

THE SOCIAL PSYCHOLOGY OF CREATIVITY AND INNOVATION: PROCESS THEORY (PT) PERSPECTIVE

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The sources, stages, and processes of organizational innovation in some of Taiwan's benchmarking companies in the service industry are discussed. Process-theory-based research methodology was used to analyze the characteristics of the innovation process to achieve a better understanding of how and why innovations emerged, developed, grew, and terminated. The stage/process model was used to investigate organizational innovation (OI) processes and factors which affected processes. Conclusions were obtained chiefly through in-depth field studies and a retrospective cross-sectional survey. Amabile's (1988) model was modified to account for differences between practices and theories. The research resulted in an organizational innovation process model that was divided into five stages, just as in Amabile's model; on the other hand, Amabile's (1988) model was modified to account for differences between practice and theory during this study. The conclusions of this research may serve to broaden various perspectives of debate about individual, organizational, and environmental factors.

Keywords: social psychology, creativity, innovation, process theory (PT).

A large body of literature records examination of the possibility that creativity is affected by a variety of individual difference characteristics – for example, demographic and biographic variables (Rodan & Galunic, 2004; Schaefer, 1969; Tierney & Farmer, 2002). In a few studies the possibility that contextual factors interact with either individual personality or with their cognitive styles has been examined. In addition to research on the creativity-innovation connection,

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work is needed to determine whether or not there are negative, unintended consequences of creativity and innovation that offset any possible benefits (Shalley, Zhou, & Oldham, 2004). Following Schumpeter's (1934) elucidation of the effects of innovation and expansion in industries, the concept of *innovation* has become an important subject in organization research. In 1994, Wolfe indicated three different research thrusts involved in organizational innovation and each one had its pivotal research problems, model and data collection method. On the basis of his views of research method suitability, in this study in-depth investigations of organizational innovation and the process theory were employed to analyze Taiwan's service industry. According to this methodology, we have used qualitative research on six innovative service companies in Taiwan, and modified the organizational innovation model proposed by Amabile (1988). The main purpose and proposed contribution of this research is to develop an organizational innovation process model for Taiwan's service industry.

Taiwan was formerly an agriculture-oriented society and then became an industry-oriented society; at present, the contribution of Taiwan's service industry to GNP is on the rise and employment in this sector has steadily made gains. Taiwan's service industry accounted for 46.39% of GDP, employing 17% of the labor market in 1951 (Directorate-General of Budget, Accounting, and Statistics, Taiwan, 2005). By 1988, the industry's share in GDP finally exceeded 50%. In 2005, the service industry's GDP share exceeded 77.52% while employment rose to more than 58% of the labor market. The service industry is Taiwan's largest industry now and the key to Taiwan's economic progress in the future. As the service sector is growing rapidly and the dynamics of the industry are confronting management with new problems along with new phenomena like the Internet, the need for research on service innovations is becoming increasingly urgent (Van der Aa & Elfring, 2002). This study is focused on the service industry that requires extensive cultivation of their innovativeness (Djellal & Gallouj, 2001; Hipp & Grupp, 2005; Tidd & Hull, 2003; Van der Aa & Elfring, 2002).

For the present study service industry enterprises in Taiwan were used as subjects, for in-depth investigations on OI and related research issues. Since Schumpeter outlined the effects of innovation and the spread of knowledge within industry, the concept of innovation has been a crucial topic in the study of the organization; since then, the crucial concern for researchers has been how to augment organization performance through the introduction of innovation. Although different studies have been done on the characteristics of OI, vastly different conclusions were obtained, rendering the formulation of innovation theory a difficult task. For example, Wolfe (1994) concluded that among the literature on OI, most research results were dissimilar. Therefore, in the present study an attempt is made to review and explore the literature on OI in order to clarify its context. Wolfe suggested that there were three orientations for OI,

with each orientation having its own issue of concern, model and data collection method. A review of Wolfe's research orientations of OI reveals the following.

ORIENTATION FOR DIFFUSION OF INNOVATION

The diffusion of innovation refers to the spreading of an innovative product through a group of potential users. Research emphasizes the innovative spreading pattern of the users, employing a logistic growth model to investigate the fit between the proposed model of innovation diffusion and actual diffusion results. The data collection methods mainly include large sample cross-sectional surveys, expert judgments, and secondary data filing methods.

ORIENTATION FOR ORGANIZATIONAL INNOVATIVENESS

Organizational innovativeness is determined by the number of innovations being employed. The determinants of OI are the main subject of study and analyses are based on individual organizations. A variance/regression model is used to investigate the related affecting factors that can best resolve organizational innovativeness. Information is collected through cross-sectional surveys.

ORIENTATION FOR PROCESS THEORY RESEARCH

The orientation of process theory research is focused on investigating the nature of innovation process: how and why innovations emerge, develop, grow, and terminate. The stage/process model is used to investigate the OI process and factors that affect the process. Information is obtained chiefly through retrospective cross-sectional surveys and in-depth field studies. From this situation, it can be understood that research on OI is still not complete. Though Wolfe (1994) suggested that each of the three research orientations made particular contributions to OI, these orientations still had major limitations.

Service industry organizational innovation is a relatively new term in Taiwan, and few Taiwanese scholars have proposed its further definition. Currently, related literature is scarce (Van der Aa & Elfring, 2002). Djellal and Gallouj (2001) investigated organizational innovation models of the service industry. They suggested that innovative products and services, broadly defined, include tangible and intangible products and can be divided into several forms: process innovation; technical systems (even more abstract processes); internal and organizational innovation; different process innovations composed of organization activities and processes; external relationship innovation; companies that create a special partnership with customers, a chain of suppliers, government, or competitors. On the other hand, Van der Aa and Elfring (2002) divided industry innovation into four models: multi-unit organizations, new combinations of services, customers as co-producers, and technological innovations. Obviously current researchers have different definitions of service industry organizational

innovation. However, organizational innovations are important for service firms, so there is a strong emphasis on the development and implementation of organizational formulas (Van der Aa & Elfring, 2002). Our aim was to explore and describe the supporting processes underlying those organizational innovations.

METHOD

PARTICIPANTS AND PROCEDURE

The data gathered in PT research tend to be more qualitative than in variance research (Rogers, 1983; Van de Ven & Angle, 1989; Wolfe, 1994). Based on the statistics issued by the Directorate-General of Budget, Accounting, and Statistics of Taiwan, in 2005, Taiwan's service industry can be categorized into seven groups. Among them, "business," "financial insurance and real estate industry," and "social service and individual servicing business" contributed for the highest value share of the total production income in Taiwan. Thus, our research focused on the preceding three fields, which played leading roles in the service industry. Also, the companies selected for the case study were screened based on Common Wealth magazine's (2005) recommendation list. Two companies were chosen from each of the preceding three groups as respondents. Since the respondents were limited to the three types of service industry and were contingent on the recommendations of experts and the willingness of the companies to cooperate, in this study a purposive sampling method was used to choose the case analysis businesses. A total of six companies in the service industry were chosen and all of them were ranked as the top 500 service industry by Common Wealth magazine in 2005. These companies performed well and demonstrated qualities associated with organizational innovation.

In this study a qualitative research method was used to investigate the organizational innovation process model. The main aim of process theory (PT) orientated research is to study the qualities of innovation processes. The main data gathering methods are cross-sectional post hoc research and in-depth field study. Consequently, case study is a suitable research method for studying organizational innovation process models. The interview, process respondents, and post hoc research content of the six case companies are detailed below:

INTERVIEW PROCESS AND RESPONDENTS

In order to understand the organizational innovation processes of Taiwanese industries, this researcher made use of in-depth interviews and post hoc research. Two managers were chosen from one company and a total of 12 high-level managers were chosen from 6 companies. More specifically, an administrative supervisor and a manager involved in R&D innovation were selected. In addition, all managers had been working in their companies for more than a decade.

CASE STUDY AND IN-DEPTH INTERVIEWS

Most studies on innovation classification have investigated subjects from a static position and few researchers have proposed organizational innovation stage theories to analyze its steps. Innovation, however, is a dynamic process. For this reason, in this study the stage/process research model was used to study organizational innovation process and in an attempt to understand the various factors affecting each process. The main data collection methods used in this study were a cross-section post hoc research survey and in-depth field study.

RESULTS

After Wolfe (1994) conducted the classification of the orientations of organizational innovation study, the differences among DI, OI, and PT were further clarified. PT focuses on exploring the qualities of innovation process while research on innovation looks at the appearance, development, growth, and the “how” and “why” of organizational innovation. According to Wolfe, the emphasis of the study on the stage model is to identify the stages of organizational innovation. On the other hand, the focus of the study on the process model is to identify factors that may lead to continued innovation implementation. Based on Wolfe’s classification regarding organizational innovation processes, the theory model is further analyzed.

ORGANIZATIONAL INNOVATION AND ORGANIZATIONAL INNOVATION STAGE MODEL

In this study a qualitative in-depth interview was conducted; the interview process was done in a free manner whenever possible. Semi-structured questions were addressed to the respondents in order to make them have focuses in their responses. Though post hoc research uses existing data, it is still a systematic and verifiable exploratory method because it offers a system for observing, explaining, and investigating events. Furthermore, through this method, a long-term development time-series problem can be seen; or, at least, this method allows a comparison between the present and the past. Regarding the in-depth interviews on high-level managers in six service companies in Taiwan and based on the post hoc research on past organizational innovation events, in Table 1 the events of internal organizational innovation which had happened to the respondents in the past five years are arranged. On the basis of Wolf’s model and interview results, Table 2 also shows a comparison of the organizational innovation stages according to the explanations and analyses of management implications.

TABLE 1
ORGANIZATIONAL INNOVATION EVENTS AND SOURCES OF INNOVATION

Case	Organizational innovation events
Toyota Automobile	<ol style="list-style-type: none"> 1. Organization's internal personnel transfer 【source of innovation: internal value chain】 2. Use of IT 【source of innovation: internal value chain】 3. Channel and equipment innovation 【source of innovation: internal value chain】 4. Promotion of new products and improvement of after-sales service quality 【source of innovation: customers】
Sin-yi House	<ol style="list-style-type: none"> 1. Taiwan's first warrantee system 【source of innovation: customers】 2. Organization reform 【source of innovation: internal value chain】
EMC (Eastern Multimedia Co.)	<ol style="list-style-type: none"> 1. Organization restructuring 【source of innovation: internal value chain】 2. Organization flattening 【source of innovation: internal value chain】 3. Digitalization 【source of innovation: customers & creative destruction】
Fubon Bank	<ol style="list-style-type: none"> 1. Reform of the four organizational plates 【source of innovation: internal value chain】 2. Partial organization merger with Taipei Bank 【source of innovation source: internal value chain】 3. Internal computer operation management system evaluation and integration 【source of innovation: internal value chain & customers】
Wah Lee Industrial Co.	<ol style="list-style-type: none"> 1. Organization's internal personnel transfer 【innovation source: internal value chain】 2. Use of IT 【source of innovation: internal value chain】 3. Channel and equipment innovation 【source of innovation: customers】 4. Promotion of new product and improvement of after-sales service quality 【source of innovation: customers】
Tong-yi Starbucks	<ol style="list-style-type: none"> 1. Development of new products 【source of innovation: customers】

In Table 1 the interview responses of the six case study companies and their sources of innovation are set out. Those who participated in this study were

senior and high level policy makers; therefore, the organizational innovation events gathered during the interview should be reasonably representative.

Following Afuah's (1998) view of organizational innovation, the innovation source structure is primarily: (1) its own internal value chain functions, (2) its external value-added chain of suppliers, customers, and complementary innovators, (3) university, government, and private laboratories, (4) competitors and related industries, and (5) other nations or regions. This structure further broadens and makes exact the researcher's ideas on the various innovation layers. If this structure can be used to explain the organizational innovation process, then the research will have determined the appearance, development, growth, and the "how" and "why" of organizational innovation. This will make the arrangement of the organizational innovation process clearer. If concepts of circumstantial sources of innovation (planned firm activities, unexpected occurrences, and creative destruction) are added, then the organizational innovation events of these companies will be further illuminated and clarified. More specifically, Table 1 details the sources of the six companies' organizational innovation. The primary reasons for the organizational innovation of the six companies are as follows: for Toyota's Automobile, Sin-yi House, Wah Lee Industrial Corporation, and Fubon Bank, the sources of organizational innovation events are internal value chain and customers; for Eastern Multimedia Corporation (EMC), the sources are internal value chain, customers, and creative destruction; the source for Tong-yi Starbucks' organizational innovation events is its customers. The creative destruction of Afuah (1998) refers to various techniques that are discontinuous, controlled, open, and globalized according to constantly changing customer needs, macroeconomics, societies, and demographic changes. The sources of individual innovation are customers, suppliers, complementary innovators, financiers, and distributors. Thus, innovation does not always come from manufacturers. Instead, for the service industry, the main sources of organizational innovation are internal value chains, customers, and an innovative environment.

Through these case interview results, the appearance, development, growth, and the "how" and "why" of Taiwan's service industry organizational innovation can be analyzed more clearly. Afuah's (1998) model offers the most complete analytical framework to explain the possible causes for organizational innovation.

Wolfe (1994) classified and arranged various views of scholars regarding organizational innovation stages and these results are shown in Table 2. Likewise, Wolfe combined 10 stages and in this study the 10 stages are used to design the outline of the case study interview to study organizational innovation processes. The 10 stages are: idea conception, awareness, matching, appraisal, persuasion, adoption decision, implementation, confirmation, routinization,

and infusion. Findings are shown in Table 2. In addition, the six case study companies in the service industry are: Toyota Automobile, Sin-yi House, EMC (Eastern Multimedia Co.), Fubon Bank, Wah Lee Industrial Corp., and Tong-yi Starbucks. Except for Tong-yi Starbucks, their organizational innovation stages are similar to the model of Wolfe (idea conception→awareness→matching→appraisal→persuasion→adoption decision→implementation→confirmation→routinization→infusion).

The six case study companies of this study were congruent with research on organizational innovation. When enterprises invest in projects, costs usually increase and companies have more to consider for each innovation stage. In theory, it is not easy to skip over any stage while in reality, few firms underwent each of all the ten stages. Due to different backgrounds and environments, the firms would revise their implementation stages. The organizational innovation stages organized in Table 2 are the parts that the case study companies think are more important.

ORGANIZATIONAL INNOVATION PROCESS MODEL

Process-theory-oriented studies focus on investigating innovation process qualities, while the research model is usually the “stage/process model,” using an internal organization view to explore organizational innovation process, in an attempt to understand the effects of each process. In the study of the process model, the objective in doing the study is to identify factors that can possibly lead to innovation implementation and a series of events. When studying organizational innovation process, this section refers to a renowned innovation researcher, Amabile (1988), who proposed a five-stage model of organizational innovation as a developmental basis which has been further modified. One of the greatest characteristics of Amabile’s model is that it emphasizes individual factors because Amabile stresses the facts that individual creativity is the main element in organizational innovation and that without individual innovation, organizational innovation is impossible. Through case interviews, this research revealed that the scope of factors affecting organizational innovation process was very broad. The factors could be categorized into individual factors, organizational factors, and environmental factors. The views of each company on the factors that affected them were different. A detailed comparison of interview responses is shown in Table 3. The six case study companies thought that individuals, organizations, and environments influenced organizational innovation, and that the three factors had to be mutually matched. At the same time, the companies of this study concluded that these three factors were important in affecting organizational innovation. Thus, this study is a modification of Amabile’s (1998) model because organization and environment factors have been added (See Figure 1).

TABLE 2
COMPARISON OF THE ORGANIZATIONAL INNOVATION STAGES OF THE SIX CASE COMPANIES
BASED ON WOLFE'S MODEL

Case	stage									
	1	2	3	4	5	6	7	8	9	10
Wolfe	idea	awareness	matching	appraisal	persuasion	adoption	implementation	confirmation	routinization	infusion
	conception			decision						
Toyota	○	○	○	persuasion / appraisal*	○	○	○	○	○	○
Sin-yi House	○	○	○	○	○	○	○	○	○	○
EMC	○	○	○	○	○	○	○	○	○	○
Fubon Bank	○	○	○	○	○	○	○	○	○	○
Wah Lee	○	○	○	appraisal / persuasion	○	○	○	○	○	○
Tong-yi Starbucks		○	(appraisal / persuasion	((((((

* means that the case study company believes that these two stages occur simultaneously

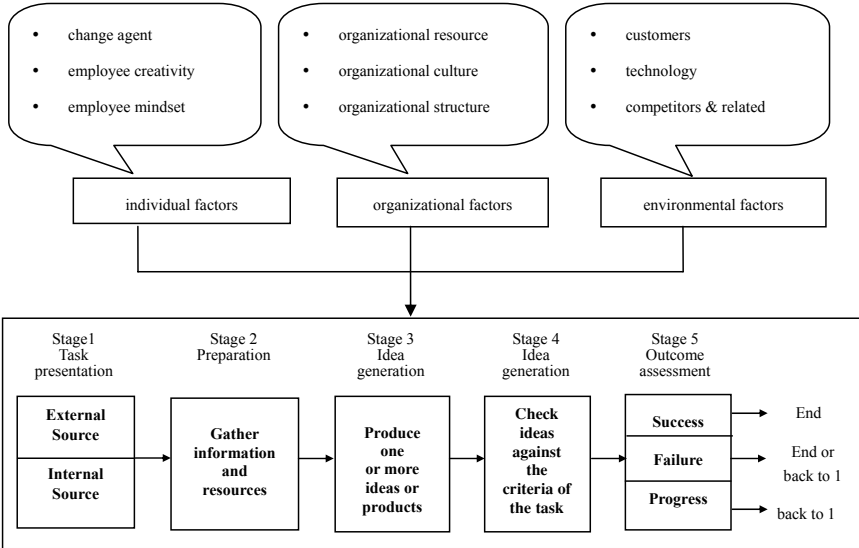


Figure 1: Organizational Innovation Model—PT Perspective

TABLE 3
COMPARISON OF THE MAIN FACTORS AFFECTING THE ORGANIZATIONAL INNOVATION OF THE SIX CASE STUDY COMPANIES

Case	Important factor in influencing sources of innovation	Implication
Toyota Automobile	The individual, the organization, and the environment have to match mutually.	● Environmental changes are common and organizations are affected by environmental changes. Organizations should match persons. Thus, the environment, individuals and the organization should be matched with one another.
Sin-yi House	The individual, the organization, and the environment have to match mutually.	● In order to respond to environmental changes and government laws on real estate agents, organizations must take actions. The whole organization's innovation should be changed according to individual views. Thus, these three have to be mutually matched.

Table 3 continued

EMC (Eastern Multimedia Co)	The individual, the organization, and the environment have to match mutually.	● Because of environmental changes, the policies of internal operators in the organization are changed. Employees must agree and accept new operators' policies. Thus, the individual, organization, and the environment must be mutually matched.
Fubon Bank	The individual, the organization, and the environment have to match mutually.	● Through internal operation meetings held by the supervisor, innovation can be proposed and will gradually lead to reform. The changes in the external financial environment and the following competition among other financial institutes continue to evolve. Only those who can change their thinking in advance and propose operational thrusts can promote new products and achieve operation innovation.
Wah Lee Industrial Corp.	The individual, the organization, and the environment have to match mutually.	● Environmental changes affect organizations because they force organizations to meet the needs of the times. Organizations must match persons. Thus, these three factors have to be mutually matched.
Tong-yi Starbucks	The individual, the organization, and the environment have to match mutually, but the environment factor is the most important.	● The three factors have to be matched but among them, the environment is the most important. The organization must be affected by the environment, so it has to respond to environmental changes and conform to environmental demands to make organizational innovation possible.

During the interview process with the six case study companies, individual, organizational, and environmental factors mentioned by the respondents were also included in the model (See Figure 1).

Figure 1 shows the organizational innovation model derived from Amabile's (1988) modified model after the case study companies were interviewed. The

individual factors are classified into: change agent, employee creativity, and employee mindset. Organizational factors include organizational resource, organizational culture, and organizational structure. The environmental factors include customers, technology, competitors, and related industries. Individual, organizational, and environmental factors mutually complement and interact with one another; they affect the organizational innovation process. The interviews reveal that there are no agreements upon conclusions in regard to the most crucial in organizational innovation. However, it should be noted that EMC believed that in the five-stage model, if the result is a failure, innovation would not be immediately stopped but would return to the first stage and then be modified.

Regarding the process of organizational innovation, among the six respondent companies, Toyota Automobile, Sin-yi House, and EMC fit Amabile's (1998) model and they found the first eight stages of Wolfe's (1994) ten-stage model to be accurate. However, the six case study companies have no agreement about what is the most important stage among the ten stages. Toyota Automobile, Fubon Bank, and Wah Lee Industrial corp hold that "concept" and "insight" are the most important elements, while Sin-yi House and EMC consider the "convincing" stage the most important, and for Tong-yi Starbucks, "concept" and "evaluation" are the most important. In this study Amabile's model was modified based on the interview results. As shown in Figure 1, there are a total of five stages: task presentation, preparation, idea generation, idea validation, and outcome assessment. This model is similar to Amabile's. Since the case companies in this research believed that individual, organization and the environment were equally important for their organizational innovation, in this study Amabile's organizational innovation model was modified by adding organization factor and environment.

DISCUSSION

Organizational innovation itself is a dynamic process. If the study is done by merely considering organizational innovation results, findings may be skewed and will fail to give an adequate view of the whole situation. For further study of organization innovation, in this study two research thrusts – process theory research and organizational innovation – were integrated. This study used only the process theory view to investigate the organizational innovation process model. Through the interviews of six case study companies in Taiwan's service industry, we undertook an in-depth analysis of the sources, stages, and processes of their organizational innovation. There are some differences between practical interview findings and theoretical framework models. In this study I also looked at the reasons for differences and if necessary, I provided corrections

or explanations. The source of organizational innovation is a good example. In the “stage” when companies invest in projects, costs are usually very high and thus they have more considerations for each innovation stage and it is difficult to skip over one stage. Most companies looked on theoretical models positively; with different backgrounds and environments, they tended to modify the implementation stage. The process in organizational innovation consists of three factors – individual, organizational, and environmental – all of which mutually complement and interact with one another, affecting the process of organizational innovation. The interviews showed that there was no agreement regarding the most influential factor in organizational innovation. The model of Amabile (1998) was supported by many companies, while it can be improved by taking the differences proposed in this research into account. Then the model will be more precise in practice. Thus, the modified organizational innovation model will be highly valuable as a reference for firms in the service industry and for later research.

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