	69	77	90%
Industrial Environment	14	14	100%
Derivative Problems of e-Taiwan	106	112	95%

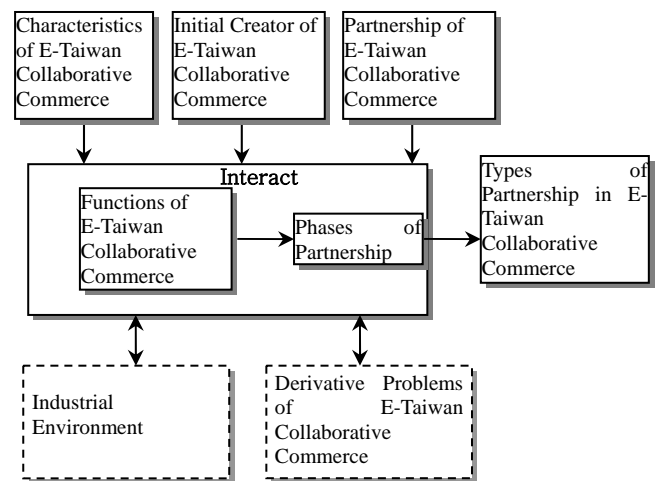


Figure 1. Research Model

Table 4. Crucial Influencing Factors of Partnership in E-Taiwan Collaborative Commerce

Phase	Selecting of Partners	Developing of partnership	Maintenance of partnership	
Factor	credibility	ability of improving transaction quality	information transparency of capability of information integration	
		information sharing	ability of improving for transaction quality	
		ability of communication	information sharing of ability of communication	
		exceptional management	exceptional management of trust	
		security	e-business capability of standards setting	

V. Conclusion

The research findings have been shown the influencing factors are not the same in three phases of partnership in E-Taiwan Collaborative Commerce. These factors are dispersed in different dimensions as Figure 1. The research findings imply to manage a Collaborative Commerce must have different strategies to select, develop, and maintain participants. As to the prospective relationship style of partnership in E-Taiwan Collaborative Commerce, experts involved in the questionnaire survey suggest partnership maintaining is better for Plan A and Plan C; partnership maintaining or integration of value chain are two possible forms for Plan B; Arm's length, partnership maintaining or integration of value chain are three possible forms for Plan D and Plan E.

Due the scope of E-Taiwan Collaborative Commerce, small size of purposive sampling is the limitations of this research. Also path analysis is being applied to find the

relationship among these dimensions for providing administrators of Collaborative Commerce some detailed information for controlling and decision makings.

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