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A PRACTICAL CASE STUDY OF THE INTERACTIVE TV SERVICE AS A TIME-CRITICAL PRODUCT

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Abstract

In this paper, we conducted a case study of time-critical goods - NG goods. We expected the study to integrate the field of information management and the TV broadcasting field, thereby creating a new wave of potential for the information management field after e-commerce. We suggest two perspectives germane to industry development: the development of the whole industry, and, the operation of the individual companies.

1. Background and motivation

As the number of television channels is increasing at an exponential rate, the broadcasting industry is forced to constantly adapt its standards without inflating costs. Older syndication strategies are unlikely to be flexible enough in such a context. This has led to attempts to interest the audience in various forms of interactive TV services, such as on-demand content, ordering stock and purchasing movie tickets [18]. For consumers, the appeal here is having greater individual control over both which programs they watch and when they watch them. Indeed, these imperatives are very much in keeping with expectations about multi-media services generally [8]. Interactive TV services have entered the pilot phase in European countries and the United States [8]. Even older, established companies such as Time Warner have been willing to acknowledge, at least in principle, the value of two-way interactive TV services [7]. However, the practical operational realization of this prospective ideal has proven more difficult, and there is little consensus at this stage as to how it should be promoted.

The global financial crisis has had a corrosive effect on many business and individual livelihoods alike. A 2009 Nelson consumer report noted that more than 60% of consumers have become very sensitive about price fluctuations. Time-critical goods are especially affected in such a rapidly changing environment, with travel vouchers and plane tickets falling in value as their date of use approaches, albeit without affecting their quality. The same can be said about goods such as NG foods with superficial flaws, such as damage to the packaging, which have little bearing on the taste or

nutritional value of the product. Therefore, people refer to NG goods as time-critical goods in Taiwan. Given the growth in the market for NG goods, the Internet is the medium most likely to exploit the demand for time-critical goods.

Despite their ready accessibility on the Internet, price remains a cause of concern. This is especially the case for groups of late adapters, such as housewives and the elderly, who are less inclined to change their regular TV viewing habits. However, television could prove an effective medium even to these groups, thanks to the advertising of NG goods, particularly where NG goods can be traded using a remote control.

We conducted a case study of time-critical goods - NG goods. Our working assumption was that the study could integrate two fields: information management and TV broadcasting. This would in turn revitalize the information management field with respect to e-commerce.

2. Literature review

The basis of this section is the ITV service and time-critical product fields. However, time-critical products are a new development, and there are no strong theories. Therefore, we reviewed literature in the critical product field.

2.1 Interactive television services

The definition of interactive television services according to Britain's Independent TV Committee is, "interactivity is a function and not a special form of service, and it can be used in many different situations" [6].

Viewers can be involved in the exchange in the following ways. The first is through changing the content that appears on-screen, like choosing television programs or advertising background information, or scene selection. They can also watch a secondary program while watching one of these programs. Secondly, through providing information to television stations through return channels (usually phone lines), such as when ordering goods, providing opinions on television programs and through voting or participating in game shows. These services, whether provided via satellite, cable or wireless digital, can only be used by members of the public with digital equipment. Furthermore, Britain's Independent TV Committee

argues that the general approach of interactive television services differs from network services. Its content and services are developing well; however, only in an environment with the support of more broadly identifiable standards can station managers, advertising representatives and viewers, become more willing to trust and utilize each other.

Yu-li Liu[7] argues that although two-way interactive television services have both narrow and broad definitions, feedback is the essential factor in both. The narrow definition refers to the system (or channel) operator placing the scheduled programs into the video server, which at any time can respond to subscriber demands. Consumers can receive all their desired programs and services through their television set via transmission networks, transmitted program signals, and digital decoders. The broad definition refers to interaction with the programming source, not necessarily through a network. Communication can be over the telephone, such as song selections, call-in shows, and responding to voice and multimedia information. These all come under the broad definition.

Brown and Anderson[1] argue that the concept of interactive television services, where the level of audience participation is clearly increasing, is suggestive of how consumers can become programming managers and enter information and areas of entertainment- in effect transforming television into a consumer entertainment center and shopping cart. Additionally, ITV services emphasize initiative and immediacy by providing users with a large amount of information that can be presented as user opinions and lists.

Galperin and Bar[4] believe that ITV is a pull strategy insofar as subscribers request services from multi-channel video programming distributors (MVPD), which are not necessarily linked to specific video programming. ITV has already surpassed the concept of a simple expansion of current television. Furthermore, viewers themselves take the initiative to send requests to providers. Services are not actively provided on the supply-side.

Galperin and Bar[4] categorize ITV as follows. One is a program-related ITV service, which is integrated with any particular video stream, and the other is a dedicated ITV service, which is not integrated with any particular video stream. The former is directly linked to one or several video streams and can be used to strengthen and expand the core business of television stations. The latter is independent from any specific program stream, and is sent with multi-channel video programming to third parties

who have signed contracts, such as those pertaining to information, shared content and services for car salespeople and bankers. Multi-channel video programming is sent to station managers and subsequently offered to third parties for their input.

According to Tsaih et al[13], interactive television services can be split into the categories of “walled gardens”, where multi-channel video programming controls the transmission, and online “wild forests”, which are not restricted by multi-channel video programming. The difference between the two ITV services hinges on whether or not the consumer can receive third party content or services that are not in collaboration with multi-channel video programming.

Pramataris et al[10] argue that in terms of the level of interactivity of ITV, it is believed that different types of interactive television programs can lead to different levels of viewer interaction. Therefore, interactivity is a two-dimensional structure. Firstly, the level of interactivity depends on the nature of the content. Secondly, the level is the inclination of viewers to interact. Yu-li Liu [7] argues that the two-way interactivity of ITV services can be separated into five levels (as in Table 1). The higher the level, the more sophisticated the level of interactivity.

Table 1: Levels of two-way ITV services

Level of interactivity	User operation model	Communication medium	Application
None (0)	Linear broadcast, users can change the channel and program	Telephone	Similar to pay-TV video-on-demand
Low (1)	Linear broadcast, users can talk to the host of the provided content and have the same control over programming as in the operation of	Cable TV, not in real time	Pay-TV video-on-demand

	a VCR		
Middle (2)	Wireless broadcast, users can talk with the host of the provided content and have similar control programming as in the operation of LD	Cable TV network in real time	E-catalogues
High(3)	Wireless broadcast, users can select servers and terms of service	Cable TV network in real time	Electronic banking
Complete (4)	Wireless broadcast, users can select servers and terms of service, and can have exchanges with other users	Cable TV in real time, and can also provide real time voice and video streaming	Video conferencing and multi-player video games

Source: Yu-li Liu [7]

2.2 A critical product

According to Yang Zhuxing's [16], critical products originate in the influence of culture and a high level of involvement with the product. They can be distinguished from traditional consumer (convenience, leisure, optional and special) goods. Furthermore, Zaichkowsky's [17] research demonstrates that where consumers have a high level of involvement in purchasing a product, they also spend more time seeking information or planning. They can sense the possibility of making the wrong purchase and so the perceived risk is high. Studies by Murray and Schlater [9], Capon and Burke [2], and Cronin, Brady and Hult [3] also show that the degree of perceived risk when purchasing unique products influences the level of satisfaction of consumers (the lower the perceived

risk, the higher the level of satisfaction). Richins and Bloch's [12] study also shows that the level of consumer involvement with unique products is on par with their level of satisfaction (also, the greater their pre-purchase knowledge, the higher their level of satisfaction with the product).

Yang Zhuxing [16] also offers suggestions to companies selling unique products: (1) Improve the company's own competitive edge through significant and supportive processes in the value chain; (2) offer consumers channels and methods to participate, and improve the level of consumer interaction to reduce their perceived risk and increase their level of satisfaction; (3) establish customer sales methods and improve marketability by establishing a public reputation; and (4) form relevant alliances to offer consumers the convenience of one-stop-shopping. There are also suggestions for those consumers purchasing unique products. They should carefully evaluate the significance of this product to avoid overspending. They should also avoid making impulse purchases induced by the shopping environment, and they should consider the size of their budget, the service quality and product content to minimize any impact on their level of satisfaction.

3. The research method and case study

The topic of this study is relatively new, and the research method and limitations are unique. They are described below.

There is no practical operation. Therefore, our research methodology includes an exploratory study and a case study.

3.1 The research method

3.1.1 Explanation of exploratory study

The main purpose of this study is to discuss internal and external issues and topics concerning the company's development of a time-critical product into an ITV service in order to establish an operational model. However, (1) There are no domestic practical case studies; (2) The phenomenon of time-critical products as a key business operation has only existed for a short period of time, and there are very few theories on these operations; and (3) currently in Taiwan, explorations into new and developing industries are just beginning and their achievements are still not clear. Therefore, meticulous testing for this study is inappropriate.

This is instead an exploratory study, consistent with the view of Taiwan University's Professor Kuo-shu et al [17]. Emphasis is accordingly placed on exploring the facts and conducting a thorough study of internal and external factors framed by discussion of a real situation.

3.1.2. Explanation of the Case Study

Before carrying out this study, we conducted a literature review on ITV services and time-critical products in order to support its theoretical foundations. Nevertheless, when conducting the literature review, we discovered that the scope of literature was limited; few people were able to participate in the topic area. Currently there are no strong theories to provide support and the topic of this study is one where the flow of information naturally evolves.

According to Wu Chung-Fern [15], a case study is suitable for research topics which are relatively new, where little research has been conducted, there are no strong supporting theories, and the real-world environment is naturally evolving. Therefore, this study principally uses the case study, electing to interview relevant businesspeople and collated literature as supplementary research.

3.2 The Case study

In selecting the company, we took the following into consideration:

1. Time dedicated

Firstly, the duration of the case study was relatively short and the analysis of internal and external factors is a relatively new area. Also, the vehicle with which the company is expanding its business is just starting out. Therefore, through carrying out this study, we can truly understand the philosophy of people in this company and conclude that the research duration was completely appropriate.

2. Objectivity of information

Secondly, there is no fixed policy and we cannot rely on first impressions. In the absence of an established information division, there is ample room to discuss a wide range of opinions. We have effectively collected information from a broad range of sources, so it is relatively objective.

3. Earnest attitude in providing assistance

Ultimately, the policymakers and service personnel in this company all want to use ITV services. This is extremely important for the company's operation and future development. Therefore, they were greatly supportive of and helpful throughout the course of this research.

4. Case study

Exploration of the case is divided into two sections

4.1 The case background

4.1.1 The operational concept and marketing strategy

The operational concept is "the closer the product is to its date of use, the cheaper it is". These products are not sold through main channels, or the traditional business model cannot sell them. Examples include airplane seats which have not been sold close to the date of departure, as well as hotel rooms and travel tickets which have not been

sold. Customers are particularly sensitive to the price of these products, and often pay close attention to discount sales/auctions.

In terms of the marketing strategy, the inclination is to connect suppliers and consumers. On the basis of the unused conditions and surplus value of products in different industries, the price of the product is lowered as time passes, and the price reduction model is "the more you buy the cheaper it is". The aim is to connect suppliers and consumers immediately to encourage an immediate transaction.

4.1.2 Development

In March 2009, the company secured subsidies and a related trading platform from the Ministry of Economic Affairs, and on March 13 it received the support of the Ministry to continue to preparatory work on "BidSale", including supplier talks, core mechanism plans, website requirements and webpage designs, development of the Demo and other matters. It is expected to be online in late 1998.

Aside from the basic office equipment for employees, along with the hardware and software needed for the website, there is no investment in a business location, shop front or other related facilities. On the contrary, a high quality professional staff is the key factor in its success. The development of research and integration of knowledge from all industries, planned operational processes, transaction mechanisms, system logic design, product management and business savvy, are all of key importance to the company.

4.1.3 The operation aims to:

1. Provide timely and beneficial information on time-critical products so they can be immediately and effectively cleared;

2. Attract customers, with an emphasis on holding clearances for products approaching their date of use, and offering interactive participation in real time to access online products and services immediately;

3. Offer integrated system mechanisms and online services to give sellers an immediate market and avoid a rapid decline in price or even non-sale of surplus value products. At the same time, it aims to offer buyers (end users) low-price products to save them money;

4. Use young people's social networking groups as a blueprint, as their time elasticity is high and they often like to buy time-critical products; and

5. Provide an immediate interactive response for young people in society, as serious internet users, through encouraging an understanding of the internet environment and the demands of Internet users.

4.2 The case plan

After the above literature review and situational analysis, three plans are provided below:

4.2.1 ITV service and content type

According to Huang[5], ITV services can be separated into viewing, shopping and business categories. Content can also be divided into relay, attached and inserted content. As it has the structure and operation of an enterprise, the company has the following characteristics.

1. Its business model is principally the marketing of products, not offering film and television programs. Thus, it is not appropriate to have viewing services for ITV.

2. Its operational scope is that of a small to medium sized enterprise, and it is in the development stage. It cannot provide additional resources to create content for ITV broadcasts.

3. Its current task is principally to provide information services on time-critical products and not be involved in purchase and post-purchase logistical procedures (such as delivery, payment and customer service). Further, the products that it recommends are primarily time-critical products approaching their date of use, so they must actively and constantly pass on this information to consumers before the deadline to stimulate the consumers' desire to purchase. Evidently, ITV shopping services involving logistical activities and waiting on consumers are also inappropriate.

In light of the above analysis, and as the core ability of the company, the website's e-commerce is fundamental for the company to adopt the ITV business model in its development. The main content types are inserted ITV content and attached ITV content.

4.2.2 The business model

As ITV is its main business model, its operators provide visual communication through the company website. Therefore, it can develop its business model into an online business model. According to Michael Rappa [11], there are nine types of online business model (Brokerage Model, Advertising Model, Informdiary Model, Manufacturing Model, Community Model, Affiliate Model, Merchant Model, Subscription Model, and Utility Model). Turban et al.[14] identify six types of e-commerce business models from the standpoint of coordinating mechanisms for product and information flows (markets and hierarchies): business to business-B2B, business to customer-B2C, customer to customer-C2C, customer to business-C2B, Non-Profit EC, and Intranet EC. However, as its current business model is the one below, there are a limited number of models it can adopt.

1. It currently employs serious Internet users to promptly recommend time-critical products

[nearing their date of use] to consumers with whose consumption habits they are familiar. They are responsible for immediate interaction in order to complete transactions. 2. The company primarily advertises time-critical products or provides recommendations. 3. In order to widely distribute information, the company has created consumer groups who like to purchase time critical products approaching their date of use. A real-time interactive website has been developed for the benefit of this group.

According to our analysis, the company can adopt the Advertising Model with income from product or business advertising. The Informdiary Model can be used in conjunction with transaction commissions for matching buyers and sellers, whilst the Community Model may provide information on consumer habits. It should also observe coordinating mechanisms for product and information flows. It currently provides individual consumer recommendations from the standpoint of an enterprise, so it has adopted the business to customer-B2C Model. It has not developed to allow individual consumers to also give recommendations, as in the customer to customer-C2C Model, nor let them sell products, as in the customer to business-C2B Model.

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