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BUSINESS MODEL CHANGE DUE TO ICT INTEGRATION: AN APPLICATION TO THE ENTERTAINMENT INDUSTRY

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ABSTRACT
This paper deals with the change of business models (BMs) due to Information and Communication Technologies (ICTs). Recent advances in ICTs have caused BM change to be indispensable in all businesses. This is even more essential in the industries, where there is a significant diffusion of ICTs, such as the entertainment and gaming industry. In the context of our analysis, we apply a specific methodology of managing BM change to Regency Casinos, i.e., the leader in the Greek gaming market. The case study shows that each step of this methodology fits to the business transformation plan of the company; hence it arises that the applied methodology, supplemented by a series of factors favoring scenarios for BM development, can be applied to an unstable business environment, as the environment of our study.

KEYWORDS
Business Model, Information and Communication Technologies, Reengineering

1. INTRODUCTION
The evolution of ICTs during the last decade has significantly altered the business landscape on a worldwide scale. The integration of ICTs in the business processes resulted in numerous examples of enhanced organizational performance both in developed and developing countries.

The International Development Association (IDA), which is the part of the World Bank that helps the world’s poorest countries, suggests that the growth in access to ICTs is boosting economic productivity, raising incomes of families and small businesses and providing an important source of government revenue (IDA, 2009). On an operational level, the World Bank (2006) implies that firms that use ICTs grow faster, invest more, and are more productive and profitable than those that do not. Furthermore, many studies conclude to a positive relationship between ICT use and superior performance (Baldwin and Sabourin, 2002). The positive effects of ICT integration brought up the issue of BM change for a number of companies that wanted to stay ahead of the competition. The transition to a new, more effective BM can only be achieved, if there is a sound understanding of the current BM. However, as discussed by Al-Debei et al (2008), understanding the BM domain by identifying its meaning, fundamental pillars, and its relevance to other business concepts is by no means complete. Furthermore, creating a radically new BM is a high risk strategy, as the probability of getting it right is acknowledged to be low (Kalakota and Robinson, 2001). As technology evolves and new solutions emerge in the business practices, the necessity of BM change becomes greater and companies are faced with the dilemma of change versus their traditional business architecture. Therefore, it is of great interest to study the effect of ICTs to BM transformation in all businesses and more specifically in the entertainment and gaming industry, where there is a significant diffusion of ICT tools during the last years.

This paper is presenting the basic concept of the BM while focusing more on the BM change process using as a case study a leading company that operates in the entertainment and gaming industry in Greece. It is divided into three main parts, the presentation of the BM theory, the management of models of change and the application of the theory to the case study of Regency Casinos.
2. RELATED WORK

2.1 The Concept of Business Model

The term “business model” appeared for the first time in an academic article in 1957 (Bellman et al) and it was first used in the title of an academic article in 1960 (Jones). It is more widely spread from the 1990’s onwards in an Internet context (Afuah and Tucci, 2001; Osterwalder, 2004). The BM term becomes even more popular and is used widely by academics, analysts, businessmen and journalists who interpret it widely and approach it from different angles, leading Rappa (2001) to conclude that it is perhaps the most discussed but least understood aspect on the Web.

Since 1998 there are approximately eighteen published definitions of BM, which focus on similar or different aspects of the BM. Timmers (1998), defined BM as an architecture for products, services and information flows, including: (i) a description of various business actors and their roles, (ii) a description of the potential benefits for the various business actors, and (iii) a description of sources of revenues. We will adopt the most comprehensive definition of Al-Debei et al (2008), who define the BM as “an abstract representation of an organization, be it conceptual, textual, and/or graphical, of all core interrelated architectural, co-operational and financial arrangements designed and developed by an organization presently and in the future, as well as all core products and/or services the organization offers, or will offer, based on these arrangements that are needed to achieve its strategic goals and objectives”.

2.2 Business Model Frameworks

A short literature review on BM theory shows that various authors have tried to describe and present the framework of a BM, mainly by decompressing it into separate model components (Hamel, 2000; Petrovic et al, 2001; Weill and Vitale, 2001; Alt and Zimmermann, 2001; Methlie, 2001; Linder and Cantrell, 2000; Osterwalder, 2004). The ontology approach of Osterwalder (2004) integrates all the important elements of a BM and is used in this study as an adequate representation of the developed theory on BMs (Table 1).

Table 1. Osterwalder’s business model design template: nine building blocks and their relationships

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Building Block of Business Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Value Proposition</td>
<td>A Value Proposition is an overall view of a company’s bundle of products and services that are of value to the customer</td>
</tr>
<tr>
<td>Customer Interface</td>
<td>Target Customer</td>
<td>The Target Customer is a segment of customers a company wants to offer value to</td>
</tr>
<tr>
<td></td>
<td>Distribution Channel</td>
<td>A Distribution Channel is a means of getting in touch with the customer</td>
</tr>
<tr>
<td></td>
<td>Relationship</td>
<td>The Relationship describes the kind of link a company establishes between itself and the customer</td>
</tr>
<tr>
<td>Infrastructure Management</td>
<td>Value Configuration</td>
<td>The Value Configuration describes the arrangement of activities and resources that are necessary to create value for the customer</td>
</tr>
<tr>
<td></td>
<td>Capability</td>
<td>A Capability is the ability to execute a repeatable pattern of actions that is necessary in order to create value for the customer</td>
</tr>
<tr>
<td></td>
<td>Partnership</td>
<td>A Partnership is a voluntarily initiated cooperative agreement between two or more companies in order to create value for the customer</td>
</tr>
<tr>
<td>Financial Aspects</td>
<td>Cost Structure</td>
<td>The Cost Structure is the representation in money of all the means employed in the business model</td>
</tr>
<tr>
<td></td>
<td>Revenue Model</td>
<td>The Revenue Model describes the way a company makes money through a variety of revenue flows</td>
</tr>
</tbody>
</table>

Osterwalder’s conceptualization allows the organization to identify and describe its BM. It acts as a photo camera, giving the tool to the company to take a snapshot of its current operations. But as Linder and Cantrell (2000) suggest, BMs do eventually wear out. Given the increasing pace of ICT advances, leading companies should effectively manage BM change, which is the purpose of this paper.
2.3 ICT and Business Model Change

Having reviewed the theory on BMs, it is evident that understanding and communicating the architecture of the company is an essential task, yet sometimes it is proven insufficient in a turbulent and dynamic technological environment. As Gunzel and Wilker (2009) suggest, the BM is not static. Start-ups, as well as existing businesses must revise their BM over time to keep up with changing technology, market and regulatory conditions, etc. Existing literature mainly examines the BM and its components as a static representation of how the company creates and delivers value to its customers. However, the need to interrelate ICT developments and BMs started to express through the work of Venkatraman (1994) and his “five levels of IT-enabled business transformation” model (Figure 1), and Poon and Swatman’s (1997) “Internet-to-internal applications systems integration” model (Figure 2).

![Figure 1. Venkatraman’s five levels of IT-enabled business transformation](image)

Venkatraman’s (1994) first approach to IT integration, examines the range of potential benefits in relation to the adoption of IT-enabled business transformation through a sequential five-stage process. This stretches from the evolutionary level of localized exploitation all the way to the revolutionary level of business scope redefinition.

Poon and Swatman’s (1997) work on adoption and exploitation of ICTs by small businesses produced a model, which was based on Venkatraman’s variables identifying the levels of Internet integration, starting from the inter-organizational level to the full benefits of full organizational integration. The authors however, suggest that the business transformation process starts with the inter-organizational dimension, rather with local exploitation. The suggested model is relevant but also limited as it focuses only on the effects of Internet integration to small businesses, while it does not present a specific BM change methodology.

![Figure 2. Poon and Swatman’s Internet-to-internal applications systems integration](image)

Linder and Cantrell (2000) identified that most BMs are under constant pressure to change. Innovations in technology, changes in the law, competitive moves, or shifts in consumer tastes can sap an operating model’s profitability. Based on empirical data they presented four basic types of change models: realization, renewal,
extension, and journey models (Table 2). They define a change model as “the core logic for how a firm will change over time to remain profitable in a dynamic environment”. However, their approach is rather generic and does not address specifically the issue of BM change due to ICT integration. Furthermore, there is no reference to the management of the change process, an issue discussed thoroughly by Pateli and Giaglis (2005).

Table 2. Linder and Cantrell’s basic types of change models

<table>
<thead>
<tr>
<th>Realization Models</th>
<th>Renewal Models</th>
<th>Extension Models</th>
<th>Journey Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand maintenance</td>
<td>New service offerings</td>
<td>Backward integration</td>
<td>Commoditization: from product to price</td>
</tr>
<tr>
<td>Product line extensions</td>
<td>New brands</td>
<td>Forward integration</td>
<td>Globalization</td>
</tr>
<tr>
<td>Geographic expansion</td>
<td>Untouched markets</td>
<td>Horizontal integration</td>
<td>Avoiding commoditization: from product to service to solution</td>
</tr>
<tr>
<td>Penetration</td>
<td>New retailing formats</td>
<td></td>
<td>Up market in products: from price to speed and agility</td>
</tr>
<tr>
<td>Incremental product or service line expansion in one-stop shops</td>
<td>Disruptive new product or service platforms</td>
<td>Externalizing an internal capability</td>
<td>Up market in services: from price to brand or expertise</td>
</tr>
<tr>
<td>Additional sales or service channels</td>
<td>Roll up</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In their paper, Pateli and Giaglis (2005) proposed a stepwise methodology, which allows companies to design alternative scenarios for BM evolution or extension under the impact of technology innovation (Figure 3). Having identified the limitations of previous methodologies for BM change (Petrovic et al, 2001; Kulatilaka and Venkatraman, 2001; Pramataris et al, 2001), the authors constructed a 3 phase comprehensive methodology, which is supplemented by a series of factors favoring scenarios for BM development. The advantage of this methodology compared to other BM change models is that, it can be applied to unstable business environments as it incorporates scenario planning, which aims at reducing the level of risk in BM transformation. The first phase is a detailed documentation of the current business model. Tools, such as Osterwalder’s (2004) design template, can be used to provide a complete understanding of the operations and the relationship between the key elements comprising the BM. The second phase is decomposed into two different steps, the assessment of the influence of technology innovation and the identification of the missing roles. Those two factors are combined to identify the technology’s influence to the current BM. Change is completed in the third phase of the methodology, which comprises three distinct steps, defining scenarios, describing the new BMs and evaluating the impact of changes. However, Pateli and Giaglis (2004) admit that although the aforementioned steps define a well-grounded methodology for BM change under the impact of technology innovation, they are by no means sufficient on their own to guide the BM design effort. This is why they add a series of industry-related and firm-specific factors that help the company to assess scenarios more effectively (Table 3).

Table 3. Factors favoring scenarios for BM development

<table>
<thead>
<tr>
<th>Industry-Related Factors</th>
<th>Firm-Specific Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry structure</td>
<td>Strategic objectives</td>
</tr>
<tr>
<td>Balance between transaction costs and costs of internal development</td>
<td>Firm capabilities and assets</td>
</tr>
<tr>
<td>Type of players</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3. Pateli and Giaglis’ scenario-based methodology for BM change

The firm and industry’s unique characteristics are balanced carefully, helping the organization to choose the right scenario to evolve into its future BM. The methodology suggested by Pateli and Giaglis (2005) allows the company to identify its current BM, evaluate its ICT options, move safely to the realization of the new BM through scenario analysis, and evaluate the effectiveness of the new BM. As the authors suggest, its real value lies in the fact that it incorporates two novel features. First, the design of future BMs is based on the identification of a set of scenarios for alternative cooperation schemes among the involved parties and second, it includes a thorough analysis of the resulting BMs. The authors use as a real life case study, involving the commercialization of a mobile application, but it would be quite interesting to test if the theory can be applied to other industries as well, in our case the entertainment and gaming industry and more specifically to a land based casino.

3. THEORY APPLICATION TO A GAMING ORGANIZATION OPERATING IN THE ENTERTAINMENT INDUSTRY

Founded in 1994, Regency Entertainment S.A. focuses its business activity on the establishment, operation and management of casinos (Regency Casino Thessaloniki and Regency Casino Mont Parnes) and luxury hotel complexes (Hyatt Regency Thessaloniki). As leader in the Greek gaming market, Regency Entertainment has faced the challenge of incorporating ICTs in its operations, significantly evolving its BM. ICT advancements, such as the transition from analog to digital recording, the introduction of new processors in slot machines, the installation of the CasinoLink and TITO (Ticket in-Ticket out) systems, the introduction of the automatic card shufflers, the operation of automated touch bet roulettes, as well as other ICT developments, have gradually changed the organization’s BM to its current situation.

The transformation was based on rather operational than theoretical grounds, and under the light of Pateli and Giaglis (2005) suggested methodology, it would be useful to test if the theory applies to our selected case study. Owing to space limitations, we will use the example of the Slots Accounting System (SAS) protocol implementation, an automated system for reporting, event logging, player tracking, ticketing and cashless
gaming. A SAS networked slot machine, using the TITO system, prints out a bar-coded slip of paper, which can then either be redeemed for cash, or inserted for play into other TITO machines. The machines utilize a barcode scanner built into the bill acceptor, a thermal ticket printer in place of a coin hopper, and a network interface to communicate with a central system that tracks tickets.

3.1 Step 1: Document the Current BM

The first step would be to create a blueprint of current operations. Using a BM analysis framework, such as Osterwalder’s (2004) design template, would provide a clear picture of the current business environment. The identification of the key actors operating in the current BM could act as the basis for the forthcoming change. More specifically, regarding slots operations, the key actors were:

1. Slots attendants, who were attending the customers, carrying out hand pays, and making sure the slot machine operates optimally (hoper fills, etc.).
2. Slots supervisors, who would supervise and direct the attendants to carry out hand pays.
3. Cage staff, who exchanged tokens with cash and provided the cash for attendants’ hand pays.
4. Hard count department, who counted and prepared the rolls of tokens.
5. Security staff, who escorted the attendants for the hand pays.
6. Surveillance, who monitored the hand pays.
7. Customers, who had to interact with attendants for hand pays, or with the cage staff to exchange tokens with cash.

3.2 Step 2: Assess the Influence of Technology Innovation

This step aims at defining the benefits arising from the introduction of SAS and identifying the elements of the current BM which would be most affected by technology innovation (Table 4).

Table 4. Expected benefits for key actors

<table>
<thead>
<tr>
<th>Key Actors</th>
<th>SAS Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot attendant</td>
<td>Reduced-eliminated hopper fills, simplified hand pays</td>
</tr>
<tr>
<td>Slot supervisor</td>
<td>Enhanced reporting through central accounting system</td>
</tr>
<tr>
<td>Cage staff</td>
<td>Less workload, no tokens buckets, ease of pay through bar-coded tickets and ATMs</td>
</tr>
<tr>
<td>Hard count dept</td>
<td>Withdrawal of tokens, elimination of the department</td>
</tr>
<tr>
<td>Security staff</td>
<td>Reduced escorting for hand pays</td>
</tr>
<tr>
<td>Surveillance</td>
<td>Reduced monitoring for hand pays</td>
</tr>
<tr>
<td>Customer</td>
<td>Increased play time with reduced wait time, resulting in greater player satisfaction. Ease of pay through ATMs</td>
</tr>
</tbody>
</table>

3.3 Step 3: Identify Missing Roles

If the organization planned to exploit the SAS technology, it would have to identify the missing roles in its operations. Those were:

- Hardware related, as the organization did not have the know-how of building a SAS system.
- Software related, as the organization could not develop the right application to support the hardware.
- Installation, configuration and maintenance issues.
- Operating issues and reporting, that would involve training from the system vendor.

All the above missing roles would have to be supplied by a new actor, either developed internally or through outsourcing.
3.4 Step 4: Define Scenarios

At this stage, the organization is called to define all possible scenarios for BM change, having already defined the emerged missing roles. One of the novelties of Pateli and Giagli’s model (2005) lies exactly in this phase. The organization minimizes the risk of a deficient BM change by simulating different scenarios, which are based on a combination of industry-related and firm-specific factors.

In our case, the market in which the redesigned BM would operate would still be oligopolistic and the costs of internal development of a SAS system would dramatically exceed the costs of outsourcing. The market is dominated by private organizations, which would probably mean low chances of long-term differentiation, as a competitive me-too strategy would wait just around the corner.

Regarding the firm-specific factors, the organization would follow a combination of a differentiation strategy through the provision of value-added services and a cost effective strategy through the reduction (or even elimination) of costs, as well as the reallocation of resources. Furthermore, the organization’s capabilities would allow the operation of advanced ICTs, if those were acquired by a partner.

Following the decision to outsource the SAS protocol to International Game Technology (IGT), two scenarios emerged. The first scenario would include the installation of the E-Z Pay system (TITO system described above) vs. the second scenario, which would use the Advanced Funds Transfer (AFT) technology, also known as cashless gaming, which is a secure technology incorporating players debit card accounts.

3.5 Step 5: Describe the New Business Models

Both alternative scenarios would lead to different configurations of the new BM. According to the proposed methodology, a detailed description of the emerging BMs would have to be given in terms of actors, their roles and responsibilities, the market scope, the relationship model, the revenue model, and the critical success factors (CSFs) for the BM implementation.

Since it was decided to outsource, a new actor entered the BM, in the form of a partner, leveling the cost factor for both scenarios. Nevertheless, the relationship between the organization and the new actor would have to be described analytically in the new BM construct. Both BMs are changing the role of the actors, enhancing the customers’ experience and creating important benefits for the organization. The main difference between the TITO and the AFT system is the number of cash transactions, as the cashless system introduces a debit card account offered to the customer, thus reducing the printouts and the use of physical cash notes. This fact, as well as the legislation, which allows the government to monitor the accounts on the AFT system, led to the selection of the TITO based BM.

3.6 Step 6: Evaluate the Impact of Changes

The impact of TITO implementation in the Greek market is difficult to measure, as it was only allowed by the Greek government in 2008 and Regency Casinos were the first (and only so far) to adopt it. Furthermore, the effect of the economic crisis can lead to misleading conclusions. Nevertheless, the fact is that Regency has changed its BM and all key actors are currently enjoying the benefits of ICT integration mentioned in Table 4, even though they are not yet quantified.

4. CONCLUSION

This research aimed at describing the change of BMs under the influence of ICT integration. Business practice has proved that there is a positive correlation between ICT integration and BM effectiveness, henceforth there is great interest on how new technologies contribute to BM transformation. A comprehensive definition was provided, as well as conceptualization models to define and describe the BM and its components. However, the dynamic nature of ICT development could not be depicted in the static BMs. As a result, new models had to be designed adopting the new technologies. Complementing the previous generic frameworks, Pateli and Giagli’s contingency approach was used to describe the management of change into a new BM, taking into consideration additional industry and firm factors. In
order to verify this comprehensive framework, a case study of a leading entertainment company was employed. The findings suggest that a BM change process can follow the stepwise approach of Pateli and Giaglis, resulting in risk minimization and efficiency maximization in the newly emerged BM.

REFERENCES


