

TRANSFORMATION OF TRADITIONAL BUSINESS TO ELECTRONIC BUSINESS

A transformation cum maturity model and transformation matrix

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Abstract: Electronic business provides many benefits to organizations that embrace on it. It is true that ebusiness improve business processes, integrate business processes and its corresponding value chain, give speed to internal and external organizational activities etc, but it poses the greatest challenge to today's organizations to transform their traditional businesses into electronic business. To assist organizations, in making successful transformation to ebusiness, in this paper, we first distinguish between electronic commerce and electronic business on the basis of three parameters of scope, support and technology. After that ebusiness transformation cum maturity model is proposed, whose five levels acts as a benchmark to assess an organization at different maturity levels. Emphasis is not given on discussing maturity levels, but on the transformation stages that acts between any two levels of maturity. For this purpose, transformation matrix is proposed, which will guide organizations to take critical organizational and information technology (IT) domains into consideration during each transformation stage.

1 INTRODUCTION

As we enter into the 21st century, the importance of Information Technology (IT) is felt more and more. One of its promising technology is computer networks and internet. From the first day of its commercialization, internet has changed our lives in many ways, for example the invention of e-mail removes the concept of distance from communication, the concept of electronic marketplaces has removed the concepts of physical location for businesses, any kind of information is just a click away etc.

The impact of all of these technologies is felt more as we make progress in our daily lives, but the biggest impact of internet technologies is felt on

business scenario. Businesses always try to leverage new technologies in order to remain competitive in the marketplace. Internet has been used by the business entities more than any other entities in the form of e-commerce and e-business.

e-commerce is the buying and selling, and marketing and servicing of products, services, and information over a variety of computer networks (James,2001), while as e-business is the use of internet and other networks and information technologies to support e-commerce, enterprise communications and collaboration, and web enabled business processes both within an internetworked enterprise, and with its customers and business partners (James,2001). Although the definitions

	Scope	Support	Technology
e-commerce	Narrow	Partial	Less
e-business	Broad	Wide	High

Figure 1: Shows the difference between e-commerce and e-business

distinguish between the terms but many of us still use the two terms interchangeably, therefore more robust way is needed to clearly distinguish between the two terms.

2 DISTINCTION OF E-COMMERCE AND E-BUSINESS

In this section we will try to make an explicit difference between e-commerce and e-business on the basis of there parameters of scope, support and technology (systems) as shown in figure 1. As far as e-commerce is concerned its scope is narrow, facilitates different types of transactions, whereas the scope of e-business is broad, not only encompasses the e-commerce transactions but facilitates the effective communication and collaboration within the enterprise and with external environment (suppliers, partners, customers). Another difference between ecommerce and ebusiness can be drawn on the basis of support, ecommerce supports only part of an enterprise, it can bring web initiative benefits to sales and marketing departments but ebusiness supports the whole enterprise, in its broadest sense ebusiness gives rise to an enterprise which works only on electronic platform. All of its departments are interconnected, databases are consolidated, and more transparency exists between ebusiness enterprise and its suppliers and partners. Another parameter that can be used to distinguish between ecommerce and ebusiness is technology. Ecommerce may need less technology dose, systems are needed only to handle online ordering, customer service queries etc via the website of an enterprise. But ebusiness certainly requires high technology dose. To reep the benefits of a true ebusiness in addition to systems needed for ecommerce, an enterprise may also need to install an ERP system for internal consolidation and SCM and CRM systems to provide for the integration with the external environment.

After taking into consideration the above parameters we are able to define the ecommerce and ebusiness in a robust way. Thus we define ecommerce, as the internet or web enabled platform, having narrow scope, supporting the enterprises partially, requiring a less technology dose to facilitate the transaction on the net.

Whereas ebusiness is the platform having broad scope, supports the whole enterprise, and requires high technology dose to support all the business functionalities of an enterprise. After differentiating

between the two terms, in the next section we will look at how enterprises use these platforms and what problems they encounter when leveraging the web.

3 RISE AND FALL OF DOTCOMS

In 1990s, much of the hype was created for ecommerce or dotcom sites. Almost every organization or business was in a rush to set up its own website. They thought this new model of doing business was profitable without thinking about say, how a traditional business can be transformed on this new platform. With the old mindset they tried to copy their old business models simply on the net. In this blind rush organizations increased their IT spending and uploaded the company websites in the shortest possible time. This phenomenon gave rise to the new generation of business, where business could be done almost virtually e.g Amazon.com, ebay.com etc. This way of doing business virtually was called what we know today as ecommerce. After ecommerce, organizations started expanding their web initiatives to outside suppliers and partners also, thereby giving rise to ebusiness, where all of the business was done on the web. But by the year 2000 it became clear that leveraging the benefits of web, simply by setting up a site was not enough. Dotcoms started falling one after another. Businesses were forced to file for bankruptcy, take down their websites etc. The situation became so critical that many industry experts said that the ecommerce era was over. After the downturn of ecommerce it was the turn of some ebusinesses to post the problems for survival.

4 REASONS OF FAILURE

At the same time when newly born dotcoms had crippling situation, Boston consulting group mentioned that the primary cause of failure of dotcoms was not the bad execution but bad thinking. The majority of companies held the misguided belief that speed and scalability should take primacy over the principles of strategy (BCG,2002). An internet business will work only if its business management strategies are properly integrated into a carefully considered plan, built on a foundation of realistic and attainable goals and objectives (Raymond,2001). Also IT strategy must be in place in order to execute the business strategy, therefore business strategy and IT strategy must be given importance while planning for any web initiative.

5 IMPORTANCE OF BUSINESS STRATEGY AND IT STRATEGY

For any business it is necessary to have a sound business strategy, the same is true for web businesses. The business and its management must have clear vision and must be fully aware of its strategic objectives and goals. They must devise strategies to attain their strategic goals and objectives. The basic principle of a traditional business management team was the development of a strategic plan in order to give the business a competitive advantage in the marketplace. As the rules of doing business in the digital economy may have changed but the basic principle remains the same even for businesses operating in today's modern era i.e the development of the proper strategy to give the business a sustainable competitive advantage. It is true that doing business electronically has had its advantages of cost reduction, removing the barriers of "place" of doing business, reducing time to market for different products and services, but at the same time has created some constraints in the form of increasing customer and partner agility, threat of new entrants, imitating the existing business models by competitors. This makes the importance of business strategy more important for today's web businesses.

Another important factor that must be given proper attention is the technology counterpart of business strategy i.e IT strategy. Ebusiness must make full use of different information technologies in order to operate on and execute its business strategy. Therefore every business, ambitious of being a full blown ebusiness must have an IT strategy in place. All of the decisions relating to IT are made on the basis of IT strategy e.g project portfolio, portfolio of different projects is made in order to prioritize the feasible projects, IT budget allocation, IT budget must be allocated to projects bound to give a strategic help to the company in the form of ROI both tangibly and intangibly. If IT strategy is in place, enterprises don't throw money blindly on IT but they tend to rationalize their IT investments to those projects only which seem to be promising and feasible according to

both the management team as well as IT management team.

Keeping all the above discussions in mind, it is not an easy task to transform a traditional business to ebusiness without rigorous planning. Transformation to ebusiness must be tackled with more sensitivity because the fate of the whole business depends upon this transformation. Therefore we must have a proper model and methodology to led the transformation of an ordinary business enterprise to an ebusiness enterprise. Much of the literature written on web based businesses discuss the ecommerce issues and many researchers have proposed maturity models for ebusiness, but there is a need to discuss the transformation period, which exists between any two levels of maturity. This transformation stage is more important than maturity level because drawn from the natural analogy of a human being, we say that a human becomes a mature person at some stage but we are unable to appreciate his/her transformation period from less mature level to more mature level. In this period a human being is able to sense his/her environment in a novel way, becomes more mature internally, stores the sensed environment in his mind and due to the process of cognition draws upon the new conclusions and becomes more mature.

The same is true for an organization, therefore to reach a more mature level, organization must go through a transformation period, in which it is able to sense its environment in a new way, is consolidated internally, learns from the experiences etc and makes the transition from one level of maturity to another.

In order to assist an organization to make its way to ebusiness paradigm, in this paper we not only propose a maturity model for ebusiness but its more important stage, the period of transformation from one level of maturity to another level is discussed fully but for this purpose a transformation methodology which will guide the organization to transform and make the transition from one level to another level of maturity is also proposed. During the process of transformation, the proposed transformation matrix will guide the organization to consider the critical organizational and IT domains for successful transformation.

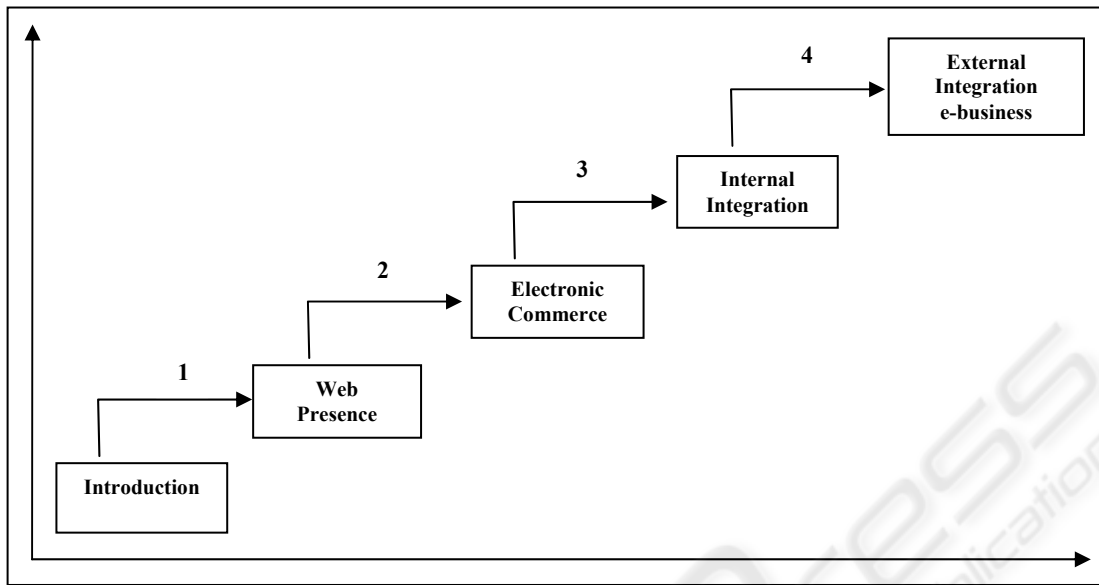


Figure 2: e-business transformation cum maturity model

6 INTRODUCTION TO MATURITY MODEL

Taking the complexities of an ebusiness into consideration, it is obvious that it is impossible for any business to become ebusiness in days or even in months. Any business that wants to tap the web based opportunities to do the business must go through a kind of an evolution. This evolution is sometimes called the maturity. The model shows the different levels of maturity prior to becoming an ebusiness. we also propose such a model but we will call it a transformation cum maturity model, because apart from mentioning the levels of maturity our model also address the issues of transformation form one level to another.

As shown in maturity diagram or figure 2, there are five levels in this model namely, Introduction, web presence, electronic commerce, internal integration and external integration or electronic business. It is necessary for any business to go through the first four levels prior to becoming a full blown electronic business with its external integration at the fifth level. One of the goals of writing this paper was to distinguish clearly between ecommerce and ebusiness and, on the maturity diagram, where does both of them fall, that is why, 2nd and 4th levels are named as electronic commerce and electronic business respectively.

At the introduction level which is also the zeroth level, organization introduces itself to web community via other companies websites. On the first level, the web presence level, an organization develops and uploads its own website. At second level, the electronic commerce level, organization starts offering the online sale of its products and services. With the help of Internal integration the organization is consolidated internally at the third level. Finally at the fourth level, external integration or ebusiness level, with the integration of an organization with its external environment, the organization becomes an electronic business. More about say, what the organization do at each level is disclosed while discussing the transformation stages in the coming sections.

Business Infrastructure	T3	T4
Business strategy	T1	T2
	IT strategy	IT infrastructure

Figure 3: transformation matrix

In the maturity diagram, five maturity levels give rise to four transformation stages. First transformation stage exists when organization is

transformed from level 0 to level 1. Second stage exists when organization transforms from level 1 to level 2, the third one from level 2 to level 3, and the final stage of transformation exists when the organization transforms from level 3 to level 4. These transformation stages are more important because all the activities that must be done to make an organization mature is done in the transformation stages. This does not mean that maturity levels are less important because on one hand the maturity levels can be used as the benchmark for an organization on its way to become ebusiness and on the other hand these levels can be used to assess the strategic objectives and goals at each level.

7 INTRODUCTION TO TRANSFORMATION MATRIX

Four stages of transformation are mapped onto the transformation matrix, that shows the critical domains of organizational setting and IT, that must be taken into consideration at each stage of transformation. This matrix consists of two organizational domains i.e business strategy and business infrastructure. These two domains are shown on the vertical side of the matrix. Apart from business strategy and business infrastructure their IT counterparts are shown on the horizontal side of the matrix. These IT related domains are IT strategy and IT infrastructure. The transformation matrix is shown in figure 3.

During each transformation stage the organization lies in one of the quadrants of the transformation matrix e.g during first transformation stage from level 0 to level 1 the organization is placed in the lower left quadrant of the matrix. Each quadrant of the transformation matrix is marked with the respective number of the transformation stage of the organization. The matrix is used to assess the important organizational and IT domains which must be taken into consideration during each stage of transformation.

8 ORGANIZATIONAL TRANSFORMATION TOWARDS E-BUSINESS

Now we will discuss the various transformation stages that an organization must go through to become a full fledged electronic business.

8.1 Organization at level 0

Any business on its way to start the journey towards ebusiness is placed on the zeroth level on the maturity diagram. At this level organization introduces itself to the web community via other organization's websites. It just introduces its products and services to web surfers. During this stage the emphasis is given on advertising the organization. Organization in this stage does not maintain its own website. The management of the company accesses the potential of internet platform for their business. The organization may or may not have a particular business strategy for web in place at the zeroth level.

8.2 First transformation stage and transition from level 0 to level 1

After introducing itself to the web community, the organization starts its first transformation stage which will provide a way to the organization to make a transition from zeroth level to first level on the maturity diagram. During the first transformation stage the organization lies into the first quadrant of the transformation matrix and its associated critical organizational and IT domains are business strategy and IT strategy. These two domains must be given emphasis during this stage. This stage is the most important and crucial to the future overall health and performance of an organization, because important decisions are made during this stage. As shown by the first quadrant of the matrix, the vertical organizational domain of concern is business strategy and the horizontal IT domain of concern is IT strategy. During the whole process of first transformation the organization remains in between zeroth and first level of the maturity diagram.

During the first transformation stage the top management of an organization establish the "vision" for the whole organization. Vision shows the desirable state of an organization at sometime in future. Establishing a vision gives answer to the questions of type, say "where an organization will be after 10 years from now". vision is often the long term achievement, acquired by an organization and it is formally stated in the form of an organization's vision document. On the basis of vision, the business strategy of an organization is developed. Business strategy must be developed in accordance with the vision of the organization, if this is not done so, the organization may not be in the desired position in future. Business strategy gives the answer to "what" type of questions such as "what should be done in

order to achieve a market share of 10 percent for a particular product segment". It is important to devise the business strategy in consensus with the various departmental heads, because ebusiness is going to change the way of doing business in all of the departments. Therefore there arises the need of communicating the vision and business strategy to the organizational members in order to have a common understanding about the overall strategy of an organization.

Business strategy consists of three components business scope, distinctive competencies, and business governance. Business scope, focuses on the type of business the organization is engaged in, the products and services it offers, market segmentation, competition and the values and mission of the organization. Distinctive competencies include the areas in the company excels i.e its distinguishing strengths. The third component, business governance, focuses on ownership. It specifically looks at the establishment of business alliances and partnerships with other firms, government regulations and their effect, as well as outsourcing strategies (Raymond, 2001).

Company wide business strategy is reciprocated on the technological side by its IT counterpart i.e IT strategy. IT strategy is devised out of the business strategy of the organization. Importance must be given to IT strategy because it is the IT strategy which tell us how to implement the business strategy in its real context.

IT strategy consists of technology scope, systematic competencies, and IT governance. Technology scope, like business scope, focuses on the key technologies and applications the business should and / or must employ. Systematic competencies include information about the company's customers and clients, accessibility, reliability, and other vital characteristics and strengths of information technology. The third component, information technology governance, addresses many of the same issues as business governance. Specifically, it focuses on the decision to make-or-buy, the prioritization of applications, and the possibility of technological alliances and partnerships including outsourcing (Raymond,2001).

As, organization wants to make a web presence of its own at level 1. Therefore a website must be installed and maintained by the company. The model of the website is developed, implemented and uploaded, and the company makes its first transition from zeroth to first level successfully.

At its first level a company has acquired a web presence of its own and starts giving out the information about its products and services. The focus at this level is on information dissemination rather than information collection. E-mail contacts are maintained with the customers. It is after the successful transition to this level that, the organization starts thinking about the next stage of transformation.

8.3 Second transformation stage and transition from level 1 to level 2

The next phase of transformation will take the company to second level on the maturity diagram. Our transformation matrix say that the organizational and IT domains of concern during this transformation stage are business strategy and IT infrastructure.

IT infrastructure consists of information technology architecture, processes and skills. Information technology architecture includes the hardware, software, data, applications, and communications platforms that the organization uses to achieve its information technology and business strategies. The processes focus on the development of specific information technology practices and how they can be improved. They include application development, systems management, and maintenance functions. The final component, information technology skills, addresses the experience, competence, and values of technology employees. It includes the information technology culture and its associated norms, employee salaries, and hiring and training practices(Raymond,2001).

At the second level of maturity, the company wants to be engaged in electronic commerce. Therefore there is the need of many IT systems to facilitate this type of commerce. The company must be able to offer transactions online, communicate with its customers, provide for purchase of goods and services online. Thus the two domains of transformation matrix must work closely in order to make the transformation successful. Organizational domain (business strategy)mentions the requirements for IT infrastructure, it sets out the assessment / performance metrics to evaluate the performance, budget is allocated for different ecommerce initiative. On the technology side IT infrastructure is laid out (either developed or acquired). Electronic commerce projects are implemented that facilitate the transactions on the website, databases are built to collect information,

steps are taken to offer customer service through the website.

At level 2, actual transactions are facilitated on the company website, databases collect the required information, customer service is maintained through the website also. In other words the company enters into the real ecommerce paradigm. Ecommerce also includes ordering, payment and customer service on the worldwide web.

8.4 Third transformation stage and transition from level 2 to level 3

In order to move on its path to ebusiness, the organization must transform itself further and make smooth transition to level 3 of maturity diagram, where business infrastructure of the organization is revised or reengineered. During this transformation stage the organization lies into the third quadrant of the transformation matrix. Here the organization and IT domains of concern are IT strategy and business infrastructure. During this transformation business infrastructure is reengineered on the basis of IT strategy of an enterprise. In other words organization's business infrastructure must be properly aligned with its IT strategy.

Business infrastructure or organizational infrastructure is comprised of three components namely, administrative structure, processes and skills. Administrative structure consists of the authority structure, responsibilities, and roles within the organization. Business processes are those activities that drive the business. They determine the extent to which work flows can be integrated with respect to information technology. Business skills, the third component, focus on the human resources of the firm. (Raymond, 2001).

At this stage the business processes are based on the old philosophy. On one hand the business processes are changed or improved in order to accommodate the IT flavor in them, and on the other hand policies are drawn, to integrate each and every functional department to each other. In this way information flows across the organization freely and high levels of efficiency is acquired across the organization.

During this stage of transformation, traditional business infrastructure is revised, management commits itself to led the internal organizational change, new business infrastructure is assessed for

viability, change management policies are stated on the organizational front.

One of the strategic business values of IT is its role in making major improvements in organization's business processes. Investments in information technology can help make a firm's operational processes substantially more efficient, and its managerial processes much more effective. Reengineering and making other improvements to its business process could enable an organization to cut costs, improve quality and customer service and develop innovative products and services for new markets. So business process reengineering (BPR) combines a strategy of promoting business innovation with a strategy of making major improvements to business processes, so that the organization can become much stronger and more successful competitor in the marketplace(Turban,1999).

Another strategic value that IT gives to organizations is its capability to integrate various functional departments. This is facilitated with the help of an enterprise resource planning (ERP) software. ERP consolidates all the different databases of various functional departments and makes one organizational database. All of the departments are connected to the organizational database, thereby providing the necessary transparency between the departments. In this way, departments work more collaboratively and exchange of information between departments is greatly enhanced.

At this stage the organization is internally strong and works efficiently, because work is done in a new way and organization is almost integrated internally. Now the only remaining goal to become ebusiness is organization's integration with its external environment i.e suppliers, partners, and customers.

8.5 Fourth transformation stage and transition from level 3 to level 4

This transformation stage is the fourth and final stage for an organization in its way to become ebusiness. At this stage according to our transformation matrix, the domains of concern are the IT infrastructure and business infrastructure. This means that internal IT infrastructure in combination with business infrastructure is used to facilitate for the external integration of the organization.

This is done in a way that organizational database is connected via the extranets to the databases of different suppliers and partners. In this

way the IT infrastructure arises between the organization and its external environment.

At this stage on organizational side, possibility of integration with outside suppliers, partners, and customers is assessed, policies for integration is mentioned, further change management policies are devised, managers manage the organization electronically. On the operational side, all business activities are done electronically, organizational database is integrated with the databases of suppliers, partners and customers, more robust IT systems are introduced to enable full blown electronic business, organization becomes more transparent.

In this stage systems such as supply chain management (SCM) may be installed on the back of ERP to facilitate the electronic procurement etc and also electronic customer relationship management (eCRM) may be employed to manage the relationships with customers electronically. Therefore after a long journey from zeroth level to fourth level on the maturity diagram, we can say that the organization is qualified as being called an electronic business enterprise.

9 CONCLUSION

Many conclusions can be drawn from this paper, but the most prominent of them all, is that we must not see the ebusiness as just the technology, but we must give emphasis on its foundations i.e its underlying strategy. Strategy is one of the most important weapon through which all of the business wars can be won. Therefore it is important for any organization to have a proper strategy in place for any IT initiative and especially for ebusiness initiative, because it is considered to be the next frontier of business.

Also an organization cannot make an overnight transition from traditional business to ebusiness, that is why we must have a proper path to follow to facilitate this type of transition. The proposed transformation cum maturity model can act as the benchmark for this transition. Moreover the transformation matrix will give the required direction at every stage of transformation.

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