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Making Sense of E-business in Developing Countries

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Making Sense of E-business in Developing Countries

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INTRODUCTION

This report addresses some of the questions encountered when analysing e-business and its effects on the business environment, specifically in developing country contexts. It seeks to:

- Put things into perspective: What is e-business and how can it affect your organisation? What is the scope of issues that are involved with e-business? Some aspects of business are clearly affected when an organisation decides to integrate e-business into its strategy, whilst some are affected more subtly - and of course there are even some issues not touched at all.
- Provide a structure to work with e-business: A three-pronged strategic framework is presented with which to develop a successful e-business solution. This is made up of:
 1. A **four-stage growth model** that helps identify what issues are relevant for each unique situation and how they can be handled;
 2. An **e-business process cycle**;
 3. The **Integrated Architecture Approach** that helps answer questions on each aspect of an e-business (strategy, content, services, technology).
- Provide a frame of reference that helps to stimulate creativity.

Although this simple framework and guidelines will not guarantee e-business success, they may help entrepreneurs understand the context and complexities of e-business.

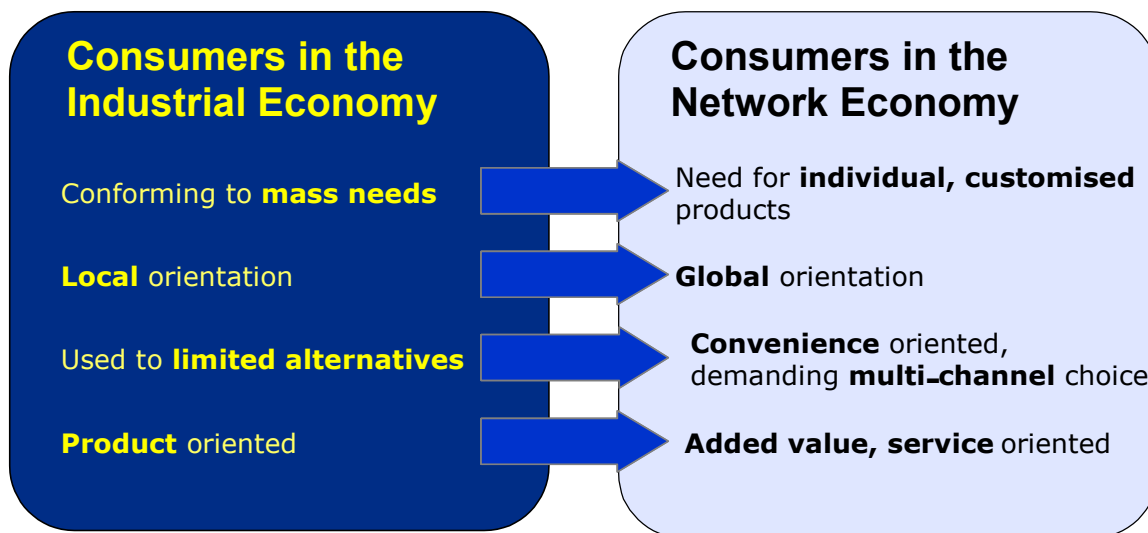


BUSINESS STRATEGY AND THE NETWORK ECONOMY

We are at the beginning of a 'network revolution' - an economic and social transition comparable to the Industrial Revolution

The 'driving force' behind e-business is the so-called **Network Economy**. As opposed to the *supply chain economy*, in which the product has a central position and consumers' choices are strongly determined by the *product* positioning, in the *network economy*, the *consumers'* position is central. The individuals' wishes drive the activities of the total demand-network. This can also be described as a *push* versus a *pull* strategy: in the traditional, "supply-driven" economy, consumers can be *pushed* by retailers towards certain products. In a *pull* economy, it is demand that drives consumers towards certain products, as consumers decide where on the Internet they decide to go, and *pull in* only those products that they specifically want. An e-business, selling products through the Internet, is much more dependent on specific consumer demand.

The following illustration presents the changes of the consumer in the traditional economy compared to the network economy.



The essence of the network economy is the position of the customer. However, a prerequisite is that the customer has access to the network, in this case to the Internet. This puts countries where Internet access is limited in a special position. The communication infrastructure that is often considered a basic commodity in the western world is not the same elsewhere on the globe. Therefore, the type of services provided by e-businesses in developing countries need to take these factors into account and provide alternative sales mechanisms. The growth model later on in this document may help an entrepreneur make such strategic choices.

E-business entrepreneurs need to be aware that many of their potential customers may not be in their geographical vicinity – they can be located anywhere. An e-business should therefore not only address the needs of local customers. This places additional demands on the e-business, but also provides opportunities to access a broader market, as we will see later in the paper.

E-businesses in developing countries specifically targeting local markets must have additional facilities available to overcome their customers' lack of access to the Internet. Examples of such facilities are telecentres, community access centres or transaction intermediaries (agents).

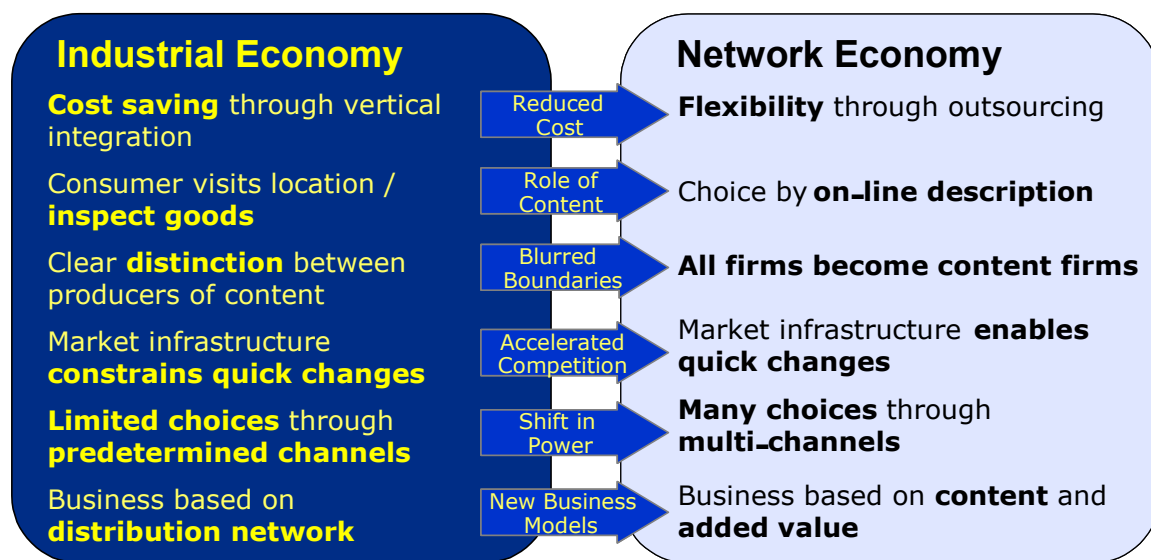
A more structural solution is the expansion of the communication infrastructure in such a way that everybody has access to the Internet. This is a separate discussion in itself and is addressed elsewhere (see: www3.wn.apc.org/africa/ or www.iabin.org/document/internet/report.html).

Significant Changes to Business Characteristics

Responding to the changes involved in the network economy, organisations are inventing new ways of marketing, selling and partnering, as new business models are required to address customer demands.

The overall trend is that the physical walls of organisations become less and less important. Organisations become part of a greater 'network' where they communicate with different actors in a much more flexible and transparent way than before.

The challenge is to invent a way of adding these possibilities to the existing structures. This often leads to a re-evaluation of the businesses' *core competence* and *strategy* (for example, do we want to be 'content-firms' as well as 'product providers', or can we outsource one of these?). There is a general trend where companies provide value-added services as part of a value-chain, instead of producing products. The following diagram reflects the migration of aspects of commercial and social activities from the physical world to interactive, digital networks:



Changes Enabled by a Technology Push

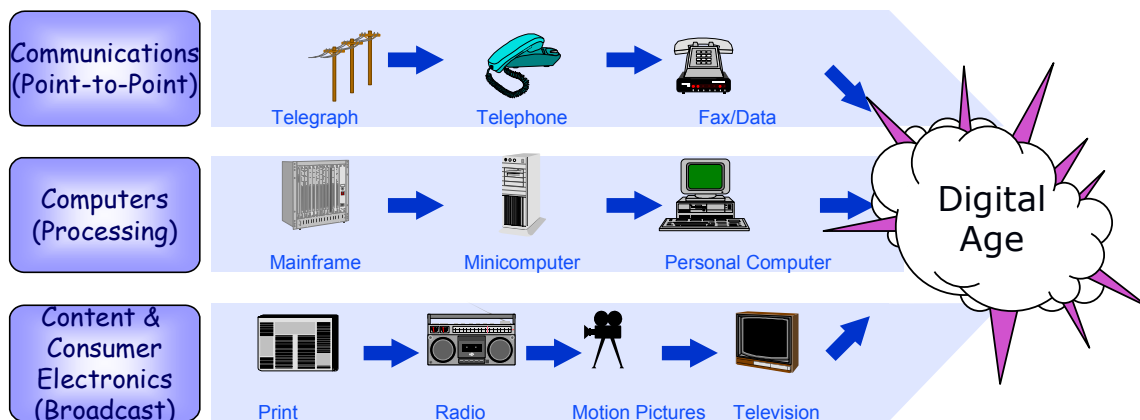
Technology developments have catalysed a number of strategic movements in the business environment, affecting the interaction between products, businesses and customers.

Converging Channels

The *enabling technology* comprises the supply-side of the equation. Many of 'new technology' channels are *converging* or coming together into a single medium: the Internet. Two common examples point out the effect this convergence will have on the way we do business.

First, communication media such as fax, data, voice and video can increasingly be transmitted through the same infrastructure. Internet protocol and other open protocols will be the infrastructure of tomorrow's communication, carrying different types of content (text, sound, images and figures) and various applications, from e-mail to complex distributed control systems.

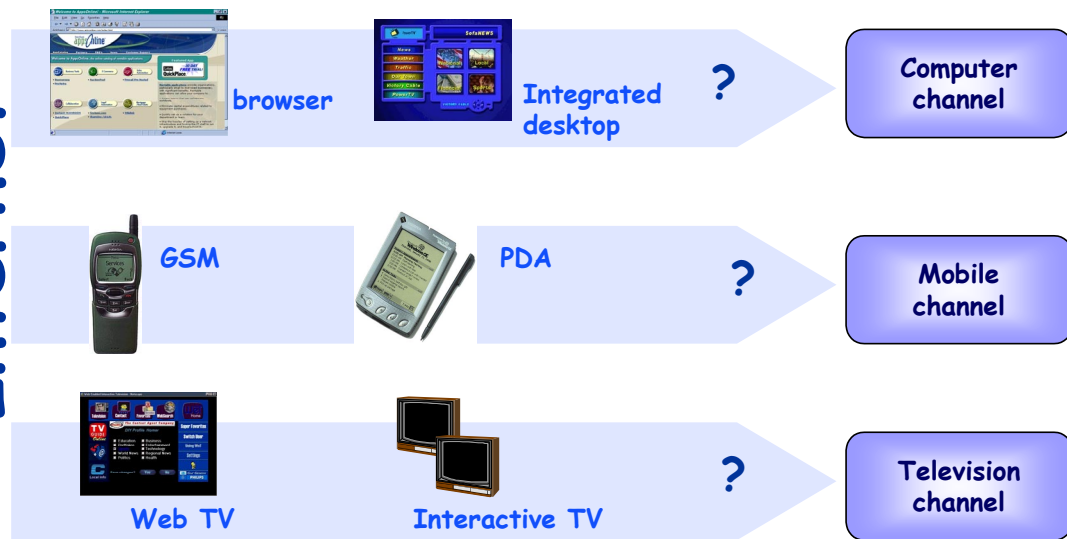
Second, access to (for example) educational content from geographically distant schools and universities, brings learning materials and opportunities closer to those that were previously excluded. Where formerly the physical distance (and cost) was too high to obtain these materials, new technologies, like the Internet, could help make them more accessible.



Diverging Channels

Thanks to improved interfacing mechanisms, the same digital information can be accessed from different devices (computers, faxes, mobile phones, handheld devices, etc). This also makes it increasingly simple to obtain information, to order a product or simply to do a task, irrespective of one's geographic location.

Internet



DEFINING E-BUSINESS

What is e-business, and what is its impact? How can it be positioned in an organisational context?

E-business can be looked at from different points of view and, as a consequence, there are many definitions. To illustrate this, some common descriptions are mentioned below.

“The commercial exchange of goods, services, information and/or ideas between two or more parties enabled by an electronic medium.” This technology-driven definition does not illustrate the strategic possibilities beyond merely presenting a technology as a different channel.

“A collapse of time and space between business partners.” This is a fresh way of looking at it: Just think what you can do if time and place are no longer a hindrance. However, this definition does not quite cover the full extent of e-business.

“The transition to the ‘new world’, the network economy, having impact on how businesses are organised and deal with their customers and partners”. This definition suits the context in which we have just described that organisations are moving to a network economy. Still, this does not give a picture of what it means for a particular organisation.

“Creating the Web Enabled Enterprise.” The *web-enabled enterprise* is a term coined by Cap Gemini Ernst & Young to define the changes that web-technology will bring to organisations. It is about extending the current IT-architecture across the borders of the company, to intensify the different relations that organisations have with their customers, their partners and their own employees. It is important to see e-business as a business-model, not just as an implementation strategy.

Working definitions

E-business:

- Application of electronic network technology to relevant business processes.
- Replacement of paper-based, human-agent based or telephone-based personal transaction.

E-business is not e-commerce:

E-commerce involves exchanges among customers, business partners and the vendor. For example, a supplier interacts with a manufacturer, customer interacts with sales representatives and shipment providers interact with distributors.

E-business includes external-oriented processes (e-commerce), Internal processes like production, inventory management, product development, risk management, finance, strategy development, knowledge management and human resources.

E-business in an Organisational Context: It's About Business

Irrespective of the type of business, certain basics need to be known:

- The parties ('actors') you are dealing with:
 - Customers
 - Suppliers
 - Competitors
 - Government

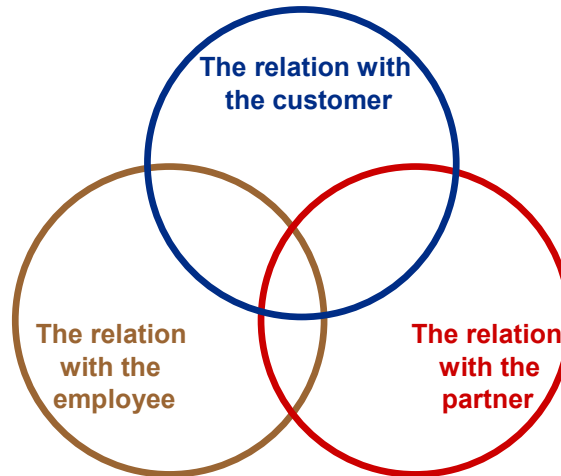
- The resources you (should) have at your disposal:
 - Investment Funds: setting up
 - Technology Infrastructure
 - Organisation & Personnel
 - Strategy and Policy: applying your resources
 - (External) Rules and Regulations: setting boundaries

- The business functions to be performed:
 - Delivery: fulfilment and customer trust
 - Providing Information
 - Acquisition and Sales
 - Promotions
 - Procurement
 - Product or Service Development (including technology)
 - Management
 - Operations

In essence, the business functions are the activities a company performs using its resources to fulfil the needs of, or the obligations the company has towards the actors. In other words: you need to know what your e-business must do in dealing with your customers, partners or employees, and what means are used to do so.

Types of Relationships

How do you find out what is relevant for your unique situation? You can apply an "outside-in" view on three types of relationships. This may help to focus on the relationship and allow you to picture what your counterpart expects. In broad terms, there are three types of business relationships.



As in any business, supplying or buying is not merely an isolated Internet-specific relationship. Each party, in a business-to-business setting, is buyer and supplier in turn. Therefore starting an e-business and focussing on one relationship for immediate results can sometimes suffice for a limited period. To make the primary relationship effective, the other relationships must also be addressed. This section addresses the nature of these relationships, highlighting potential objectives for your business and suggesting questions that need to be answered. Some typical e-business aspects will be mentioned that can be implemented to reach your business objectives.

Servicing the Market: Business to Consumer or B2C Relationship

The first relation to address is with the customer. The customer is the one who 'pays the bills', so this aspect is of critical importance to business success. Knowing exactly what the customer likes and thinks will give insight into what an organisation needs to do to gain or retain business, and it will ultimately be the main business driver. Activities in the B2C relation are focused on *promotion, selling and binding*. For this reason this relationship sometimes is referred to as the 'shop' and it is therefore closely related with E-commerce.

The main **objectives** are:

- Providing information about organisation, products and services
- Selling products
- Delivering services
- Customer relation management
- Communication and marketing

Typical **questions** in this area are:

Who are my customers? How can I reach them? What are their needs? (Why) does a customer like me (or does not like me)? What would my customer like to know about me? Which products would they like to buy? How do I promote and/or sell my products through the Internet? How can I offer true added value? How can I retain my customers?

Some of these questions can be addressed by way of the following e-business **solutions**.

Promotion: *increase traffic*

- Web presence
- Web promotions
- Web advertising
- Email campaigns
- Register with search engines

Selling: *improve quality of service*

- 24/7 open for business
- High quality product info
- Reservation/ordering
- Order tracking
- Increase the geographic area

Binding: *stimulate customer loyalty*

- Personalisation
- Loyalty programmes
- Satisfaction research
- After-sales support
- Tailor-made promotions

Improving External Operations: Business to Business or B2B Relationship

A business partner is a person or a company, usually a supplier of a goods or a service, with whom you cooperate to reach business goals. In e-business, a typical business partner is an Internet Service Provider (ISP). A postal service can also be a business partner. How these partners deliver their services to you will affect how you deliver services to your customers.

A business relationship need not be exclusive to be worthwhile. Instead of a limited set of business partners from whom the same goods are ordered over and over again, you can move to a dynamic and broader audience of suppliers, who have to compete for each order. This way, you as a service buyer are not tied into a standard contract to the same supplier, and this can help provide stronger bargaining power. On the other hand, to create an efficient 'virtual business', agreements have to be made to assure fulfilment and delivery. What will result is a much more dynamic and responsive network, where price elasticity and transparency will pose new challenges for all the participants.

In this relationship, the focus is primarily on efficiency issues, the improvement of operations and on cutting costs. This can be achieved by:

- Business integration
- Digital branches
- Supply chain management
- E-procurement
- Marketplaces

Typical **questions** in this area are: How to deliver the right products at the right time? How to improve responsiveness and flexibility? How to create partner synergy? With whom do I want to share which information? How to share information? How to manage the Supply Chain?

Integrating e-business aspects in the supply chain and in your relations with partners can enhance efficiency and logistic processes. An obstacle can be implementation costs for effective business-to-business automation. However, one can start small, using simple spreadsheets to track business processes, and take it from there. Efficient administration allows for better information, and through this you can provide better customer service and retrieve better statistics. With reliable statistics you may also be able to enhance your bargaining power with business partners, whether these are suppliers, customers or financiers. E-business **solutions** might address the following aspects of the B2B process:

Delivery

- Automation can contribute to more efficient ordering, logistics and order tracking;
- Rather than having stock supplies, items can be ordered from your suppliers to be 'just in time' for the customer, thus saving money on storage and surplus volume.

Reliability

- Tracking systems accessible to your customers
- Digitised administration
- Automated help pages

Efficiency

- Process transparency
- Reduced human resources (administrative & support staff)
- Product specifications over the web

Improving Internal Operations: Business to Employee or B2E Relationship

In most cases, optimising customer processes is the primary interest of an ICT process. Next, an organisation's 'human capital' has to be addressed. How can staff interact with the rest of the process in a flexible and efficient way? Employees need to be informed and educated, and their knowledge should be used in an optimal balance with the automated business processes. Employees provide the primary *enabling environment* for your e-business to succeed; if the employees cannot work with a system, then why should the clients? A few of these needs and possible applications to address them are:

- Knowledge management: automated 'helpdesks', FAQs, access to knowledge products;
- Project management: collaborative workspace or shared network facilities;
- Internal operations: networked file servers and administrative systems;
- Financial administration: spreadsheets, enterprise resource planning;
- Efficiency of business processes: groupware

Another issue here is existing IT facilities. Is your technical infrastructure suitable for the demands made by connecting to the Internet, and can it be used to respond to the needs of the network economy?

Typical **questions** in this area are: How to educate my employees? How to manage all available know-how / information from and for employees? How to create synergy between all departments? How to improve the flexibility of my organisation? How to make my IT facilities flexible and externally focussed? E-business **solutions** might address the following aspects of the B2E process:

Access to information

- Through web- or server-based training
- Company email newsletters
- Server-based knowledge repositories
- Product information and manuals

Analysing processes

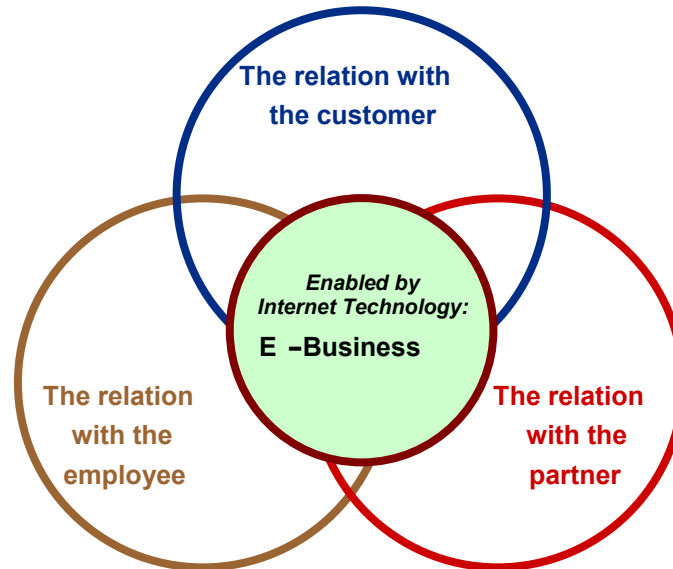
- Resource planning (HR)
- Logistical information

Maximising service

- Merchandising support
- Knowledge productsServer-based knowledge repositories
- Product information and manuals

How Does E-business Affect These Interactions?

E-business is the concept that integrates all three relationships in a new business model. In other words, e-business is about *integrating* and *managing* these relations.



Web technology can be used to intensify these relations, simply because it provides instant interaction between any two parties, be they man or machine. Technology gets to the very heart of the business – by automating administrative processes. The different ways of implementation for the different relations are, roughly called, *Internet* (business to customer), *extranet* (business to partner) and *intranet* (business to employee).

This is not to say that every e-business project must include all these elements. It means that e-business is about creating an efficient and profitable online business model, where intranet-applications *might* be part of the solution. Nor is e-business is about an isolated activity aimed at a single channel or relation. Only different activities together form a complete e-business solution.

Designing an online catalogue where people can order products will not provide a profitable business *unless it is aligned* with the capabilities of the rest of the organisation. Imagine if we extend this catalogue function to monitor the internal status of the order and show when it will be delivered. This means interaction with the legacy system and communication/interaction with the partner that is delivering the products.

Up to now, it might have been possible to provide this information to the customer, for instance by telephone. The number of interactions required to retrieve the information would probably be higher, without an automated system. In an e-business solution, this information might be retrievable via the Internet, so that the customer would be able to see the status of his order at any time, without an external party needing to look it up.

Cooperation provides an opportunity for multiple parties to benefit from one and the same e-business. This strategy can open up an opportunity to share the advantages *and risks* of e-business, where resources or means are scarce. One strategy to do this is, as the computer firm Dell puts it is “taking out the middleman” or even transforming the role that the middleman plays¹. By the flexible and distance-bridging nature of the Internet it is relatively easy to expand the number of partners in an e-business, thus linking more parties at very different locations into a larger business chain, allowing for faster and more efficient communication. The chain can eventually evolve into a network. In such a situation, many suppliers can bring their products to an electronic marketplace, just like the traditional markets we know. Buyers may find more options to choose from, enhancing bargaining power and stimulating quality differentiation. Suppliers may find many buyers, allowing them to increase the volume that they supply.

The Essence of E-business

Traditionally, the core business of an enterprise sets the rules and requirements for information systems to fulfil. However, today technology positions itself in a far more prominent place. Technology no longer just follows business requirements, but also creates possibilities. A popular slogan says that ‘The system is the business and the business is the system’. This illustrates that technology is at the heart of the business operations. In e-business, technology tells the business what can be done in smarter ways.

A careful balance between business needs and technology possibilities is required to be successful in e-business. Technology not only can make business more efficient but also can make business more effective in targeting and reaching markets. However, running a business, including e-business, still requires craftsmanship, strategic insight and entrepreneurial skills.

Critical Success Factors for E-business in the Developing World

The success of an e-business depends on at least the following factors:

1. It fulfils a need of a group of users;
2. The users have sufficient means (financial resources) to make use of the service;
3. The necessary equipment and infrastructure is adequate in relation to the physical and geographical environment and accessible for a sufficient number of users;
4. The target group has sufficient know-how to make use of the service.

Other factors that influence the implementation of e-business in developing countries are:

Distance - ICTs can help overcome (physical) barriers such as distance. In developing countries infrastructure and (public) transport is often less than ideal, making e-business an attractive way by which travel to a commercial centre can be avoided.

¹ For more on this, see “Helping producers make money from digital information”, Russell Southwood, IICD 2003
www.iicd.org/base/page?lng=1&nav=30&sub=340&iicd_category=12&id=2048&template=news_detail&back=publication

Time - The time factor as a driver for e-business is of quite a different magnitude. In rural areas, economical life is often dependent on the weather and the season. Depending on the type of business, time affects e-business to a far lesser extent or may precisely facilitate access to certain suppliers even 'out of season'. To identify whether the timing and *momentum* are right requires some intuition, supported by thorough market analysis.

Place - In weak economies, the potential for ICTs is more difficult to identify and market than in the economic centres of urban areas. Geographical suitability for e-business is influenced by the same factors that determine economical and social development, but the effect may differ. For example, geographical disparity of the targeted client group need not per definition be a threat to an e-business – and in fact can be a benefit, as these people may turn to e-business quicker, for lack of traditional retail outlets – as long as they have access to reliable technology infrastructure.

Competition - Another aspect is the pressure from companies and organisations in developing countries to make use of today's technology in dealing with their counterparts. E-business *can* open access to new markets, although this is quite a challenge. Reversibly, competition has access to 'your' market, so 'geographical advantage' is diminished. In some cases partnering may be a more realistic option than competing for a limited market.

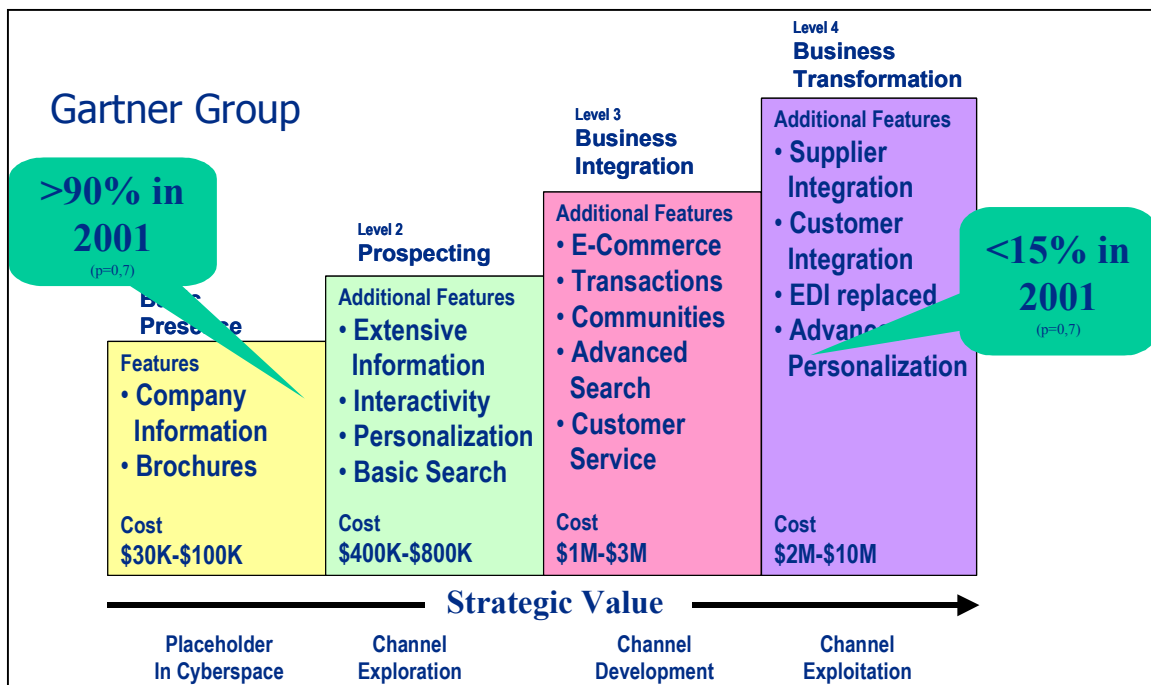
GROWTH, PROCESS, ARCHITECTURE: STRATEGIC APPROACHES TO E-BUSINESS

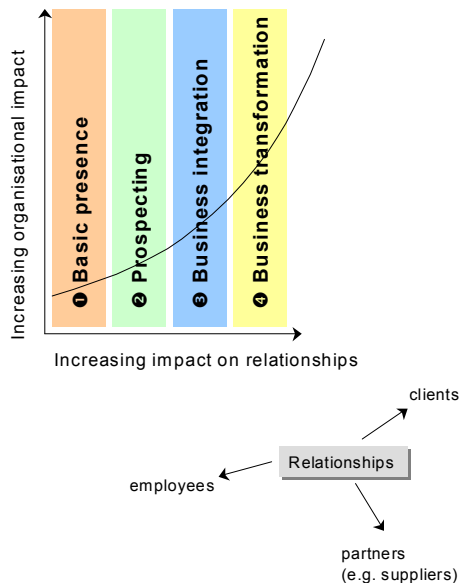
Although the volume of emerging e-businesses is still growing and the awareness of its possibilities is becoming more obvious, people still have their doubts. Organisations want to be convinced that it will be profitable before plunging into the significant investment required to implement an online business. However, one should make a careful consideration of opportunities and threats, or profit and loss projection. What will be the cost of doing nothing? Can one make up for a late start? E-business presents such a fundamental paradigm shift that we need to explore and find our way. We need to develop the logic or common sense that is applicable in this new paradigm. What we already have discovered is that adding some technological possibilities to one channel may spark off new possibilities for another.

In this chapter, three strategic approaches are discussed providing a framework for implementing a healthy e-business. First, the **e-business growth model** is presented, containing the growth path towards a fully web-enabled enterprise. Not all businesses need to pass through all phases, nor will they follow the same pattern. It all depends on the ambitions and scope of the e-business enterprise. The position in the growth model has consequences for all three types of relationships discussed in the previous section. Second, an **e-business process model** helps identify how to move from one stage to the next. Third, **the integrated architecture approach** will help address the most pertinent questions in developing a customised strategy for a successful e-business.

E-business Growth Path

The following model (developed by Gartner Consulting Group) highlights four stages in the development of an e-business.





Brief description phases of e-commerce

➤ **Basic presence:** The organisation has strategically set-up its place on the Internet. Basic presence involves sharing company information and brochures. In marketing terms, this is a “push” strategy in that information is not asked for by the audience but rather supplied to them. The costs of reaching this level are relatively low.

✕ **Prospecting:** At this level, the organisation is strategically exploring the Internet as a distribution channel. Prospecting involves additional features including extensive information, start of interactivity with relationships, personalisation of information and a basic search facility. Increased use of Internet for prospecting can mean substantial costs.

③ **Business integration:** Channel development is the strategic value of this level. At this stage, the organisation is integrating its businesses with that of the client in a more pro-active manner. The client recognises the added value of the Internet site and pursues a relationship with the organisation. In marketing terms, this is a “pull” versus a “push” strategy. This level involves additional features such as e-commerce, sales and payment transactions, customer service, advanced search and the building of communities with clients.

④ **Business transformation:** Strategically, the organisation is now largely exploiting the Internet as a channel with not only clients but suppliers and other relations as well. Suppliers, clients and partners are integrated in the Internet medium. This level is characterised by advanced personalisation with stakeholders such as these and the use of EDI (electronic data interchange) with such stakeholders. An example could be the auto-signaling of suppliers when inventories are low.

One of the findings during the development of this model was that every company aspiring to transform into a fully automated e-business would progress through all four of these stages. So no company simply jumps in at the third stage. Why is this? A possible explanation is that the entire organisation (and its immediate environment) needs to go through a learning curve for business transformation to be achievable. E-business contains far-reaching organisational and cultural changes that should be adapted by the organisation. However, as mentioned above, one’s business ambitions may stretch no further than phase two or three. There is nothing that dictates that phase four is the necessary objective, if an earlier phase fulfils your business needs or market opportunities.

Business Interactions Mapped into the Growth Model

In every stage of the growth model, a different instrument can be used to address the three relations mentioned above (B2C, B2B, B2E). The table below gives an example of the use of the model:

	Presence	Prospecting	Business Integration	Business Transformation
Customer	Product Catalogue	Options: Build to order	Business transactions, incl. Money	Customer intimacy: "push sales"
Partner	Parts Catalogue	Inventory Information	Supply chain integration: fulfilment	Market places, supply networks
Employee	Company News desk	Knowledge management, Online manuals	Online training	Virtual offices
		+	+	+

Note: Every company can fill in its own situation in this matrix. These applications are mere examples of the possibilities.

E-business Process Cycle

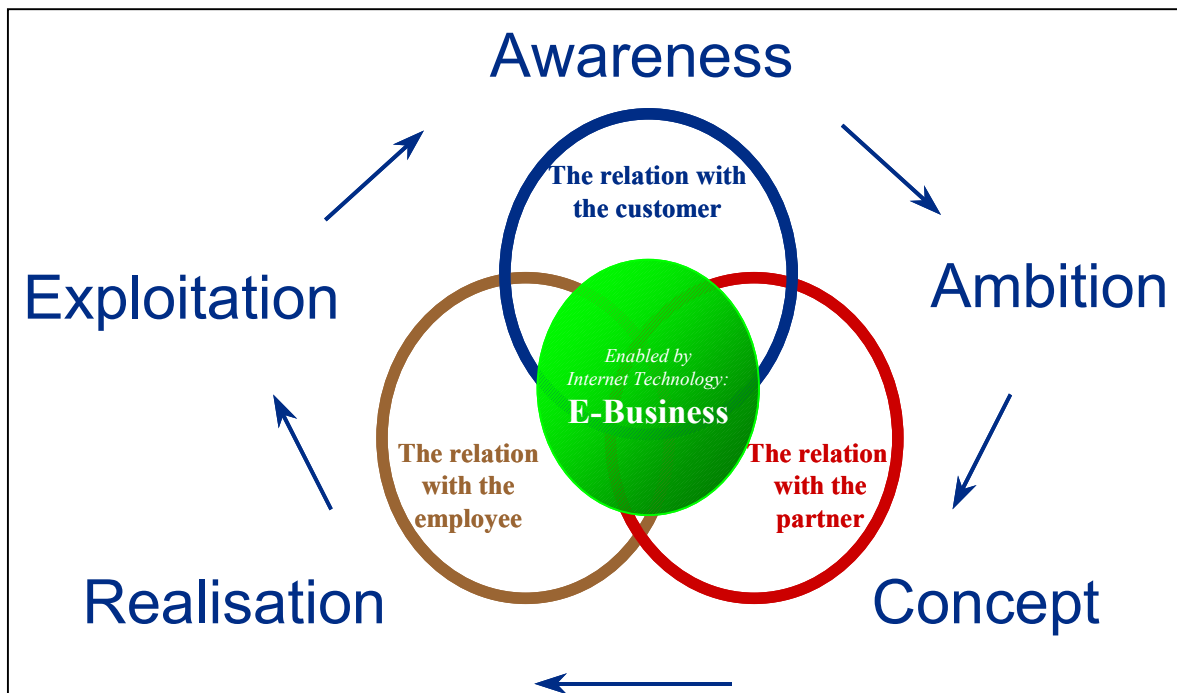
We have now addressed a basic understanding of e-business, the relationships involved in the operations, and a growth model underlying e-business development. The next phase involves the implementation of e-business strategy and describes an approach to handle all interlinked issues (starting from a business perspective all the way to technology infrastructure, including security and governance) to develop a successful e-business.

The approach is called the "**E-business Process Cycle**". This model can be used to progress from one stage in the Growth Model to the next. The cycle is not a time-framed project but a continuous process of development and renewal. The company and the customers, partners and employees will mentally and physically progress through this cycle. The five stages are:

1. **Awareness (vision)** As a start, an overall vision of the organisation is needed, including a clear image of the future structure of the e-business. Research has shown that companies that are making a profit online generally have a well-defined vision that is known to everyone in the organisation. It is of paramount importance that the different initiatives towards e-business are co-ordinated and will lead to the achievement of a shared goal.

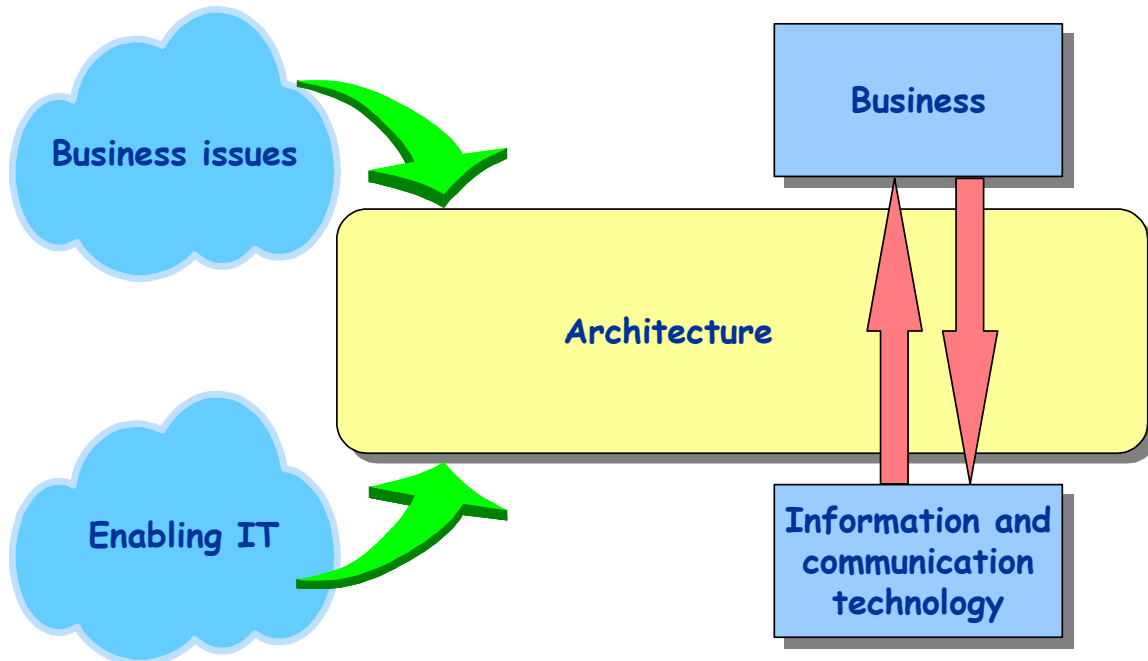
2. **Ambition (scope)** Though it might be difficult to project a future situation in detail, the general goal can be stated in terms of what kind of products will be sold to whom using the Internet as a channel, and in what timeframe this must happen. Additionally, an organisation must identify what kind of role it wants to play in the Network Economy (e.g. logistic service providers, content provider...).
3. **Concept (roadmap)** A roadmap can help anticipate each phase as described in the Growth Model. In this roadmap the objective, the process, the output as well as the content of the changes should be stated.
4. **Realisation (on the road)** This is the actual implementation of (the changes within) the e-business-phase.
5. **Exploitation** Once the implementation has taken place the changes should be absorbed by the (core) business of the organisation.

E-business Process Cycle



Integrated Architecture of E-business: Bridging the Gap

As stated earlier, mapping business and technology aspects can contribute to a successful implementation of an e-business strategy. Mapping involves clearly visualising, in a business plan, flow chart and strategy, what your objectives, methodologies and tools are. A manner of achieving this is by visualising your business *architecture* – which can bridge the gap between the your *business* objectives and your enabling *technology*.



Architecture is more than a useful instrument to implement changes. It can be used for several other purposes in an organisation.

Atlas for management - Architecture can provide a zoning plan of the information household. It provides management with insight into the structure and dependencies in Business, Information, Applications and Infrastructure.

Control of Complexity - By describing the relationships between different business elements and detailing each of these elements on their own, initial complexity is made manageable.

Framework for development - Reliable architecture can present the developer with the constraints and degrees of freedom to make a technology design and implementation decisions in such a way that separate components can be developed at varying degrees of detail, while ensuring overall consistency.

Communication mode - Reliable business architecture can be a tool to provide insight to all parties involved, such as management, employees, suppliers, investors and clients. Business architecture should be clear and understandable, while containing different levels of detail.

A technical architecture is a set of:

- Objectives and principles,
- Rules,
- Standards and
- Guidelines,
- Together shaping a roadmap for the implementation of a vision.

An architecture shows what should be developed and implemented, in what way and with what instruments.

This generic definition must be made practical on the six areas mentioned in the previous section: Business Essentials, Information, Applications, Technical Infrastructure, Security, and Governance. To accomplish this, an Integrated Architecture Framework can be used.

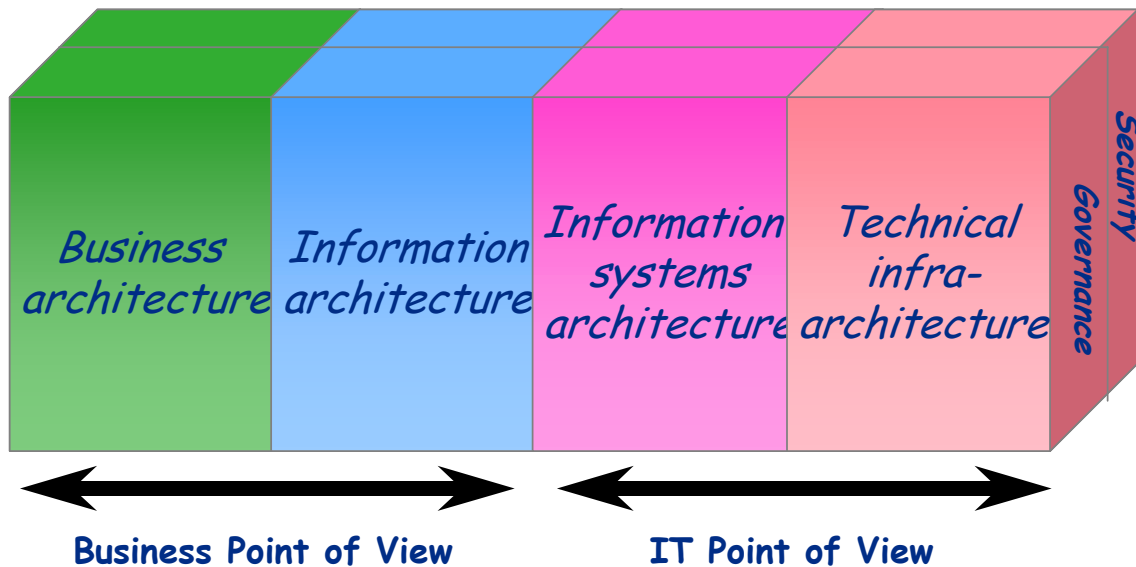
Integrated Architecture Framework

CGEY developed a framework covering the six areas, which, as a whole, ensure that the business architecture is complete. The process to compose the descriptions can be conducted in different sequences. The most obvious one is to start with the *Business* aspect and work your way down via *Information* to *Systems*, and finally *Technology Infrastructure*.

However, for e-business it is very important to view this path in reverse or to allow yourself to revisit parts of the framework previously addressed: For example, technology may present different options for the set up of your business, opening new opportunities, or delimiting the scope of what you initially had in mind. Therefore, all technological possibilities should at least be considered, if not reflected, in your business model in order to motivate your ultimate choices.

Subsequently, you can make choices in the sequence of implementing *Business* and *IT*. The Growth Model might provide an attractive model by which to control your ambitions are realistic in all phases. Whilst keeping your ultimate goals for your future situation in mind, you can start setting up your initial situation. Thus the advice: Start today, build for tomorrow.

The Integrated Architecture Framework



Note that Security and Governance are relevant throughout all four aspects

Business and Information Architecture

The business architecture should provide a description of the business strategy and the information needed to realise it.

1. Business Description:

- Purpose (“raison d’être”)
- Objectives/core functions
- Operational principles
- Business processes
- Relevant data subjects

2. Information Description: based on the business description, an information description contains the framework of what content will be presented and how (communication strategy & information flow):

- Communication
- Data structure
- Information structure
- Applications

Information Systems and Technology Infrastructure

The “IT point of view” consists of a description of the automated applications and the required technology infrastructure.

3. Information Systems: description includes:

- Application services
- Components
- Human – machine interaction
-

4. Technology Infrastructure: can be described including:

- Technical resources
- Physical infrastructure

Once this architecture is complete, one can consider how this fits into the growth model, resulting in a concrete visualisation of your business aspirations and needs. This can help minimise risks and maximise the chances of success.

Architecture and the Growth Model

In the table below an *example* is presented mapping the architectural issues into the four stages in the Growth model:

	Presence	Prospecting	Business Integration	Business Transformation
B	Marketing & Communications	Sales & R&D	Finance, Delivery, Legal	Procurement
I	Product/Service descriptions	Pricing Product development Customers Accounting	Payments Delivery conditions Warranty, Creditability	Customer characteristics (likes & dislikes)
IS	Page editing Publishing Basic access	Personalisation Content mgt Multi channel mgt Portfolio mgt Mgt reporting	Online payment Online credit check	Unsolicited personalised product offers/advice

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	Presence	Prospecting	Business Integration	Business Transformation
TI	Web server Database Simple tools	Directory services E-mail, SMS, WAP server Firewall	Sw or hw tokens, VPN Bandwidth Availability	Hardware tokens TI alignment with partners
Sec	Limited	Weak Authentication Authorisation (for customers)	Strong authentication Advanced authorisation Encryption	Joint solutions with partners/ customers Active intrusion detection
Gov	Standard back-up regime Ltd configuration	Elaborated b/u and restore Std configuration	Helpdesk Version mgt Bandwidth mgt Performance mgt	Joint governance Proactive sw & hw maintenance

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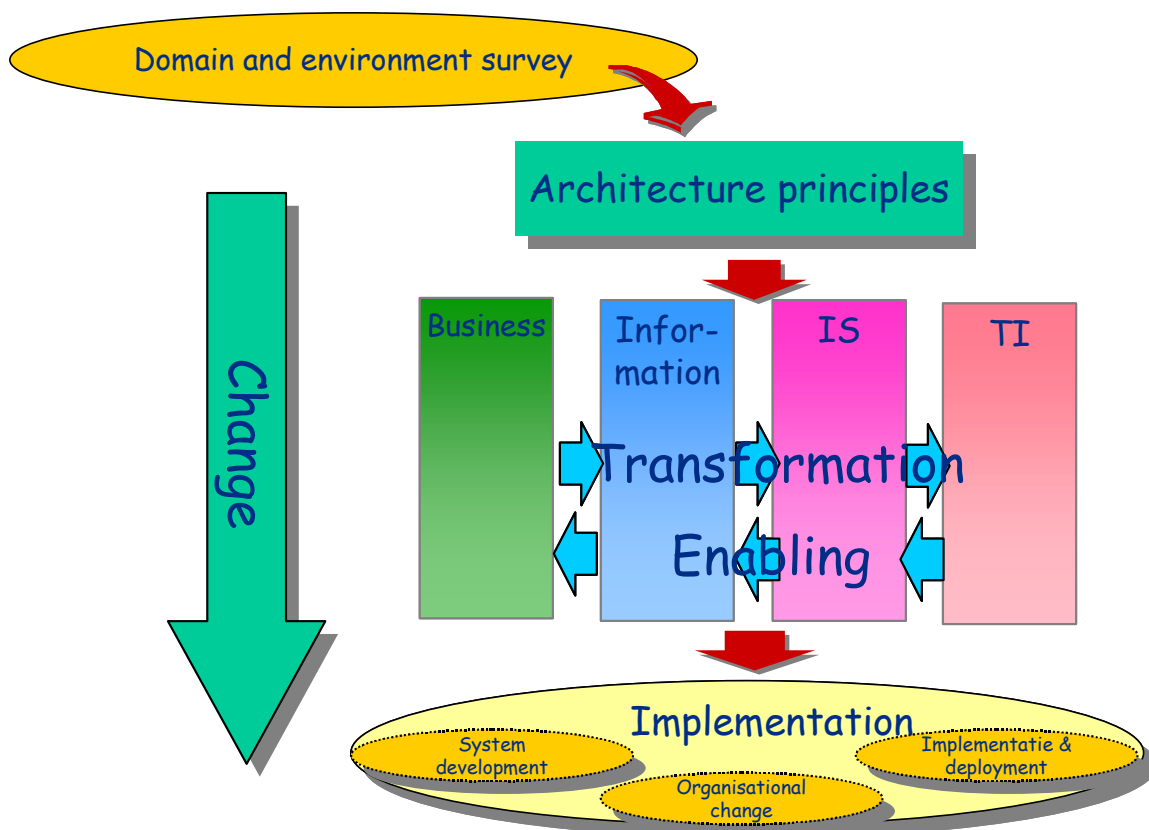
Note: Every company can fill in its own situation in this matrix. These applications are mere examples of the possibilities.

Constructing the Roadmap

In constructing the road map for the change process, the following steps can be taken:

1. Start with business and environmental factors; formulate your Policy and Strategy based on the Growth Model.
2. Set up the conditions, limitation and principles for the architectures, transformed from business objectives and principles into concrete scenarios.
3. Model the six architectures and their constituent elements by answering the questions indicated above; make sure business objectives and the integrated business resources are realistic and correspond to one another.
4. Apply a structured and controlled way of designing the architectures. Make sure you can repeat what you have modelled since you will revisit the architectures in the future.

If you allow yourself to spend the time on this effort, the integrated architecture can serve you as the roadmap for viable investment and implementation plans.



DESIGNING THE ROADMAP

Integration is the main theme in designing the roadmap for the development of e-business. This roadmap should describe at least the following two aspects:

1. **What** you want to do
2. **How** you want to do it

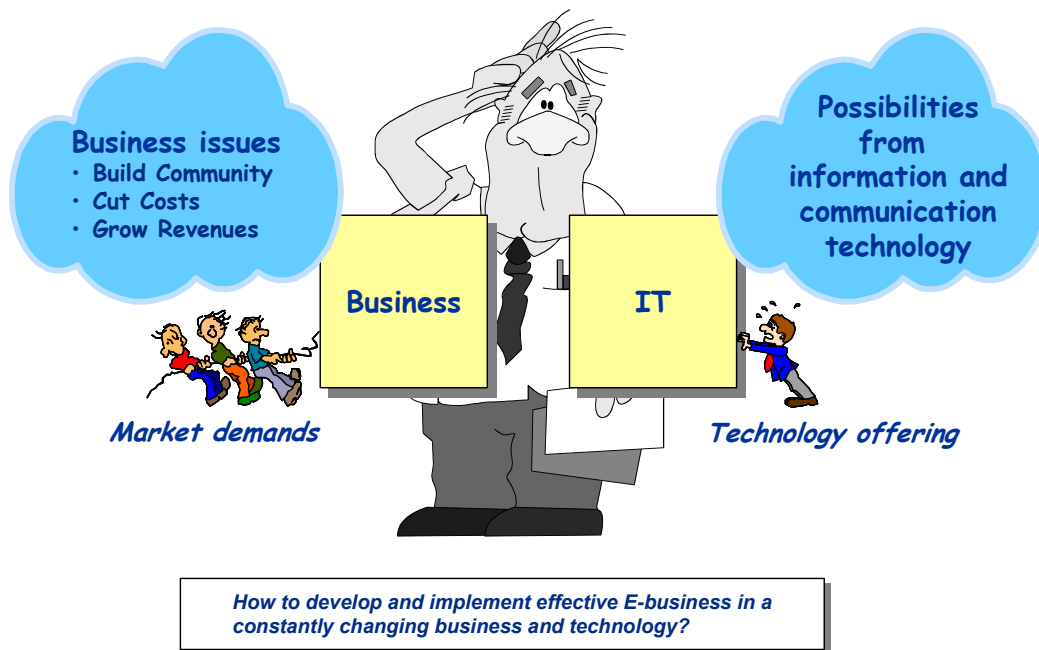
Asynchronous Developments

When answering the “What”-question there are several issues which should be taken into account.

First one needs to make sure different organisational disciplines are addressed in an integrated manner, keeping in mind the high pace in which business processes and technologies evolve.

- Business aspects: These are the aspects that involve the core business of the organisation, like strategy, marketing, sales, logistics, purchasing.
- Organisational aspects: These include awareness and involvement, skill building, alignment of organisational structure and culture, rollout of common components, external and responsive focus.
- Technology components: These involve infrastructure, platforms, legacy/back-office systems, front-office applications, middle ware, mission critical IT operations.

At the same time, the organisation’s environment can affect the way in which we do business through external changes such as political developments, social developments and technology developments.



A complicating factor is that external and internal changes do not run parallel. In comparison, in the “old world” the legislative and regulatory situation is fairly settled (even seems to be cast in concrete sometimes). Changes in that arena are slow, but often with high impacts because companies tend to treat the legislative environment as being stable. Technology changes occur much faster. New technologies come into play almost every day. Major technology waves appear almost every year and legislative issues sometimes run behind. This can cause confusion in regards to intellectual property rights, privacy issues, liberalisation of the market, etc.

Whenever a major new technology evolves (such as a new communication standard), a decision is needed whether to go with that change or not. Often a company cannot jump easily on the new technology bandwagon because of former investments that have not yet become profitable, or because the transition to the new technology is too complex or incompatible.

If technology investments have not yet been made, an organisation may be in a vantage position to adopt the new technology without being involved in the hassles of transition from an obsolete technology. An example of where this has happened is the large-scale adoption of mobile telephony in developing countries, where in many cases traditional copper wire-telephony or ISDN was not yet in place. In this example a new technology provided instant access to millions of people.

Other consequences in the external business environment involve changes in legislation and regulation. For example, digital information is easily copied; the question then arises how to protect intellectual property and copyrights.

How to Add the ‘E’ to Business?

In answering the “How” question, the Growth Model can provide a helpful framework. It is a strategic choice of the organisation if and when the next phase is to be entered; however, the phases should be taken in deliberation and one at a time.

In order to be successful, e-business should be fully incorporated in the organisation and the organisational processes.

“By 2004, more than 70 percent of e-business applications not integrated with back-office systems will fail in meeting business expectations.” Gartner – June 2000

To avoid falling into this trap, it is necessary to *map business into technology* and vice versa, so that new technology can support and improve organisational processes – and the business allows it to do so.

Therefore the following areas should be structured and covered in the roadmap:

1. Business essentials
2. Information
3. Applications
4. Technical infrastructure
5. Security
6. Governance

Trying to answer these questions will help create a roadmap, specific to your venture and your environment.

Business essentials

- What you want to do – what is your added value?
- How to express that added value – will you incorporate technology options or use other methods?
- Who you are dealing with, who are the actors (market, human resources, investors, competitors...)?

Information

- What information do you need – will you gather it yourself or look for possibilities to share it with other organisations that have already done so?
- Which communication patterns and means should be considered – this includes frequencies, authorisations, regulatory issues, etc?
- What quality factors are relevant to your information – timing, uniqueness, being up-to-date, and responsiveness?

Applications

- What functionality or services do you want to provide – personalisation, e-mail response and/or newsletters, FAQ, search
- What custom-made or (customised) off-the-shelf products suit you? E.g. what content management tool works for you, or what (E-)payment service is right?
- What is the best balance between interfaces and flexibility – try to model the applications with the smallest number of interfaces (“clicks to destination”) while maintaining flexibility for future change (e.g. new piece of standardised software to replace tailor-made software)
- How are the users (internal and external) going to communicate with the applications – what type of interactions will be required?

Technology infrastructure

- Will you develop, host, collect and facilitate all your business information in-house or (partly) out-source it? Is there a service provider available with the right facilities for you?
- Internal network (LAN) – Your internal network is a vital part of the whole business as it involves your internal communication and administrative processes. This puts some quality constraints on your local network: the equipment you and your staff use should be robust enough to support your most important internal processes.
- Metrics: what service availability and performance is required? Make this information as concrete as possible and make them measurable. In doing this, you create manageable expectations, not only between you and your suppliers, but also towards your customers. This can assist in developing stronger relationships.

Security

- Procedures – if *information* is the commodity you have, store, provide or sell as part of your business, security should be a major concern. The dependency and security of your information can directly affect your business reputation.
- Technical measures – procedures will only work when they are supported by physical and technical measures (such as encryption, virus protection, firewalls).
- Authentication (strong-weak) – authentication can help you profile and identify your users and your market, and additionally plays an important role in ensuring that whomever is using your site is authorised to do so. Again – if information is your collateral, make sure it is well

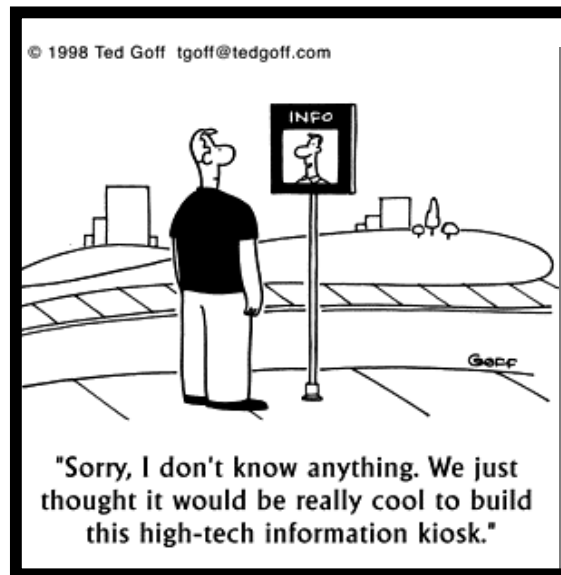
protected.

- Authorisation – setting up user categories and matching degrees of freedom to browse your site may help you scale, manage and personalise customer relationships and requirements.

Governance

- Procedures & maintenance – every system can *and will* fail at times; procedures must be available to maintain it and control any damage which may occur as a result of the system failure.
- Technical Measures – make sure the equipment and the services of your suppliers (such as the hosting partner) are covered by back-up systems, redundancy, etc. and that service level agreements determine the scope of service which you can expect.
- Back-up – frequent back-ups will help delimit the damaging impact in case of running into system problems.
- Logs – logs can help you trace what happens in your technology infrastructure, and to identify who is responsible for the reliability of your systems.

Preparing your strategy by mapping out your business as clearly as possible will help you avoid ending up like this ...



SOME E-BUSINESS LESSONS

In E-business marketing and technology specialists work together to find the right solutions. This multi-disciplinary approach can lead to a slow process or delays, misunderstandings and worse; therefore clear communication and strong management are crucial aspects contributing to the success of the enterprise.

Thorough business architecture, projected into the four-stage growth model, can help an organisation to take implementation one step at a time, thoroughly, before moving on to the next stage. These models provide only generic frameworks, and it is up to the organisation to adjust them to match their unique business case. The best way to find out what will work in a particular case is by thorough preparation and constant monitoring of results (learning by doing).

Due to the speed of developments, both in technological possibilities and new business models, you cannot afford to wait and see: you need to capitalise on your business idea when it has *momentum* and stay ahead of your competitors, either through innovation, quality of service, or something else that discerns you from the rest. Thorough preparation and learning from others' experience may help you avoid pitfalls.

- *Capitalise on momentum* - Once you have developed an original and marketable business idea, it is recommended to start quickly. If you do not get your ideas on the web someone else will do it before you. Timing is a delicate but critical aspect of business development.
- *Start today; build for tomorrow* - If the momentum is there, sometimes one must move fast – but not without thinking ahead. The basis of the site you pull together today will probably remain with you for quite some time. Make sure that you can gradually improve and expand your site without taking your business down. It is e-business so: no site, no business. And: no business, no revenue.
- *Stimulate creativity* - But do not underestimate the complexity of creative solutions. For example, if you chose to support payments over the Internet, security must be included in the totality of your site.
- *Think fast, learn now, improve and share* - Despite your thinking ahead and no matter how well you plan, unexpected factors will intervene in your business plan. There are many companies involved in e-business and using e-business tools. Technology can provide new solutions and opportunities that you may want to incorporate in your e-business. Therefore you need a clear structure of your e-business (a flowchart may help visualise this) that is highly manageable and allows changes to be made in an efficient and effective way (for instance, changes to your web site).
- *Fusion of the brains* - Commercial, Creative and Technical: as in any business you need several disciplines or skills to work together. The major difference in e-business is that the results of those skills are out in the open for anyone in the world to see, via your website or portal and the services you offer. You cannot suffice with applying one skill at a time and the next one half a year later, as your business is being exposed. Therefore a fusion of disciplines, communicating intensively, is required.

- *Every customer has a Head and a Heart* - A good way of managing your customer relations is by 'rewarding' the customer for visiting your site. This makes him or her visit it again and enhances your business opportunities. Be aware that every customer visits your site with one question in mind: "What's in it for me?"
- *Provide added value, not distractions* - The information must therefore have significant *added value* for the visitor to return or remember you, the site must be easy to *navigate* and must address the visitor's *requirements*. Extras such as animations or flash intros may look good but are not always appropriate, can be expensive to generate, may slow the site or the visitor down and should not distract from the main purpose of the site. Extras such as the current time or weather, news headlines or sector information may provide extra incentives for people to remember your site and visit it frequently. Define your target audience well, and design your site accordingly.

CONCLUSIONS

In short, the following issues are important when transforming a business into an e-business.

- *Paradigm shift* - In the new business paradigm, IT is at the heart of many operations. However, the “old” paradigm, in which technology *follows* business requirements, is still valid for other processes involved in business development, such as mission, human resources, organisational culture, etc. The organisation has to prepare itself for the upcoming changes involved in the paradigm shift and make choices for its own individual cases about *timing*. Taking into consideration that the world is changing rapidly, catching up with a paradigm shift can prove a tough challenge. However, jumping into it too early – if the market is not ready for it – can also have a negative impact on the sustainability of an enterprise.
- *New balance* - e-business requires an integrated solution between business and technology. The e-business strategy should be incorporated into all aspects of the organisation, both technology-oriented and otherwise.
- *Communication* - e-business involves a significant organisational change and affects all relations in and outside the organisation. Communication is of paramount importance when managing relations and implementing changes.
- *“What’s in it for me?”* - All parties – clients, employees, and management – will consider which profits and benefits the changes will provide. In order to convince your business relations of the importance and usefulness of the changes and to match the different expectations, stepping into their shoes may help you formulate an answer. Ask yourself why they would join your initiative – and if you can find no answer, maybe it is time to reconsider your choice.
- *Architecture is the Key* - When venturing into e-business, a good architecture, or visualisation of your objectives and methods, can assist in successful planning and projection. It is recommendable to use incremental planning of operational aspects and allow for flexibility, rather than long-term planning of technology architecture. Take small steps at a time, because it is better to increment and expand than to think and design for two years and come up with an obsolete solution.

CGEY PROFILE

The Cap Gemini Ernst & Young Group is one of the world's largest providers of Consulting, Technology and Outsourcing services. The company helps businesses implement growth strategies and leverage technology. The organisation employs approximately 52,700 people worldwide and reported 2002 global revenues of more than 7,04 billion euros.

The Group offers its local and international clients, in more than 30 countries, services in:

- management and technology consulting;
- systems transformation;
- systems management (outsourcing);
- local professional services (Sogeti).

Global strategic alliances with the top technology companies in the world helps to provide clients with solutions tailored to their unique business needs.

IICD PROFILE

The International Institute for Communication and Development (IICD) assists developing countries to realise locally owned sustainable development by harnessing the potential of information and communication technologies (ICTs).

IICD realises its mission through two strategic approaches. First, Country Programmes bring local organisations together and help them to formulate and execute ICT-supported development policies and projects. The approach aims to strengthen local institutional capacities to develop and manage Country Programmes, which are currently being implemented in Bolivia, Burkina Faso, Ecuador, Ghana, Jamaica, Mali, Tanzania, Uganda and Zambia. Second, Thematic Networking links local and international partners working in similar areas, connecting local knowledge with global knowledge and promoting South-South and South-North exchanges. Thematic Networking focuses on sectors and themes like education, health, governance, the environment, livelihood opportunities – especially agriculture – and training.

These efforts are supported by various information and communication activities provided by IICD or its partners. IICD is an independent non-profit foundation, established by the Netherlands Ministry for Development Cooperation in 1997. Its core funders include the Directorate-General for Development Cooperation (DGIS), the UK Department for International Development (DFID) and the Swiss Agency for Development and Cooperation (SDC).

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