

Using the Crossing Chasm Theory to Design a Promotional Model for Application Service Center in e-Learning Park

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Abstract: Taiwan government started to initiate a five-years (2003-2007) program, that is National Science and Technology Program for e-Learning (ELNP for short), since 2002. In order to achieve the four major goals of ELNP, including "increase the national productivities", "increase the national competition", and "promote the e-Learning industry", ELNP built an e-learning park based on the operation model of the science park. Moreover, due to many businesses complain about the obstacles of applying e-learning to their organizations, an Application Services Center (ASC for short) is designed in the e-Learning Park in order to provide solutions of those obstacles which had met by businesses. This paper reveals the promotional model of ASC for year 2005. The promotional model of ASC for year 2005 is designed by applying the crossing chasm theory into it. Furthermore, the expectations of this new promotional are also described.

Introduction

Due to the bankruptcy of "dot com" companies, the IT companies in Taiwan tried to adjust their R&D strategies and make an organization transformation in order to make them survived the market (Shih, 2001). Moreover, when the Severe Acute Respiratory Syndrome (SARS) occurred in Asia in 2003, the e-Learning becomes more and more important to businesses and educational organizations (Chen, 2003). Fortunately, Taiwan government foresaw the importance of the e-Learning, therefore, the National Science and Technology Program for e-Learning (ELNP) had been planned since 2002 (National Science & Technology Program for e-Learning [ELNP], 2002). The objectives of ELNP are including "increase the national productivities", "increase the national competition", and "promote the e-Learning industry".

The Economist Intelligence Unit and IBM also conducted an e-Learning readiness white paper in 2003, in this report Taiwan sat on the 16th around world among 60 countries and was the 3rd place of Asia just behind the South Korea and Singapore (Economist Intelligence Unit & IBM, 2004). Be notable is Taiwan's e-Learning readiness in the business part was the 9th place of the world. According to the research report made by the Market Information Center (MIC) of Institute for Information Industry (III) in 2004 (Industrial Development Bureau, Ministry of Economic Affairs [MOEAIDB], 2004b), the e-Learning Industry involves two major categories, solution providers and instruction service providers.

The solution providers include platform/tool providers, professional service providers (customer service providers, IT service providers, and educational service providers), and content providers. They target on businesses, government, and educational organization as their potential customers. On the contrary, the instruction providers offer service to individuals and try to cooperate with traditional education. Figure 1 represents the market size of e-Learning industry in Taiwan these years. From 2002's 8.23 millions USD to 2004's 129.48 millions USD, we can foresee the possible trends of the future just as the dot-dash line presented in Figure 1.

This paper proposes a new promotional model for ASC in the e-Learning park in order to step into the early majority stage based on the crossing chasm theory. Section 2 describes the backgrounds of ELNP, e-Learning park, ASC, cross chasm theory, and of course, the goals of the promotional model of ASC. The current status of ASC and related development issues for designing a new promotional model with the cross chasm theory are analyzed in

Section 3. Section 4 proposes new operations to cross the chasm between early adopters and early majority stages. Since the promotional model proposed in the paper is designed for ELNP in this year, the real impacts and effects are still can not be told at this moment. However, there are some expectations when the 4th operational program of ELNP designed the new promotional model and will be described by Section 5. Section 6 makes a simple conclusion.

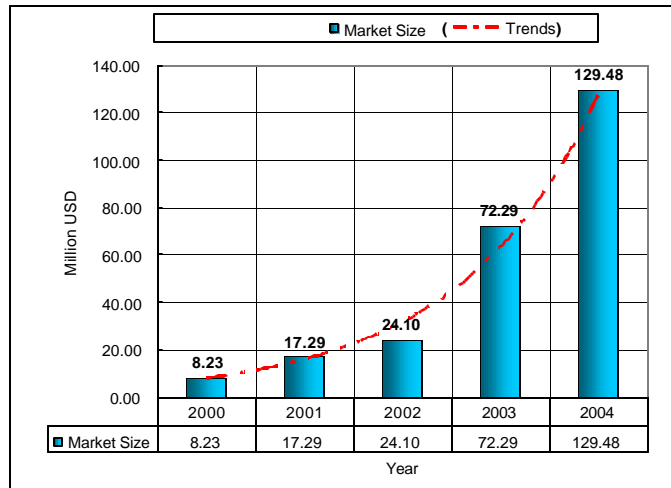


Figure 1: Market Size of e-Learning Industry in Taiwan (Millions USD)

Application Service Center of e-Learning Park

National Science and Technology Program for e-Learning was starting from 2003 and is a five-year national program. National Science and Technology Program for e-Learning started from January 2003 and will complete its first phrase in December 2007. There are 7 sub-programs in ELNP. The 4th operational program of ELNP is to design and build an e-Learning park based on the operation model of the science parks (IASP International Board, 2002; Monck, 1988), only the e-Learning park locates at nowhere. The plan is to simulate the successful science park in Taiwan and gather the e-Learning service providers together for providing single-window service, technology community, capital community, and human resources community. With the e-Learning park the e-Learning service providers will have a favorable investment and R&D environment.

First of all, the e-Learning park will select several management teams to build the fundamental infrastructure, provide services, form the professional communities and supply chain. The major goals of the e-Learning park are:

- to lower the barrier of applying e-Learning for businesses/industries;
- to develop efficient e-Learning models for businesses/industries;
- to build an environment of R&D and content sharing for the e-Learning service providers;
- and, to assist the e-Learning service providers to increase the brands' reputation and explore the international market.

Currently there are seven centers and a Development & Service Center as Figure 2 represented. The responsibilities and functions of each center in Figure 2 are

- **Application Service Center (ASC):** Providing businesses Hosted ASP ((Abernathy, 2000).
- **Learning Portal Center (LPC):** Integrating both of online courses and learning information to provide learners a personalized learning portal.
- **Knowledge Management Center (KMC):** Providing a sharing forum for the e-Learning professions.
- **Courseware Development Center (CDC):** Offering effective procedures and methodology of developing e-Learning courseware (contents). Courseware Development Center also applies some new learning technologies to develop demonstrative courseware (contents).
- **Courseware Trading Center (OTC):** Offering a trading environment of e-Learning courseware (contents) for both of international and national content providers. Courseware Trading Center will also build a complete mechanism of copyright authorization, digital right management and billing in the supply chain of e-Learning industry.

- **International Cooperation Center (ICC):** Offering opportunities of international cooperation for service providers. International Cooperation Center will also try to inject international technologies into Taiwan in order to leverage the national service providers.
- **Quality Control Center (QCC):** Providing the audit mechanism for checking the qualities of e-Learning products and services. Quality Control Center also makes cross-certificate possible with the government power.
- **Development and Service Center (DSC):** Managing, planning, coordinating, and monitoring everything in the e-Learning park.

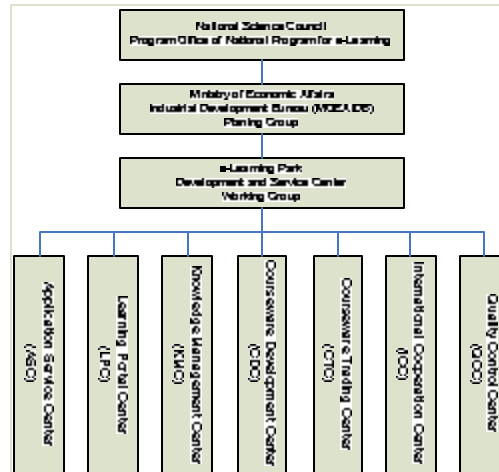


Figure 2: Organization of the e-Learning Park

Due to many businesses complain about what obstacles they have met when applying e-learning into their organizations, such as : the bandwidth of transferring the learning materials; the cost of building an e-learning system; the instruction design of creating the teaching content; the human resources of applying elearning; and, the IT/learning services of supporting the learners, ELNP designs an Application Services Center (ASC) in the e-Learning Park in order to provide solutions for these obstacles (Abernathy, 2000; UPStream CIO, 2004). Since Aug. 2002 to Apr. 2003, there were 52 meeting calls for RFI, RFC to RFP. There were 110 e-learning related companies and associations came to participate in RFI; 78 came to discuss in RFC; 35 came to plan in RFP (MOEAIDB, 2003). In 2004, ASC is completed and opened for e-learning companies and industries.

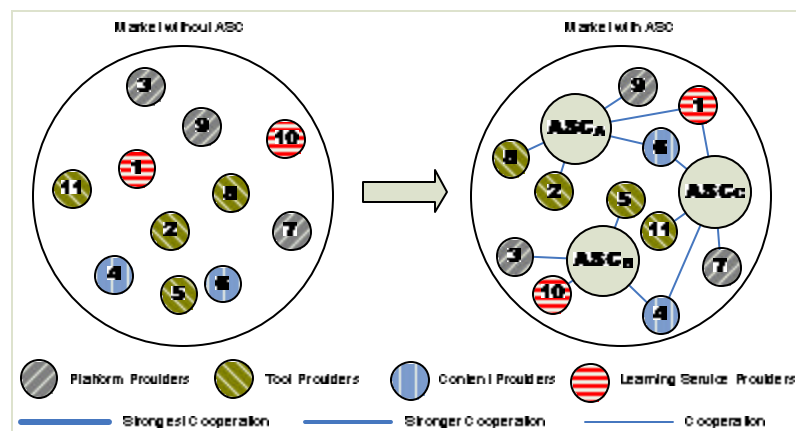


Figure 3: Motivation and Goal of the Application Service Center

According to the Bersin's prediction report in 2004, the outsourcing and application service providers are two major development trends in the eLearning industry. Since the national eLearning service providers in Taiwan are smaller and without enough technologies and experiences. Therefore, ELNP wants to make those loose and

cooperatable e-Learning service providers form one or more strategic union in ASC. Figure 3 illustrates such kind of idea (Christensen and Raynor, 2003). Once the loose and individual providers cooperate and form a union by a management team of ASC, these providers would have increasable revenues. Not only the revenues, but also the quality would be raised. In the vision of ELNP, the quantities of members joined ASC should be increased and the weights of the relationships between providers in ASC should be reinforced. National Science and Technology Program for e-Learning expects that the members of ASC would have more/much: revenues; employees; cooperate companies; outsourcing (which means cooperate with others); investment (which means the future is looking good); and, net profits.

The chasm here is the gap between two stages in the technology adoption life cycle of a product. Moore (1999) thought the customers could be divided into five different groups according to which kind of customers who belong to when they need to make a decision for choosing a new technology and/or product. The five kinds of customers as Figure 4 shows below are including innovators (very narrow market), early adopters, (much larger than innovators, but still not major), early majority (this is where you want your product to get), late majority (still huge market), and laggards.

So, how to make a new technology and/or product be embraced by early majority and late majority is a very important concern. When face a new technology and/or product, the early adopters and early majority market are the most obviously successful keys. However, different types of customers have different considerations. For example, the early adopters wish to use the new one to overwhelm their competitors, hence, they can afford some flaws and inconveniences in the technology and/or product. On the contrary, the early majority wants to improve the current performance and can not allow any problems caused by mistakes. Because of the differences between the early adopters and the early majority, the chasm between these two groups appears when promotes a new technology and/or product.

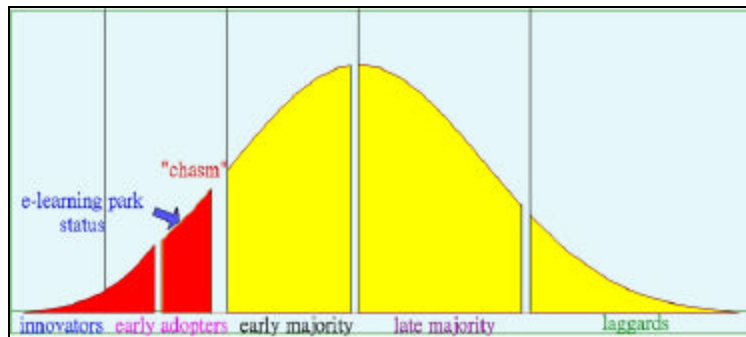


Figure 4: Technology Adoption Life Cycle of New Technology and/or Product

Although ASC had been opened for one year since 2004 and there were some business users, the size of market and users still can not grow up rapidly. After the program office made several interviews, the reasons seem to be revealed. Roughly speaking, the functionalities and service qualities are not good enough, and the requirements of business users can not be achieved completely due to the limit of resources of ASC. Therefore, how to adjust the operations of ASC and get into the early majority market systematically is the urgent task. This paper tries to using the concepts of crossing the chasm to design a new promotional model for ASC in the year 2005.

Promotional Model of ASC

Susarla et al. (2003) mentioned that the user satisfaction is a key factor for customers to decide whether using the services which provided by the ASP continuously or not. Hence, the user satisfactions which include total satisfaction of business users and e-Learning ASP companies to the two management teams of ASC for 2004 are made. Figure 5 represents the total satisfaction of business users to the two management teams of ASC, UpCity and LearnBank. Figure 6 shows the total satisfaction of e-Learning ASPs (partners of management teams) to the two management teams.

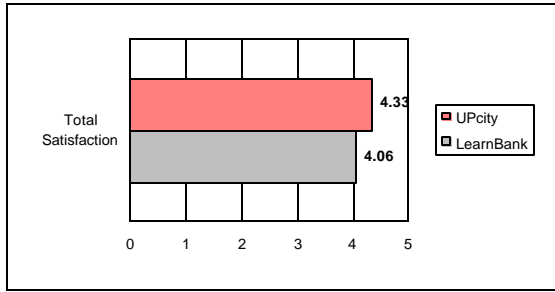


Figure 5: Total Satisfaction of Business Users

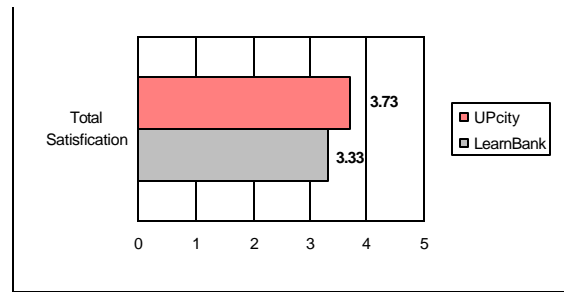


Figure 6: Total Satisfaction of Partners Who Joined the Management Team of ASC

	Company Reputation	Productivity	Efficiency	Profits	Cost Down	Enhance Adaptation	Work Quality	Increase Customer
UpCity	83%	50%	67%	17%	17%	17%	33%	50%
LearnBank	63%	21%	42%	26%	21%	21%	21%	37%

Table 1: Benefits Were Felt by Business Users

	Company Reputation	Productivity	Efficiency	Profits	Cost Down	Enhance Adaptation	Work Quality	Increase Customer
UpCity	100%	19%	19%	0%	19%	9%	9%	55%
LearnBank	83%	0%	0%	17%	0%	8%	0%	67%

Table 2: Benefits Were Felt by Partners Who Joined the Management Team of ASC

As we can see between Figure 5 and Figure 6, it is apparently that those e-Learning ASP companies not satisfy with their management teams. Similar to these two figures, Table 2 also indicate that the ASP companies did not get enough profits after they joined ASC. It is might be the reason that makes those ASP companies did not satisfy their management teams. Moreover, only half of the ASP companies think that join the ASC will be helpful to them to get more customers. Fortunately, most of the e-Learning ASP companies who joined the ASC did increase their company's reputation (> 83%). Therefore, the new promotional model based on the crossing chasm theory DO focus on targeting the appropriate market, increasing customers for the e-Learning ASPs, building golden (or successful) examples, and moreover, stepping into the early majority stage. However, there are always some pros and cons exist in either the old promotional model or the new one. Table 3 lists the possible pros and cons for the two promotional models.

	Pros	Cons
Old Model (for 2004)	<ol style="list-style-type: none"> 1. get into market quickly 2. find possible customers 3. increase reputation 	<ol style="list-style-type: none"> 1. without target market 2. without systematically promotional strategy 3. without satisfied customers enough
New Model (for 2005)	<ol style="list-style-type: none"> 1. step into majority market 2. increase satisfaction 	<ol style="list-style-type: none"> 1. could not have huge customers in short term 2. do need to adjust resources and organization for each chasm.

Table 3: Comparisons of Two Promotional Models

Designing New Operations to Cross the Chasm

In order to achieve the goals of applying the chasm theory to the operations of ASC, this section describes how to cross the chasm with three different ways: technologies, services, and marketing.

- **Technologies**
 - Emphasis the interoperability of teaching materials, learning platforms, and learners' profiles by following international e-Learning standards.

- Reusability of material components.
- Design a five-stages development plan for ASC
 - Building learning community
 - Providing management system for the material components and collaborative learning
 - Promoting wireless learning services and e-Learning knowledge management
 - Integrating ROI and workflow to reach the goal – "learning and doing"
 - Using web service methodology to achieve learning on demand
- **Services**
 - Make customers feel comfortable, satisfied, and trusted
 - Provide customers and e-Learning ASP companies services actively
 - Provide two different participative flows of ASC
 - for businesses who know ASC
 - (1) to contact with the Development and Service Center of the e-Learning Park
 - (2) Development and Service Center could provide the consultant services
 - a. Analyze: requirements and effects
 - b. Plan: schedule, budget, HW, SW and contents
 - (3) With the desired management team of the business
 - a. Implement: platform, content development, personnel training
 - b. Operation: apply courses, provide customer services of IT and instruction, maintain LMS/LCMS
 - c. Evaluate: learning effects, cost, business benefits
 - for businesses who know ASC
 - (1) Development and Service Center of the e-Learning Park **will** approach the possible businesses actively
 - (2) Development and Service Center **will** help the businesses to
 - a. Analyze: requirements and effects
 - b. Plan: schedule, budget, HW, SW and contents
 - c. Refer: according the characteristics of the businesses to refer to the appropriate management team of ASC
 - (3) With the management team which is **introduced by** DSC
 - a. Implement: platform, content development, personnel training
 - b. Operation: apply courses, provide customer services of IT and instruction, maintain LMS/LCMS
 - c. Evaluate: learning effects, cost, business benefits
- **Marketing**
 - Target different target markets, for example, one of management team, LearnBank, whose target markets are schools and government agencies; and, UpCity's market is private businesses.
 - Vertical alliance: to complete the whole e-Learning product in order to lower cost and time consuming; increase successful stories; and, improve service quality. A complete vertical alliance for example, from bandwidth (telecom companies), e-Learning platforms, e-Learning tools, content providers, e-Learning consultant companies to learning service (somehow like business's customer service center).
 - Horizontal alliance: to expand customers and step into new markets. For example, with Construction industry to build a real e-Learning community for children, students, housewives, workers, and senior citizens.

The Expectations of New Promotion Model of Application Service Center

In the records of ELNP, currently there are 130 e-Learning related companies in Taiwan, and among them there are over 40 companies dedicate themselves to provide e-Learning services and could be called as professional e-Learning service providers. By using ASC, different service providers in the e-Learning supply chain will be able

to gather and form a strong support force. With this kind of professional value-added supply chain, the Taiwan's e-Learning industry will equip enough productivity and international competition.

Currently there are 48 e-learning service providers hosted in ASC and more than 100 businesses from different industries such as Construction, IT, Agriculture, and Tourism apply to use these services provided by the members of ASC. In 2004, ASC offers over 1,800 e-learning courses (around 50,000 hours lecture) and the effective count for visiting and learning reaches 60,000 (MOEAIDB, 2004a).

About the two management teams, the revenue of UPCity in the year 2004 was 1.19 millions USD and there were 23 service providers joined this team. There were 83,400 people used the eLearning services that were provided by the team of UPCity; The revenue of LearnBank in the year 2004 was 5.80 millions USD and there were 30 service providers joined this team, of course, some of the service providers joined both of the two management teams. The counts of pay-for-learning were 180,000.

The platform providers of ASC had a total 6.23 millions USD revenue in the year 2004. Other service providers of ASC had a total 9.06 millions USD revenue in the year 2004. Although the data mentioned above was according to the feedbacks of the questionnaires, out of 48 questionnaires were mailed out, only 16 have responded. Therefore, the total revenue of the year 2004 that brought by ASC should be over 32.25 millions USD:

- **Two management teams**: 6.99 millions USD
 1. the team of UPCity: 1.19 millions USD
 2. the team of LearnBank: 5.80 millions USD
- **Service Providers of ASC (had returned the questionnaires)**: 15.29 millions USD
 1. platform providers of ASC: 6.23 million USD
 2. other service providers of ASC: 9.06 million USD
- **Service Providers of ASC (didn't return the questionnaires)**: 10 millions USD (estimation)

To compare with the outcomes of last year, the expectations of outcomes in this year that after applying the cross chasm theory:

- To build several large golden examples
- To find the opportunity to have international market
- To ensure the quality of e-Learning services according the book of e-Learning service quality which is developed by QCC in e-Learning park
- To enhance the interoperability of platform and content with suitable international e-Learning standards
- Each management team must reach the following KPIs
 - Quantitative KPIs
 - net profit should be at least 1.25 millions USD (corresponding to government's investment)
 - year revenue should be at least 6.25 millions USD
 - 30,000 learners who paid for learning or passed certified courses
 - Qualitative KPIs
 - the ratio of interoperability reach 85%
 - total satisfaction of customers is over 3.5
 - to build at least 5 successful stories (payment models and/or promotional models) in government agencies
 - to build 2 cooperative examples with other centers in e-Learning park as Figure 2 shown above
 - to assist 100 companies to use e-Learning, at least 20 of them have willing to pay in the year 2006
 - to build new alliance model and attract at least 3 e-Learning service providers join the team

Conclusions

Application Service Center was the first established center in the e-Learning Park. National Science and Technology Program for e-Learning expects ASC can make the e-Learning supply chain completely in Taiwan and the businesses would have interest in applying the e-Learning into their business due to the lower cost and higher

quality e-Learning facilities and contents provided by the members of the ASC. However, after interviewing several business users and e-Learning service providers, we found out that the current model of ASC will face a chasm according to the technology adoption life cycle. In order to step into the next stage, in the life cycle, early majority stage, this paper proposes a new promotional model for ASC based on the cross chasm theory. Although the promotional model is used in this year and there is not outcome yet, some expectations for the new promotional model are still described in this paper.

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