

Mobile information management in E-business - with case study

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Preface

As the development of internet, the e-business has brought a new life to the business operation and changing our life style.

¹ *The growths of the internet, globalization of trade, and the rise of information economies, have recast the role of information systems in business and management. The internet is becoming the foundation for new business models, new business process, and new ways of distributing knowledge. Companies can use the internet and networking technology to conduct more of their work electronically, seamlessly linking factories, offices, and sales forces around the globe. From top information, we can see the information to support business decisions is available any time and anywhere in the global. Such as, EBay on-line sales system (www.ebay.com) and Dell on-line system (www.dell.com).*

How every, it is no longer pleased. More and more, we want to use it anytime and anywhere, without the “line” limit, we want the real mobile E-connection, that has pushing the e-business into a new direction—mobile e business (MEB). Such as Facebook and Youtube has already built their MEB system via web.

This report carries on write according to the background of Business of information system and ICT management; making use of this MEB management system can be convenient for our needs.

The main idea of this report is to discuss the advantages and disadvantages about MEB and the difference between E-business and MEB, by study the bank case(such as KBC bank) , we will focuses on E- payment in MEB, what will be the future evolution in e business on point of IT Mobile architecture. And we will discuss that how the Business information system and the organizational does reengineered to implement these challenges.

At the first, this report will recount the e-business adapt by companies, discuss some basic conception and functions of the management information system(MIS) and e-business and the difference within them. And then, we will put us into the MEB approaches and discuss the problems and challenges. And how to development and implement such system.

Through the case study of KBC bank and Nokia, we will focuses on the e-payment of MEB, it will give us a general idea about how does the e-payment work on MEB.

Something more, we will give an additional chapter to do the conclusion. In this chapter, we will summarize what we have done during this project, and analyze the future advantage and disadvantage about Mobile e-business.

¹From : The Management information systems. Managing the digital firm by Kenneth C.Laudon and Jane P.laudon 2001 page xxi

Content table

Preface	2
List of Acronyms.....	6
Acknowledgment	7
Chapter 1.....	8
Introduction	8
1.1. Research questions:	8
1.1.1 The main research questions for this report are:.....	8
1.1.2 By study the top main research questions, we can get some sub-questions:....	8
1.2. The Research methodologies we use to defend this report are:	9
1.2.1 Justification research method	9
1.2.2 Data collection and analysis	9
1.3. Content of the chapters:	10
1.4 Conclusion	10
Chapter 2.....	11
What E-business is? Why and how should it be adopted by companies?	11
2.1. What's e-business?.....	11
2.2. Why and how does a company adopt it?	12
2.2.1. Why company should adapt e- business?	13
2.2.2. What does e - business development need?	16
2.2.3 What kind of problem may show up?	20
2.3 Conclusion	22
Chapter 3:.....	23
Why Mobile e-business system (MES)?	23
3.1 What is Mobile e-business? What is the diffidence between Mobile e -business and e-business?.....	23
3.1.1 What is Mobile e-business?	23
3.1.2 What is the diffidence between Mobile e -business and e-business	24
3.1.3 Other function of MEB	25
3.2 What are MEB approaches and challenges (disadvantages)?	26
3.2.1 How to approach the MEB?	26
3.2.2 The challenges and disadvantages for MEB:	28
3.3 Why the MES is a great solution in E-business.....	32
3.3.1 Benefits of Mobile Commerce (m-commerce).....	32
3.3.2 The future of MEB	33
3.4 Conclusion	36
Chapter 4:.....	37
Introduction of e-payment in MES.....	37
4.1 What is the e-payment?.....	37
4.1.1 E payments tools:	38
4.2 How does e-payment work in MEB?	39
4.2.1 What is Mobile e-payment?	39
4.2.2 Four primary models for mobile payments.....	39

4.2.3	The mobile payment achieve	40
4.2.4	The different of e-payment work in e-business and MEB	41
4.3	What makes Mobile e-payment so popular?	42
4.3.1	The benefits of Mobile e payment	44
4.4	Security—keeps the unbeliever out	45
4.4.1	The e-payment security working in e-business.	45
4.4.2	Mobile-e payment security	46
4.5	What are the opportunity and challenges in Mobile e-payment?	48
4.5.1	The mobile payment opportunities.....	48
4.5.2	The challenges in the mobile e payment	48
4.6	Conclusion	51
Chapter 5:	.....	52
How to develop and implement MES and Mobile e-payment systems-----Case study in BANKS ...	52	
5.1	A Brief History of KBC bank	52
5.2	About e-business situation in KBC.....	52
5.2.1	Strengths of e-sales in KBC:	53
5.2.2	Weaknesses	54
5.2.3	Opportunities	54
5.2.4	Threats.....	54
5.3	Mobile e business development path	55
5.4	Main influencing factors and their influences on the implementation of Mobile e-business.....	56
5.4.1	From macro-environment:	57
5.4.2	From micro--environment:	58
5.5	Main influencing factors and their influences on the implementation of Mobile e-payment.....	58
5.5.1	From macro- environment view:.....	58
5.5.2	From micro- environment:	59
5.6	Conclusion:.....	60
Chapter 6.....	.....	61
Conclusion.....	.....	61
Work on report:.....	.....	61
Achievements:.....	.....	61
References and Appendices .....	.....	63

List of figures

Figure 1 : Five types of E business.....	12
Figure 2 China Online Shopping Transaction Scale 2007-2012	13
Figure: 3 how does e-business work in global view.	14
Figure 4 The environment in which e-business services are provided	16
Figure 5 : The system development life cycle	18
Figure 6 Barriers to set up e-business	21
Figure 7: Mobile E business	24
Figure 8: Basic distinctions between E-Business and MEB	25
Figure 9 : the abilities that MEB and e-business	25
Figure 10 : MEB approaches by IBM	28
Figure 11: SWOT analyze about Mobile application	29
Figure 12: Mobile e-business barriers.....	30
Figure 13: Mobile phone centric future.....	32
Figure 14: the MEB value chain	34
Figure 15: e-payment system in banks.....	38
Figure 16 : The difference e-payment work between E business and MEB.....	41
Figure 17: Increase of mobile devices	42
Figure 18: Global advanced payment forecasts-relative payment volumes in \$ 24.....	43
Figure 19: Mobile banking users previously unbanked.....	44
Figure 20: security key element of e payment.....	45
Figure 21: The total security architecture for mobile e-business is WAP+PKI	47
Figure 22: Key lacks for Mobile payment system.....	49
Figure 23 : The mobile E-business development path	55
Figure 24: The environment in which e-business services are provided	57

List of Acronyms

1. Mobile e- business MEB
2. Mobile payment system MPS
3. Electronic data exchange EDI
4. *Information and communications technology (ICT)*
5. Business-to-business (B2B)
6. Business-to-consumer (B2C);
7. Business-to-government (B2G);
8. Consumer-to-consumer (C2C)
9. System development life cycle (SDLC)
10. Payment Service Providers (PSP)
11. Mobile web payments (WAP)
12. Near Field Communication (NFC)

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With personal regards,
Faithfully yours,

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10-02-2010

Chapter 1

Introduction

At present, internet has become part of our life. Companies request more and more advance knowledge to bring benefits to them. Time and data veracity, easy use etc, all of these has brings us the time of e-business. The introduction of internet and e-business has brought us new concepts and has changing our world. It entered in the business organisations as a revolution, by delivering opportunities to change processes, in the sense of increasing efficiency, decreasing costs, creating shorter cycle times.

The data has become more and more important than ever. But, is it all we want? Can we find a new solution to make it better? The answer is yes, by combine with mobile system, Mobile information system shown up. It brings us a new revolution to modern business with its efficiency, low-cost, speed, anytime and anywhere, etc. Also, it has given us a great challenge to manage it. Especially, the Mobile payment system (MPS) has been used in many area. Here, through the KBC bank case study, we will discuss the future and challenges and also the development and implement of MES and MPS.

Next, I would like to discuss the research questions and methodology about this report.

1.1. Research questions:

1.1.1 The main research questions for this report are:

In this report, we will discuss the Mobile E-business system and Mobile E-payment. We will try to find out why and what make the MES so important that so many companies are driving themselves into it. And what is the difference between e-business and Mobile E-business? Where could it be in future and what problems may show up.

1.1.2 By study the top main research questions, we can get some sub-questions:

1. Is e-business adapted by companies?

In chapter 2, we will discuss this sub-question, and at the end of the chapter, we will show you what e-business is? Why and how should it be adapted by companies?

2. What Mobile e business is and what are the Mobile e-business system (MES) approaches and problems and challenges? What is the difference between e-business and Mobile E-business.

In chapter 3, I would like to show us why the MES is a great solution in E-business. What is

their connection?

3. What are e-payment systems, how does it work in MES?

In chapter 4, I would like to show us what the e-payment system is and why does it so popular.

4. How to Develop and implement of MES and mobile e-payment systems.

In chapter 5, we will discuss the Mobile e-payment' development and implement through the case study of banks.

5. Conclusion.

At the end, I will make the summery for this report. What we have done in this report and the weakness I did not discussed.

1.2. The Research methodologies we use to defend this report are:

1.2.1 Justification research method

As we are talking about the Mobile e-business, from the technical point of view, we need a good background with web-application and e-business progress, database builder, so such knowledge can be work with mobile system.

To conduct this report the following methods were used.

- Literature review.
- On-site observation.
- Selection and use of appropriate e-payment system development tools.

1.2.2 Data collection and analysis

The report data collection and analysis was done by Micro-soft .In this report, the source is come from many ways. Most of them are from internet. For have a good result, we need exact information about the e-payment and mobile information system, and also the knowledge of the methods we were chosen for.

Back to the research question: Why do we need MEB system? Yes, we can use e-business system! But, it will bring disadvantages:

Area limited (it must be connect to internet),

Function limited (for example: we want a system can report the product deliver information to administrator and meantime the customer can be noticed and check it on time),

Cost limited (e-business system cost more)

1.3. Content of the chapters:

1. Chapter 1: Introduction
2. Chapter 2: What E business is, why and how should it be adapted by companies?
3. Chapter 3: What Mobile e-business system (MES) is?
4. Chapter 4: Introduction of e-payment in MES
5. Chapter 5: How to Develop and implement MES and Mobile e-payment systems
6. Conclusion

1.4 Conclusion

In this general introduction, I try to give a brave introduction about what we will discuss in this report. I have formulated the main and sub questions we will try to find the solutions in following chapters. More, I also defined the research methods we will use to defend our report. In content of chapters, I try to give us the clear view about this paper structure, so we can easily read.

Chapter 2

What E-business is? Why and how should it be adopted by companies?

In the present time, the global business has increasingly fast and become a necessary part of e business .In this chapter, I would like to discuss that why does a company choose to put their business online.

2.1. What's e-business?

This is a simple but also a complicated question, as its official definition hasn't been formed to date. There are two English expressions, they are respectively E-commerce and E-business, and so what's the relationship between them?

One saying is that electronic business is to make business information exchange by using electronic table. It includes electronic data exchange (EDI). E-mail. Electronic Broadcast Boards. Electronic Funds Transfer etc , which replaces the traditional paper work process by using faster, efficient and reliable communication of computers. It requires enterprises are capable of using computer and modem when applying electronic business technology to current environment.

The other saying is that electronic business means making goods and service deals via Internet, especially on WEB net. It contains those things such as the organized fictitious shops or stores in WEB site. The statistics data gathering and using data through WEB, the electronic data exchange between enterprises the utilized medium like e-mail and fax for establishing client relationship and the trade and its security between enterprises.

Well , as we know, all of these two versions are normally described as E-commerce.

But is e-commerce the same as e business?

While some use e-commerce and e-business interchangeably, they are distinct concepts. In e-commerce, information and communications technology (ICT) is used in inter-business or inter-organizational transactions (transactions between and among firms/organizations) and in business-to-consumer transactions (transactions between firms/organizations and individuals).

In e-business, on the other hand, ICT is used to enhance one's business. It includes any process that a business organization (either a for-profit, governmental or non-profit entity) conducts over a computer-mediated network. A more comprehensive definition of e-business is: "The transformation of an organization's processes to deliver additional customer value

through the application of technologies, philosophies and computing paradigm of the new economy.”²

There is also another view supported by IBM, which thinks electronic business is to manage business in INTERNET, to offer client services and to cooperate with the trade companions besides trading. This kind of electronic business is often expressed as E-BUSINESS; so, we'd like to say the concept of it has covered that of E-COMMERCE.

Based on the normal business type, I can formulate five major different types of e-business as was shown in following picture:

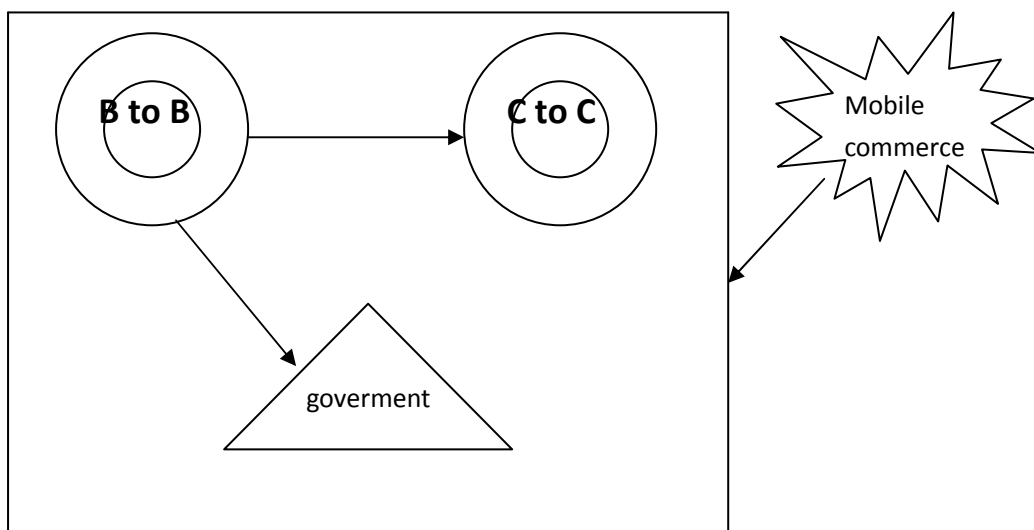


Figure 1 : Five types of E business

As we can see from Figure 1: the main types of e-commerce are: business-to-business (B2B); business-to-consumer (B2C); business-to-government (B2G); consumer-to-consumer (C2C); government to government (G2G). Those are also the normal business type in the real life. Well, where is the fifth? You may ask.

Since the Mobile Information system growing, the new force joined in—the Mobile commerce; this “new force” has changing the way of e-business. Which mains all types of e-commerce can be done through this “fifth force”, as we can see that business-to-business (B2B) has changed into business to business via Mobile; business-to-consumer(B2B) via mobile (B2C); business-to-government (B2G) via mobile; consumer-to-consumer (C2C) via mobile. The e-business does no longer limit. I will talk about it in the next chapters.

2.2. Why and how does a company adopt it?

As we know, e business has become more and more important for a firm. From the following

² From [E-Commerce and E-Business](#) Author by Zorayda Ruth andam, 2003

figure we can see how it growing fast does.



Figure 2 China Online Shopping Transaction Scale 2007-2012 ³

The figure above was from China's Online Shopping Market Report, 2009. Which show us that in 2008, China online shopping market continued the explosive growth in 2007, and reached an aggregate market size of 1,28.18 billion Euro, an increase of 128.5% year on year. By the end of 2008, the online shopping user base (total users that had bought something online at least once over the past year) in China had amounted to 80 million, up 45.5% year on year, to 26.8% of China's Internet user base. It is expected that the proportion of the online shopping users among the Internet users will exceed 40% by 2010 amid the fast growth of online shopping.

We can see that the future of business will be e-business (virtual business), the above situation not only happened in china, it is world-wild .But how does a company adapt it? And why? We can break it as two parts to answer such question.

2.2.1. Why company should adapt e- business?

E-business will holistically change the way a company does business. The changes brought about by e-business may take a little time to trickle throughout the company, however, there is no doubt that they will. If the firm does not start adopting an e-business strategy they will start noticing the changes to their baseline profitability. A traditional response will not derive the results a company may need. Spending more on marketing, desperately trying to shave percentiles from research, production and administration overheads will not make advantage. Reducing the share will not impress the analysts. But what does the e-business can change it?

Let us have a look the following picture and imaging....

³ China's Online Shopping Market Report, 2009. published April

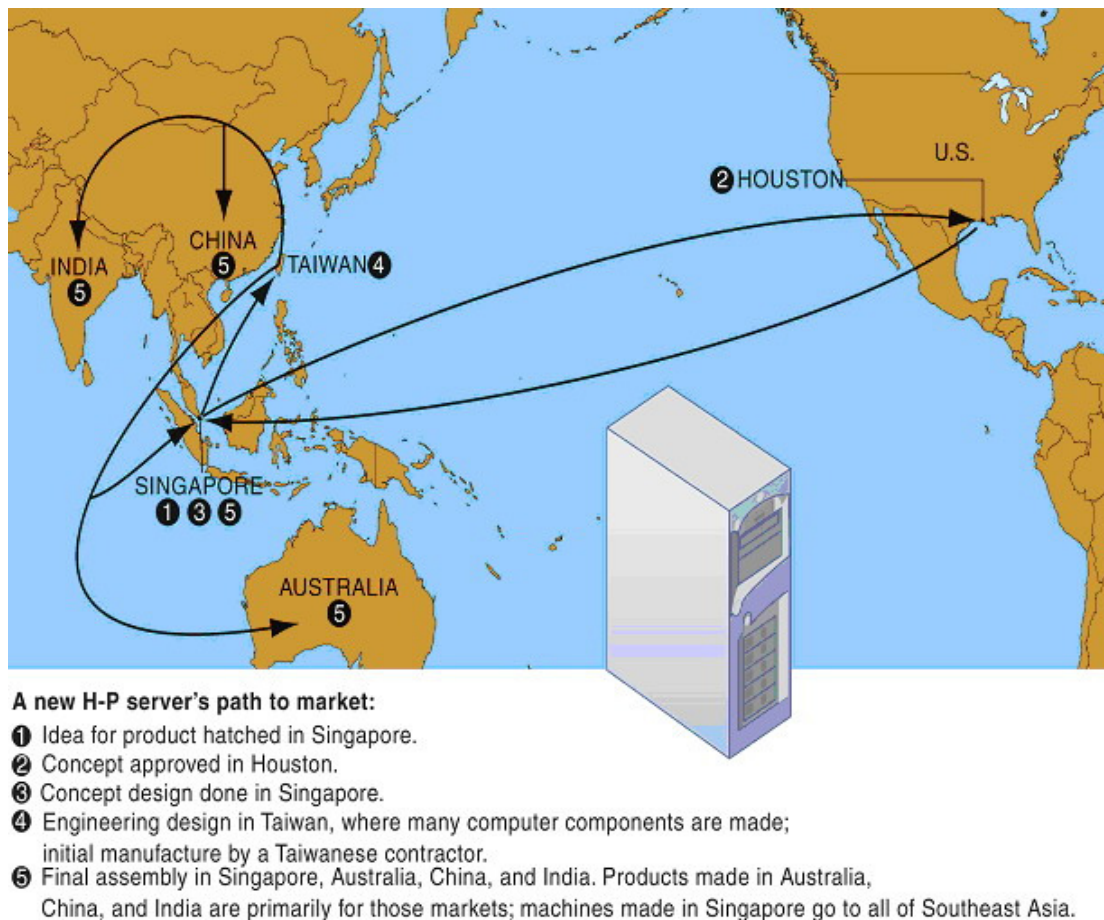


Figure: 3 how does e-business work in global view.⁴

We can see that, the company e-business processes has changed the way the world does its business. HP do not need to make any product anymore, but to provide the customer service. The product can be designed in Singapore, then approved in Houston via web work, no body and no paper work anymore, after approved concept, the original design was sent back to Singapore and re-designed. After all, it will be engineering designed in Taiwan, so , the HP company can save lots of money and human resource, then the final product made in Australia , sale to all over the world. It brings a wild of benefits to them, :

•2.2.1.1 cost/efficiency drivers

- Increasing speed with which supplies can be obtained
- Increasing speed with which goods can be dispatched
- Reduced sales and purchasing costs
- Reduced operating costs

The HP company can save a lot of money and time, they do not need to manufacture any product anymore, and also , they can just say, I want to build this kind of computer, and ask the suppliers, who can offer the lowest price , but the quality still in control, they can do this step with many units at the same time with different suppliers which means all of the product

⁴ From Course ICT management by Jeanne schreurs 2008-2009 study material

units can be made at the same time but different companies with lowest price. So, they can concentrate in market and new product design.

2.2.1.2 Competitiveness drivers

- Customer demand
- Improving the range and quality of services offered
- Avoid losing market share to businesses already using e-commerce⁵

Since it can low the cost, so the HP can put them to the customer demand, and provide quality service support. By via the e-business, most of order can be done with internet, which means, the type of order can be made by customer , so , the company do not need more place to store them anymore, since the client choose their demand , means they can build up a computer via internet and sent it to HP, and sent to client directly after.

2.2.1.3 Super tool for SMS.

More, E-business as a “super tool”. It enables start-up and small- and medium-sized(SMS) enterprises to go for the global market. It can:

- Creating streamlined customer oriented business processes .
- Providing customers with added value throughout the purchasing cycle
- Enhancing up and down-stream supplier relationships
- Giving the customer a holistic view of the company and its products or services
- Allowing the customers to be provided with the customised product that they want

Here I would like to use an example to talk about it.

*Amazon.com is a virtual bookstore. It does not have a single square foot of bricks and mortar retail floor space. Nonetheless, Amazon.com is posting an annual sales rate of approximately \$1.2 billion, equal to about 235 Barnes & Noble (B&N) superstores. Due to the efficiencies of selling over the Web, Amazon has spent only \$56 million on fixed assets, while B&N has spent about \$118 million for 235 superstores. (To be fair, Amazon has yet to turn a profit, but this does not obviate the point that in many industries doing business through e-commerce is cheaper than conducting business in a traditional brick-and-mortar company.)*⁶

A small company can do big things as we can see form the top example of e-business. Via Internet, everything is possible, why? Because, through e business, a company does not need lot of cash

⁵ Course of E-business by Jeanne schreurs 2008-2009 study material, Authored by E.E.Grandom, J.M.Pearson: e-commerce adoption: an empirical study of S&M US businesses. *Information & Management*

⁶ From E-Commerce and E-Business , Author by Zorayda Ruth andam, 2003

to running business. Normally, a company will need a department to sell and a department to manufacture and supplier product, a department to deliver, a department to take care of finance. But , through, e-business, all of these department can be replaced, for example, we can only hold the sell department, the ask different companies to take care of manufacture and deliver, the hire a finance company to manager our account. So, what we need know, just a few sell man and some quality control managers(may not). However, this does not means that a company can be success without a good e-business strategy. A good e-business plan must fix with old economy values. Other else, it won't work.

2.2.2. What does e - business development need?

E-business plays a major role in the world's economy today. As the e-marketplace becomes more valuable, it attracts new entrants and created turmoil in the market. There have been many spectacular successes and many failures. Here, I would like to discuss how to build a good e-business from the point of internal and external factor.

First, let us have a look the environments in which e-business services are provided:

In purpose to explain the influencing factors of implementation e-business in banks, we will use frame (figure4) that illustrates the environment in which e-business services are provided, as it is used in Dave Chaffey's E-Business and E-Commerce Management⁷.

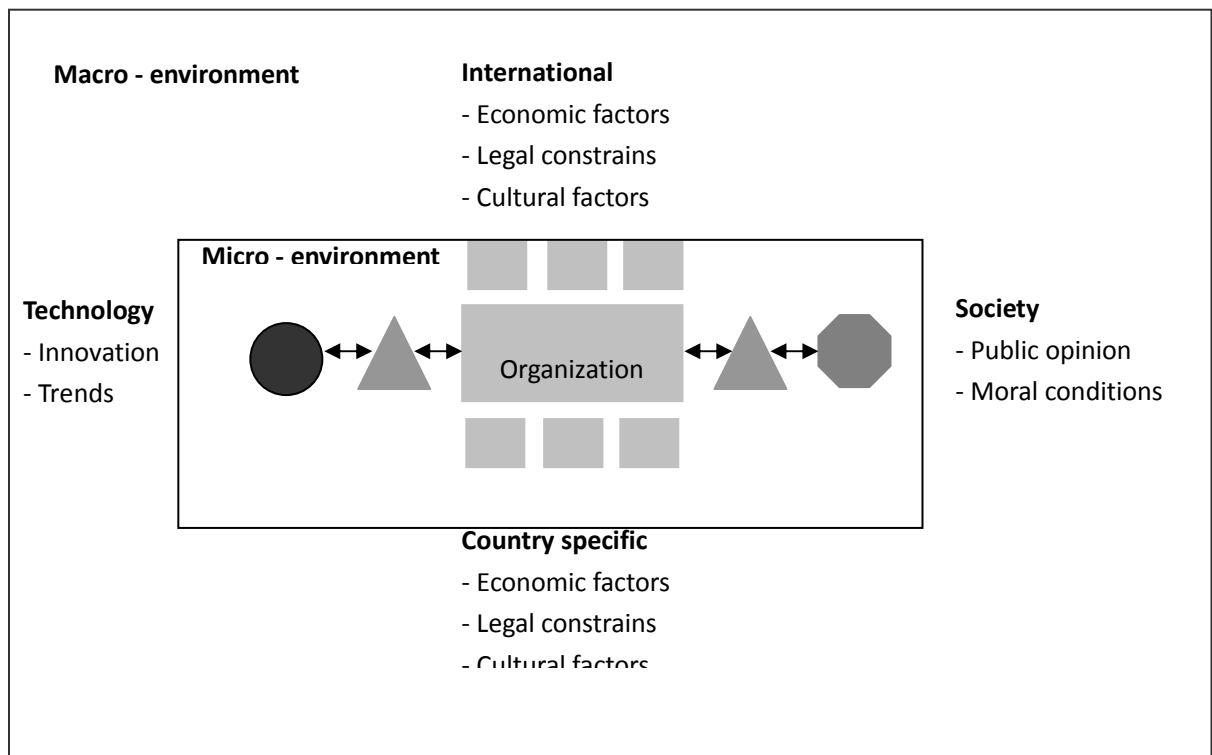


Figure 4 The environment in which e-business services are provided

⁷ Dave Chaffey (2007) E-Business and E-Commerce Management, 3rd Edition; Pearson Education UK



Dave Chaffey (2007) E-Business and E-Commerce Management

As we can see from the Dave chaffey's macro-environment and micro-environment factors influencing E-business , in e-commerce strategy point, the main influences are the direct market that is shaped by the client demand and how to provide them services via suppliers by competitors and middleman, which refers to micro-environment.

The Macro-environment influence on e-commerce strategy, according to Chaffey wider,it concerns on local and international economic situations and legislation as well as society affect. The new technology has power to re-change the character of the market and they provide range of opportunities for company to provide superior services to competitors.

Respond to environmental influences is essential for sustainable development and growth of the company. In this report we will deal with influencing factors and their influence in implementation of e-business solutions. Given factors refer to Chaffey's macro-environment.

2.2.2.1 Internal and external factors:

- 1 Computer equipment and employees training and education background.
- 2 Company willing to e-business. And feel good and usefulness,
- 3 Competitor situation.
- 4 Easy to use and cost and benefit must be balanced.
- 5 Good strategy of go to online.

2.2.2.2 E business development life cycle (SDLC)

The following picture show us the basic way of e-business development. First ,allow me to do a small introduction about the system development life cycle. What is SDLC, you may ask?

Nowadays, systems are so big and complex that teams of architects, analysts, programmer, testers and users must work together to create the millions of lines of custom-written code that drive our enterprises.

To manage this, a number of system development life cycle (SDLC) models have been created: waterfall, fountain, and spiral build and fix, rapid prototyping, incremental, and synchronize and stabilize.

A system development life cycle is a systematic and orderly approach to solving system programs.⁸

At first, we do not know how big and complex to set up our business with “E”. So I just use a kind of SDLC to manage my process. I choose waterfall SDLC model and use 5 steps to build it.

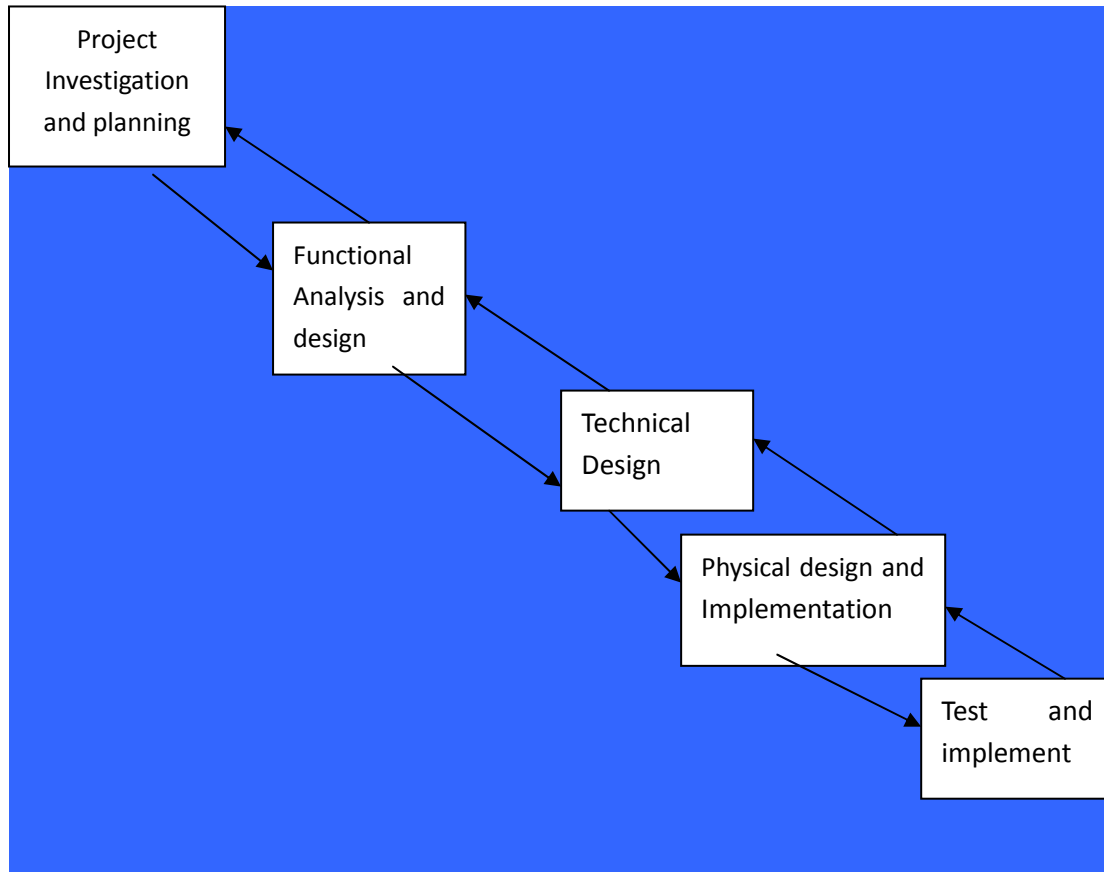


Figure 5 : The system development life cycle

The system development life cycle (SDLC) theory can be used everyday to plan, analyze, design, implement and support a system. SDLC is the process of developing information system through investigation, analysis, design, implementation and maintenance. SDLC is also known as information system development or application development. SDLC is a system approach to problem solving and is made up of several phases, each comprised of multiple steps:

For a company to set up e-business, it can be built by:

Project Investigation and planning – establishing the plan for creating an information system by Defining the system to be developed – based on the system prioritized , according

⁸*System Analysis and Design Methods, fourth edition, editor Jeffrey L. Whitten, Lonnie D. Bentley,, page 9*

to the request and company strategy with :

The project scope and Developing the project plan:— all details from tasks has to be completed, who can completed them and when they were completed must be formalized.

Managing plan:—creating project and feature creeps which allow you to add to the initial plan
Company strategy : all project develop must following the company strategy.

Functional Analysis and design – according to the requirements by step 1 and design what the system does has to do. It has involves deriving the functionality or the relation between the circuit's outputs and inputs. The result of this analysis could be and the expression of each output as a function of the inputs to the circuit.

Technical Design– this is where the technical blueprint of the system is created by Designing the technical architecture – choosing amongst the architectural designs of technology that will best suit the system and future needs .

The concept of Technical Design assumes that artistry and craftsmanship are uniquely connected and interdependent. Lee Simonson wrote that the life of a scenic idea is inextricably related to the search for the mechanical means of realization that will not destroy it. The work of the technical director and the production staff therefore, must involve both aesthetic contribution and technical competence. Modern design challenges require a creative approach rather than dependence on "traditional" scenic methods. Design experience and strong skills in geometry, trigonometry, and simplified structural engineering form the basis for efficient problem solving and the true realization of the scenic idea.⁹

Physical Design and Implementation

Logical design is what did you draw with a pen and paper or design before building program...

Physical design is the creation of the database with SQL statements.

During the physical design process, it converts the data gathered during the logical design phase into a description of the physical database structure. Physical design decisions are mainly driven by query performance and database maintenance aspects. For example, choosing a partitioning strategy that meets common query requirements enables Oracle to take advantage of partition pruning, a way of narrowing a search before performing it. Designing the system model by using software include screen design, and databases, to placement of objects on screen .executing the design into a physical system by Building the technical architecture and building the database and programs, and testing the system.

During the logical design phase, we have defined a model for our data warehouse consisting of entities, attributes, and relationships. The entities are linked together with relationships.

9 From technical design and production in <http://www.theatre.vt.edu/TechDesign/>

Attributes are used to describe the entities.

Then we go to the last step: **Test and implement.**

Off course, the e business system must work with company strategy, and then we can see this company have get into e business. Without company e strategy support , the system will work without target and such company can only be seen as ON the web.

2.2.3 What kind of problem may show up?

How ever, can the manual business be replaced by e-business? I do not think so, the reason is as human being, and we need to communicate with people with eye contact. In manual business, we can keep our customer by personal passion, but in e-business, it brings a big problem, how does an e-business company keep their customers' loyalty?

It is much harder to keep a loyalty customer in e-business Company than normal way. In e business, the customer only attract by web side, pictures, videos, that means, if another one has better web view than yours, even your product better than him, he still can get market. To solve such problem, we can use the benefits that the internet brings to us---communication with people anytime anywhere.

2.2.3.1 Build client database.

With web technology, we can manage and update our client database anytime and anywhere, analyze client's needs and their psychological request. It cost less than ever, help us to adjust our product by clients' motivation.

2.2.3.2 Build and keep favorable image and credit.

In e-business, the manual commutation was replaced by digital contact, so, the product quality directly influenced the client's loyalty. Keep product same as the web described. The domain name must be easy to remember, because their will be a wild of data your client may touched, only few of them useful, and tiny of them can be remember.

2.2.3.3 Communication using client's database

Provide personal service by using client's database. And communication with your client via web side, answer their question on time.

2.2.3.4 Barriers to set up e-business

There are also some barriers to set up e-business:

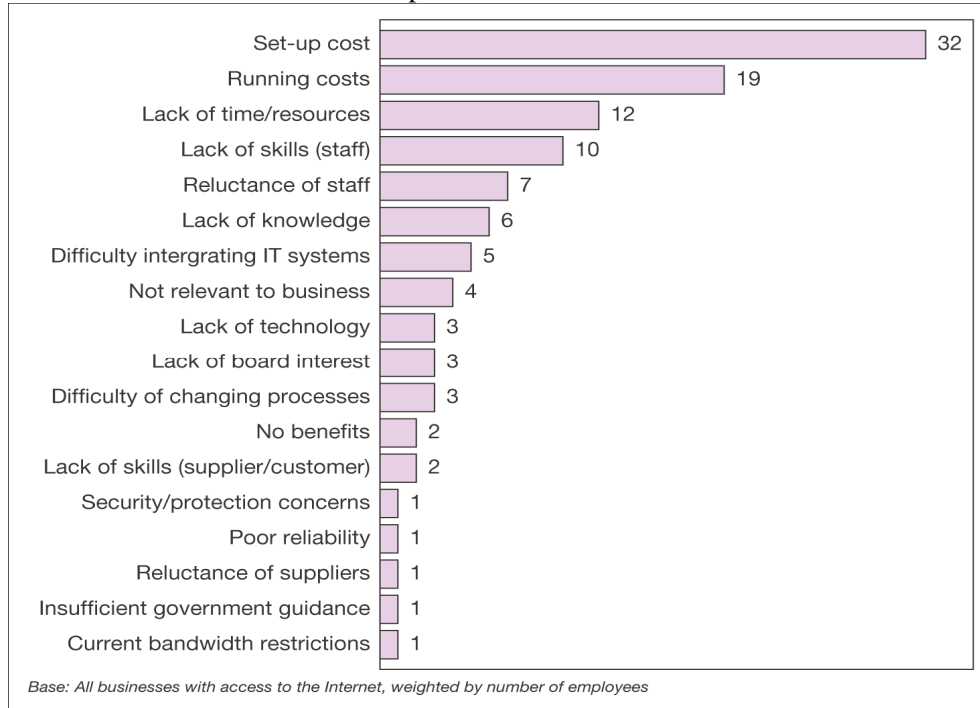


Figure 6 Barriers to set up e-business ¹⁰

As we can see from the top figure, weighted by the number of employees, the main barriers are the costs, such as set up cost and running cost. Also the human resources and security concern etc. Something more:

- a. Lack of skills, trained staffs, and knowledge.
- b. Lack of skills(clients and suppliers)
- c. Difficulty intergrading IT systems
- d. Not relevant to business and lack of board interest.
- e. Poor reliability and no benefits
- f. Reluctance of suppliers
- g. Insufficient government guidance

¹⁰ Course material : E-business and e-commerce management, D.Chaffey, Prentice hall

2.3 Conclusion

In this chapter, we have discussed the e-business adopted by company, now, we have a clear view about what we can get from e-business and what should be pay attention. And also , we have know how to set up the e-business in the company and why should a company should adapt it. In the next chapter, we will focus on the revolution of e-business, the new model---Mobile information system.

Chapter 3:

Why Mobile e-business system (MES)?

In today's e-business world, E-business is rapidly spreading wildly. Firms that adopt this innovative way to sell or deliver services and manage customer relationships must make technological and strategic changes as the use of mobile technologies is steadily on the increase. By joint with wifi and internet, The next generation e-business will be mobile e-business.

What are the Mobile e-business system (MES) approaches and problems and challenges? In this chapter, I would like to show us why the MES is a great solution in E-business through a Nokia case study¹¹.

3.1 What is Mobile e-business? What is the difference between Mobile e-business and e-business?

3.1.1 What is Mobile e-business?

Until now, we still do not have an authoritative definition for MEB, If we seen it from technical way, the MEB can be seen as a new branch of E-business, but, from applied way, the MEB can be seen as a joint type with business+ internet + wifi(or 3G).

*"Mobile Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device."*¹²

Let us take a look about next photo from Nokia research center:

¹¹ Nokia Research case from Johan Bergquist, Ph.D. senior research engineer of Nokia research centre, Tokyo

¹² Tiwari, R. and Buse, S. (2007): The Mobile Commerce Prospects: A Strategic Analysis of Opportunities in the Banking Sector, Hamburg: Hamburg University Press

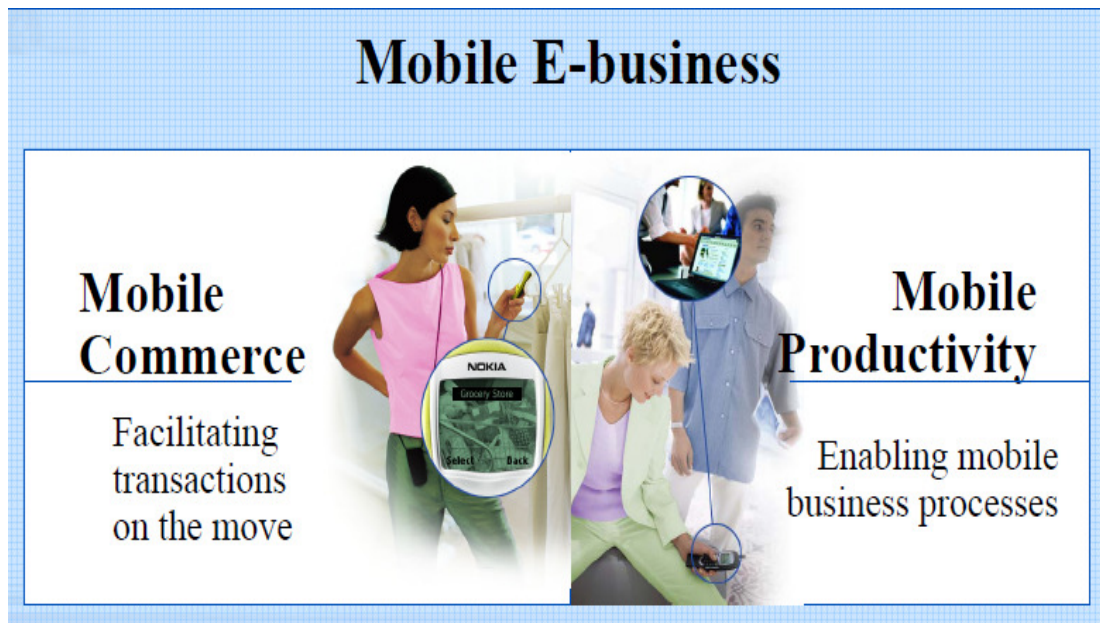


Figure 7: Mobile E business¹³

What is Mobile e business; similarly, Mobile e business is the joint of mobile commerce and mobile productivity. So, generally, Internet now can be browsed by PDA and Mobile devices e.g. a mobile phone (cell phone), a PDA, a smart phone and other emerging mobile equipment such as dash top mobile devices. Mobile Screens are increasing day by day. Mobile users love to check e-mails and many other applications on their mobile devices which turning e-business or e-commerce into mobile commerce.

3.1.2 What is the diffidence between Mobile e -business and e-business

Based on the chapter 2 study and the definition of MEB, I am made the next table gives us a general distinction between e-business and MEB.

E-business	MEB
Web-based extensions of the business enterprise	Mobile extensions of the business enterprise
Web and computer-based solutions for improving business productivity and performance	Mobile Phone/Handheld terminal-based solutions for improving business productivity and performance

¹³ Nokia Research case from Johan Bergquist, Ph.D. senior research engineer of Nokia research centre, Tokyo

Web and computer-based solutions that allow the launch of new business models	Mobile Phone/Handheld terminal-based solutions that allow the launch of new business models
---	---

Figure 8: Basic distinctions between E-Business and MEB

Basically, E-business is shortly refers to do the business over the internet, it aims at web and computer based commercial transactions. But the MEB is refers to do the business via Mobile equipments. However, both need the web technical support. But MEB is not only tied the business functions on Mobile equipments, "m-business would enhance existing e-business functions and applications and launch new ones, totally mobile instead to being tied to desktop terminals"¹⁴, it also provide functions and applications that e-commerce has limited success in delivering.

3.1.3 Other function of MEB

We can see from the next graph which shows us more between MEB and e-business and other abilities that MEB have.

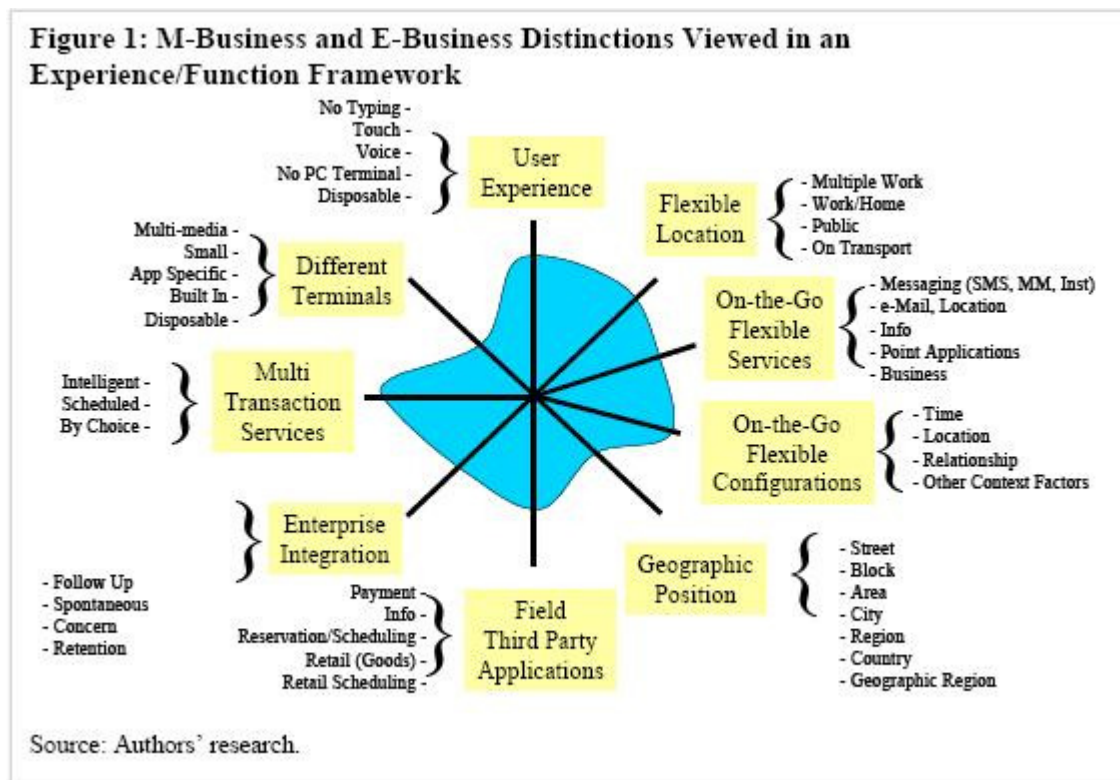


Figure 9 : the abilities that MEB and e-business ¹⁵

¹⁴ Samuelsson, Mats, and Nikhilesh Dholakia. *Assessing the Market Potential of Network-Enabled 3G M-Business Services*. College of Business Administration, University of Rhode Island. 2002. 27 Feb. 2006

¹⁵ Samuelsson, Mats, and Nikhilesh Dholakia. *Assessing the Market Potential of Network-Enabled 3G M-Business Services*. College of Business Administration, University of Rhode Island. 2002. 27 Feb. 2006

So. As we can see that there are so many abilities that MEB can offer, I would like to focus on the more important points appear on now days MEB, which are:

User Experience: With e-business, the user must remain in front of the desktop and limiting to typing, pointing and clicking, and possibly the use of voice activated applications. However, with MEB, the user becomes totally mobile and has access to applications activated by either touch or voice.

Enterprise Integration: MEB makes the business outside the office. *"Services and applications that required office visits and meetings could now be delivered on the go with full access to all enterprise applications residing on business IT and information systems"*¹⁶. Now, employers can catch on their employees out in the field without have to meet them face to face.

Flexible Location: With wireless mobility(or 3G), the user can work, do daily chores, and/or play at work, home, recreational, shopping, and vehicular locations. However, this is not always true. We will discuss it in the next chapters.

Anyway, With wireless connection, the MEB is more convenient and reach-ability for users, in practical, people can take their work with them on and go. Thus, they can access the same documents and information resources that are accessible on their desktops. But all of this depending on the reach-ability of wireless networks which may cause problems (we will discuss it later)

3.2 What are MEB approaches and challenges (disadvantages)?

3.2.1 How to approach the MEB?

Today, computer and internet has growing rapidly ,which not only provide mobile engineer with the tools and services that allow them to access and interact with data (and services) and to work more efficiently, but also support the mobile users with access to the data and applications they require to be productive.

3.2.1.1 Characteristics of the mobile environment

There are several unique characteristics of the mobile environment must be addressed:

¹⁶ Nikhilesh Dholakia. *Assessing the Market Potential of Network-Enabled 3G M-Business Services*. College of Business Administration, University of Rhode Island. 2002. 27 Feb. 2006

- 1. Most mobile links are high latency, low bandwidth, unreliable connections, especially when compared to office networks.
- 2. Disconnected operation is the rule, not the exception.
- 3. Most roaming users use two or more devices to support their activities.
- 4. The diversity of devices, networks, network connections, and operating systems negates a "one size fits all" solution.
- 5. Remote and disconnected access makes mobile users more difficult to support and manage.
- 6. Mobile enhanced network services provide efficient, cost-effective, secure, and reliable communication support for mobile users enabling access to data and services.
- 7. Transcending services filter, enhance, convert, or reformat content to enable access to data by different devices, networks, and I/O mechanisms (such as speech).
- 8. Disconnected services support operations -- such as caching, data synchronization, and asynchronous message queuing -- which give devices currently disconnected from the network access to data and applications.
- 9. Pervasive device support enables a wide variety of devices and their unique characteristics.
- 10. Systems management addresses the unique requirements of the mobile environment in the areas of software distribution, configuration management, availability, and inventory management.

3.2.1.2 MEB approaches by IBM

As part of the Framework, IBM has defined a complete set of pervasive computing services to satisfy the unique requirements of the mobile user.

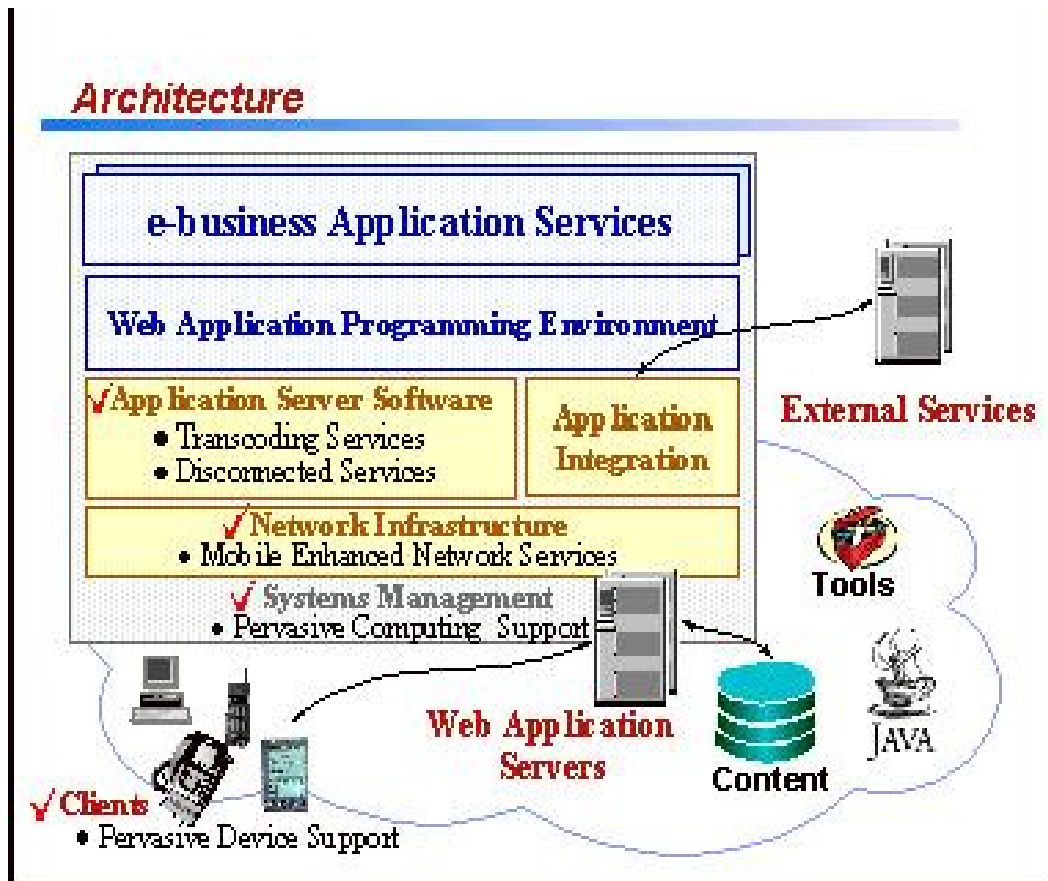


Figure 10 : MEB approaches by IBM

According to the IBM research work, the MEB approaches can be done as the users have to be able to apply the applications and data in consistent and natural manner from Mobile devices via connections of network. For example, time in mobile devices must be same whether it is applied via a Local network laptop or a WIFI smart phone.

As the lower application of Wi-Fi networks, the most mobile devices are work on the disconnected mode. The idea of MEB is the user of these mobile devices must be able to browse web application even the network connection does not work. They should be able to read and reply e-mail and other desktop applications. When the network connect work, they should be able to apply business applications, keep in step with their local data to the server and receive updates from the efficient manner via network.

3.2.2 The challenges and disadvantages for MEB:

First, I will formulise the situation of MEB application and MEB barriers. Then we can get into the challenges and disadvantages of MEB.

3.2.2.1 SWOT analyze about Mobile application

Based on the study of E business on chapter2 and the above study, I can formulise a SWOT analyzes about MEB.

Here, I would like to use the SWOT analyze to show us the situation of Mobile e-business.

Figure 11: SWOT analyze about Mobile application

Strength	Weakness
<ol style="list-style-type: none"> 1. anytime , anywhere 2. fast and effective 3. provide low cost 4. set up with low price 	<ol style="list-style-type: none"> 1. less commutation with client 2. less information provide 3. read ability is low
Opportunity	Threat
<ol style="list-style-type: none"> 1. Mobile device can be easy get. 2. convenience and easy use 	Security reason.

As we can see that even the mobile e business has bring a lot of advantages:

Strength: such as anytime and anywhere, people can keep touch with your business. It can be fast and effective via net work with low cost.

Weakness: But it still has weakness, such as low read ability, small screen, less information provide.

Opportunity: Mobile devices can be easy get, in some countries, one person can hold more than one mobile devices. And it is easy to use.

Threat: like all net work devices, the main threat is security. However, because the application system is different with computer, I believe that it is safer than normal web-devices.

Now, after we have a clue about the situation of Mobile application, before we find out the challenges and disadvantages about MEB, I would like to discuss the MEB barriers first.

3.2.2.2 MEB barriers

Even the Mobile Commerce adds value to all players in the ecosystem but barriers exist...

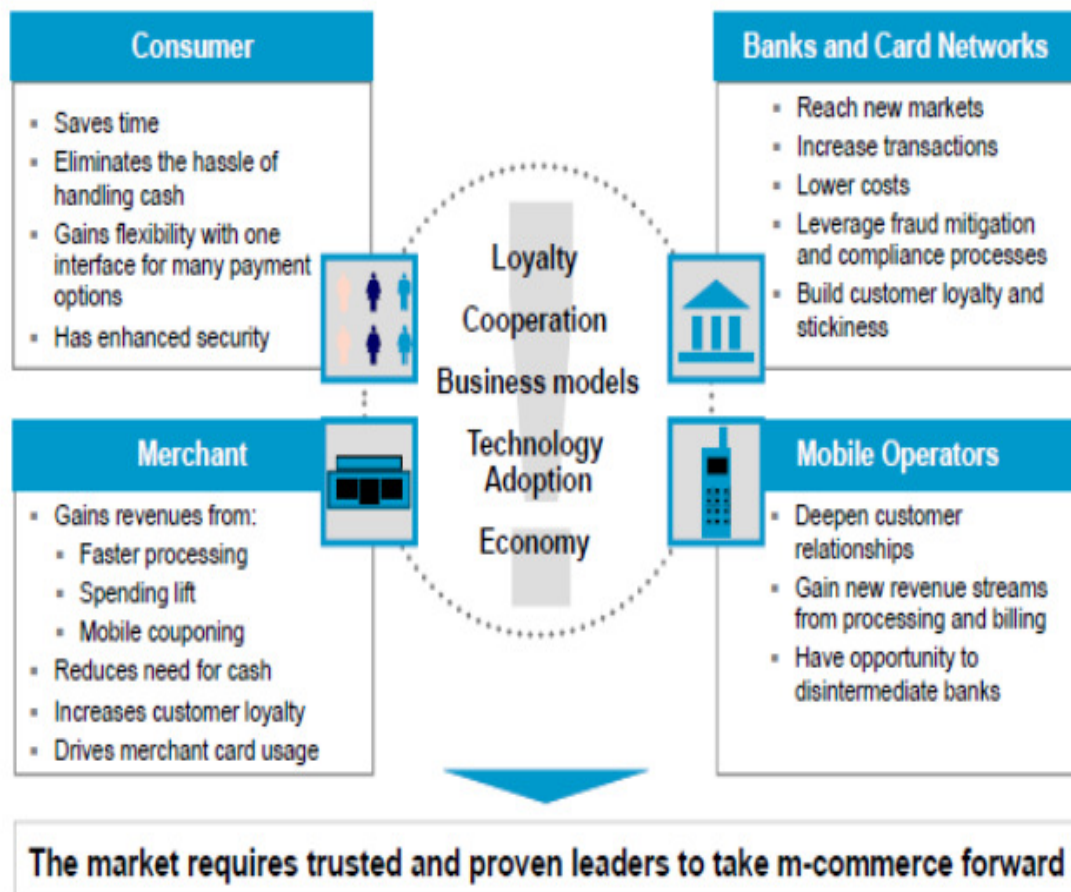


Figure 12: Mobile e-business barriers.

We can see from the top figure, the four entities have different requires:

The client want saves time and eliminates the hassle of handling cash, to gains flexibility with one interface for many payment options with enhanced security.

The shops want gains revenues from faster processing and spending lift and Mobile couponing. They want increases client loyalty.

The Banks and card networks want reach new markets, to increase transaction with low cost, to build client loyalty and stickiness.

The mobile operators want to have deep client relationship and have opportunity to disintermediation banks. To gain new benefit streams from processing and billing.

All of the requires from them and the market has lead to take the Mobile-e business forward, which brings the main barriers for Mobile e-business, they are low loyalty, difficult to cooperation , there is no business model to follow, the technology still unreliable .all of there barriers brings the disadvantages to MEB.

3.2.2.3 Challenge and Disadvantages of mobile e business

Based on the SWOT analyze and MEB barriers study, we can adapted the challenges and disadvantages of MEB.

Challenges:

1. The main challenge of mobile e business is to educate customers and to raise their interest. Also,
- 2 **Security:** one of the greatest challenges for MEB, because the wireless networks are easy to hacked, that is why we are develop a new net work police in china.
3. **Management:** Because as MEB allows mobilization, the workers is becoming more and more distributed. The further the worker is distributed, the harder it is for the company to manage, all the way from servers to the mobile devices.
4. **Data access:** The key for MEB to be successful is data access. Unlike the normal desk computer work, MEB's data access must be small and simple, because the device screen and data transfer.

Disadvantages:

The MEB depends entirely on the Internet as its infrastructure. The system breaks down when a user cannot connect to the Internet. The system does not work in places where Internet service is not available. The system is disrupted whenever the Internet suffers a disruption such as when underwater data cables are damaged by earthquakes as in the case of the 2006 Hengchun earthquake or 2008 submarine cable disruption in the Middle East that disrupted internet service between the Middle East and Europe.

However, ever system has its own weak point, by using the new technology, such as WAP(Wireless Application Protocol), Mobile IP, Blue tooth and WLAN(Wireless Local Area Networks) , GPRS and 3rd generation mobile system, we can avoid the system crash down.

3.3 Why the MES is a great solution in E-business.

First, Let us take a look the next figures according to Nokia research work on the mobile market:

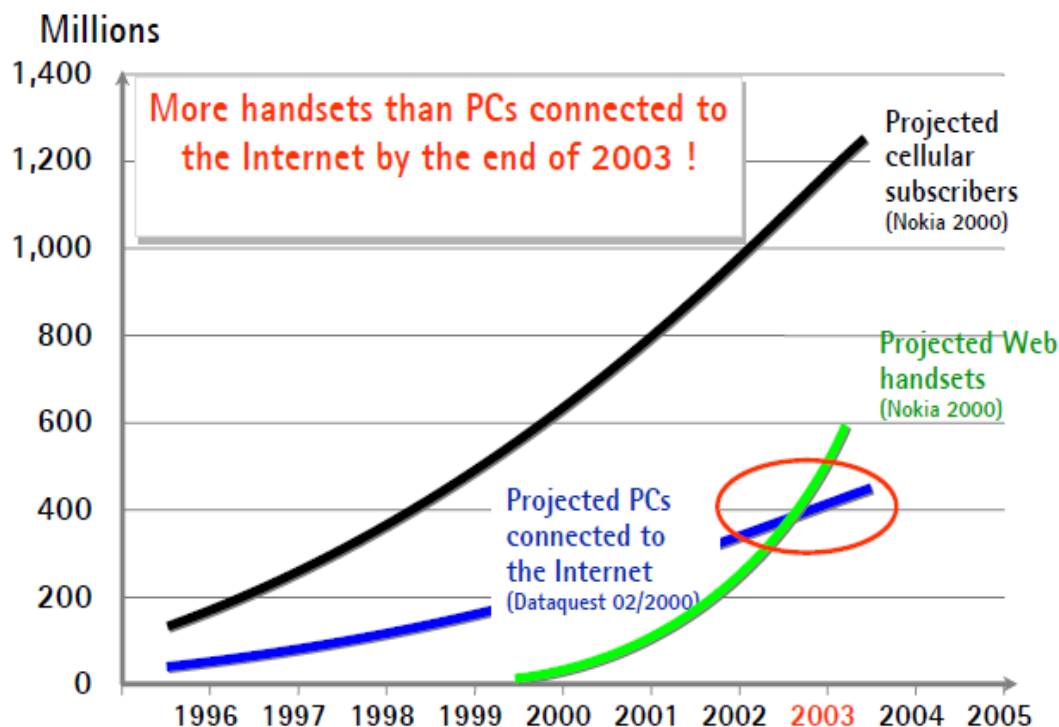


Figure 13: Mobile phone centric future¹⁷

We can see that more handsets than PCs connected to internet by the end of 2003, during to the year 2005, more and more people would like to connect to the internet by their handsets, no longer PCs. So, there is no doubt that Mobile e-business will evolving the whole e-business conception.

What are the benefits we can get form it?

3.3.1 Benefits of Mobile Commerce (m-commerce)

- * Customers can access products catalog on their mobile devices.
- * Companies can sell their products with promotions without limits by time and place.
- * Customers can order details from any palce.

With the Mobile e-system in place, entire businesses can be moved onto the internet. Enterprise databases can be remotely accessed and updated from anywhere in the world, at

¹⁷ Nokia Research case from Johan Bergquist, Ph.D. senior research engineer of Nokia research centre, Tokyo

anytime, with any device equipped with a Web Browser and by anyone with permission to access the service. **MEB** is real-time and fits the Just In Time (JIT) business strategy. **MEB** leverages existing Internet infrastructure and TCP/IP installations. It is economical to implement and easy to use. Mobile Enterprise is not limited to mobile handsets. It is convergent technology, whereby the applications are, at the same time, accessible using laptops and desktops over land lines and Wi-fi networks.

On mobile decision support, *Linus Parker, UK managing director of ERP company Intenia, says: 'Sales teams will be able to check stock levels, undertake product configurations and order processing - all in real time. In the area of finance, there will be the opportunity to check the status of debtor days and cash flow.'*¹⁸

*'The ability to provide services over the air affords a competitive advantage in the speed to deliver, and the pricing of, services. This untethered connection has a broad appeal to both the consumer and the enterprise. It enables the delivery of business, personal, social and entertainment services to areas that would not normally have been able to receive such services. In business, the benefits of a ubiquitous network connection lie in the immediate access it provides to corporate networks outside of the office walls. The untethered feature of wireless extends the enterprise and aids productivity'*¹⁹

E-commerce will coming soon become Mobile Commerce (m-commerce) because mobile devices are more user friendly than computer. Peoples checking movies details and many other useful information on their mobile devices. Many companies are accepting payment by SMS payment system. also can use Mobile Commerce (m-commerce) to increase sales of their products and services. Mobile commerce can bring huge buyers for companies. there is no doute that In future Mobile Commerce (m-commerce) will be sales and marketing showcase, educational application for companies.

3.3.2 The future of MEB

The MEB has to be believed that it will growly fast, according to the "Mobilie e-Business:L Distrutive Technology or Untethered Extension of Business as Usual?" The MEB was driven by three factors:

- a) *"the excitement about the technology and its capabilities"*
- b) *"the continuing growth of wireline e-commerce"*
- c) *"the rapid adoption of wireless devices across the world"*²⁰

¹⁸ Graham Curtis and David Cobham (2002). *Business Information Systems*. Financial Times Prentice Hall

¹⁹ Characteristics of Wireless Access Networks, Carty, Glen (2002). *Broadband Networking*. McGraw-Hill/Osborne

²⁰ O'driscoll, Tony, David Reibstein, and Venkatesh Shankar. *Mobile e-Business: Distrutive Technology or Untethered Extension Business as Usual?* NC State Univerity; Wharton School, University of Pennsylvania; Smith School of Business, University of Maryland. 2002. 1 Mar. 2006

However, as technology developed, the MEB has become pervasive and most popular, the main target for firms by adopting MEB is to add value and increase income. As we can see from next chart ,it will shows us the MEB value chain.

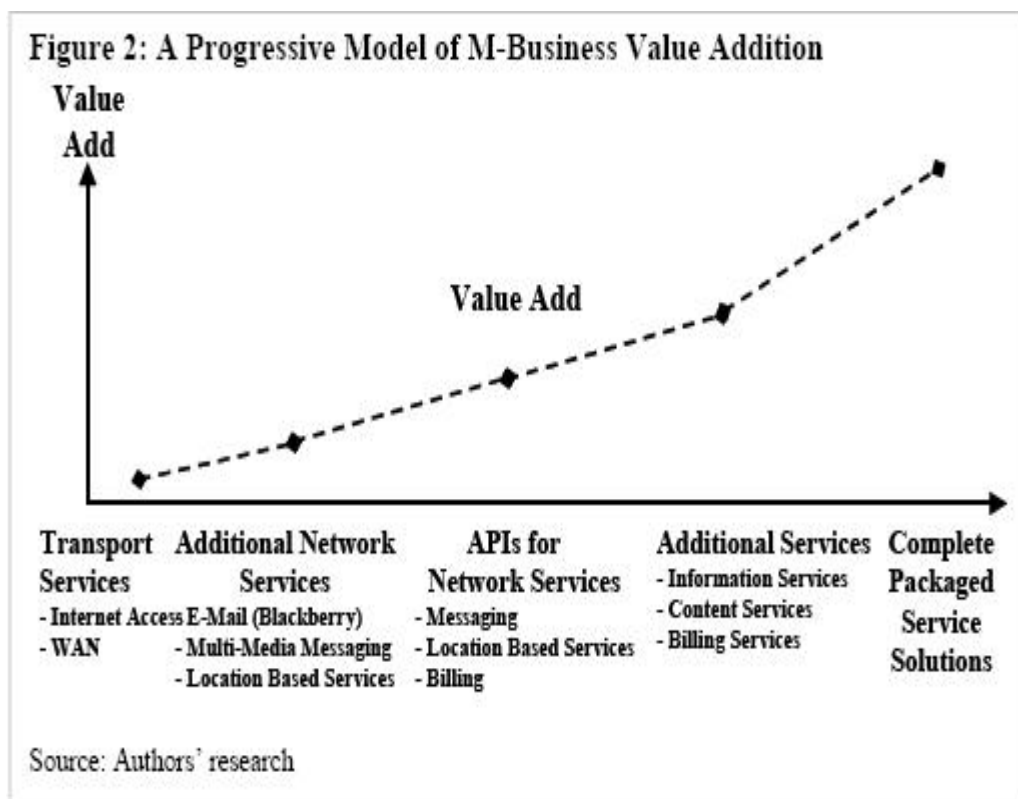


Figure 14: the MEB value chain ²¹

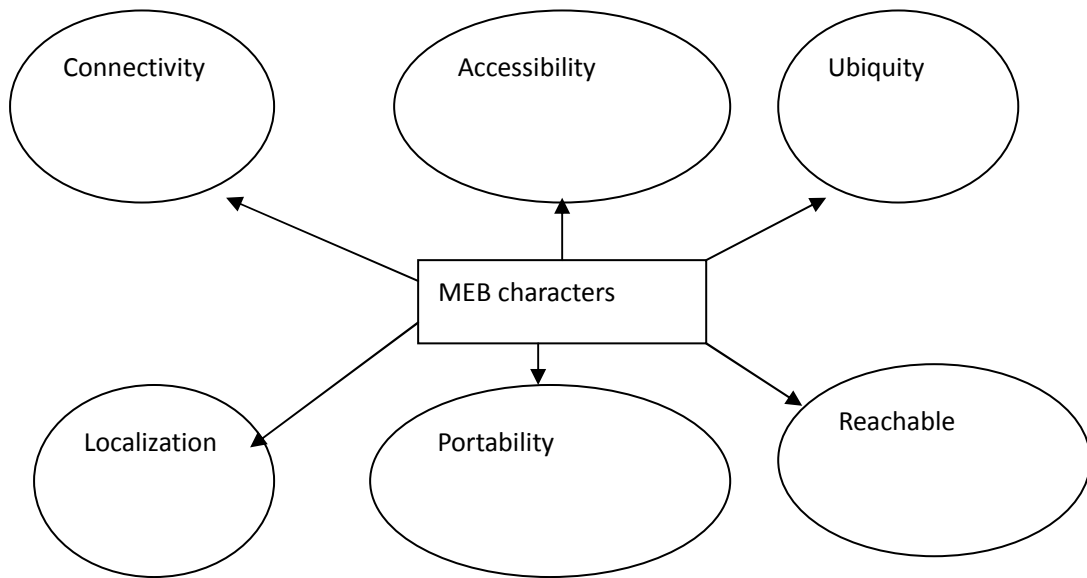
At the first, the mobile devices only provide transport services such as limit net access , the company can get litter benefit from it, as they provide more and more services , such as e-mail, location based services, network services and billing services, the value of company increase.

Right now, many companies have already reached the fourth step- provide additional services, such as provide information, billing and sent messages. To reach the last step, companies need to solve problems through mobile.

But, to achieve the top of the value chain, we must understand the different characteristics within MEB.

The following has shown us the different characteristics within MEB.

²¹ Samuelsson, Mats, and Nikhilesh Dholakia. *Assessing the Market Potential of Network-Enabled 3G M-Business Services*. College of Business Administration, University of Rhode Island. 2002. 27 Feb. 2006



As we can see that MEB system must be contains the following characters which are Connectivity, Accessibility, Localization, Portability, Reachable and Ubiquity.

The ubiquity is the future of MEB, means, people can touch with each other anytime and anywhere around the world. The technology is update day by day, in china, many companies has already approached the MEB serves.

There is no doubt that the world is on your hand.

3.4 Conclusion

In this chapter, we have been discussed the advantages and disadvantages about MEB, and why it is a great solution for the E-business, and how to approach it. We also have got a clear idea about the difference between e business and mobile e business. In the next chapter, I would like to talk about the most important part of MEB and even in E-business—e payment.

Chapter 4:

Introduction of e-payment in MES

After discussed the Mobile e-business bravely, we already has idea about what is it and how does it work. Now, we will going deeply, the most important part of MEB---E payment which is also the reason keep many worldwide company out of the room. Ever time when we using the computer or other net work devices, we always ask: does it self?

“I have heard thousands of hack attack and people lose money , privacy when they using such devices. Now, you want me to go deep, by using the mobile e-business, no way. “

“*The Mobile e-payment can not work normally and safely within five years*”,Said by chief ICT department of KBC bank in Prag.

Is that so? Personally, I believe that the mobile e-payment can be adapted even now with the exist technology support. In this chapter, I will show you how safety it is.

4.1 What is the e-payment?

An e-commerce payment system facilitates the acceptance of electronic payment for online transactions. Also known as Electronic Data Interchange (EDI), e-commerce payment systems have become increasingly popular due to the widespread use of the internet-based shopping and banking. In the early years of B2C transactions, many consumers were apprehensive of using their credit and debit cards over the internet because of the perceived increased risk of fraud. Recent research shows that 30% of people in the United Kingdom still do not shop online because they do not trust online payment systems. However, 54% do believe that it is safe to shop online which is an increase from 26% in 2006²² .

The e business has become the most active business within a decade. Also, supported by online shopping and pay or buy system, almost everyone are using it now or future. There are numerous different payments systems available for online shops. These include the traditional credit, debit and charge card but also new technologies such as digital-wallets, e-cash, mobile payment and e-checks. Another form of payment system is allowing a 3rd party to complete the online transaction for you. These companies are called Payment Service Providers (PSP), a good example is Paypal or WorldPay.

So, what is e-payment? Let us use bank as example, take a look the next figure.

²² Third of internet users too scared to use credit card to shop online. (2009). Retrieved: May 12, 2009 from <http://www.telegraph.co.uk/scienceandtechnology/technology/technologynews/5305146/Third-of-internet-users-to-o-scared-to-use-credit-card-to-shop-online.html>

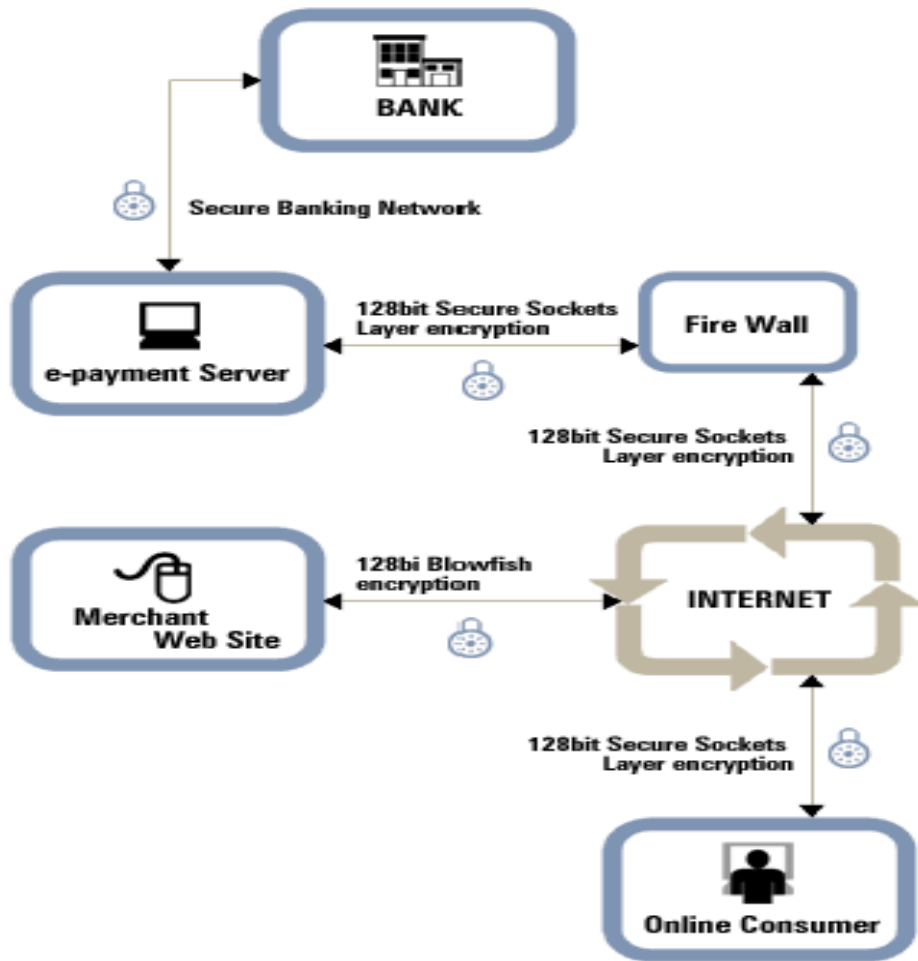


Figure 15: e-payment system in banks

We can see from the top development path, the customer purchase from shops via internet, meantime, the payment can be made through e-payment server of banks with secured fire wall. Once the payment was done, the online shop will receive message from e-payment server that they can prepare to delivery.

Basically, one in which money value is transferred by electronically or digitally(via net work) between two entities for buy or sell product or services. E payment has popular in bank system, as the develop of technology , same online company provide the mixed online payment system which allow the client to transfer money from person to person , bank to bank, person to bank , etc.

4.1.1 E payments tools:

The most popular e payments today are:

Cards: Credit cards, debit cards and prepaid cards, these has represent the most common type of e payment.

Online financial service: which provide the client to transfer money to person, bank, shop, without limit, can be done anytime and anywhere. Such as Moneybooker, paypal.

Mobile payments: as the new type of e payment, before, it was limited with security reason. But now, as the Chip and software are enable to be installed in the phone, it growing fast.

However, the e payment work in e-business is different with work in MEB. We will discus it after.

4.2 How does e-payment work in MEB?

4.2.1 What is Mobile e-payment?

As a new and rapidly- Mobile payment is a new and rapidly-adopting alternative payment method – especially in Asia and Europe. Instead of paying with cash, check or credit cards, a consumer can use a mobile phone to pay for a wide range of services and digital or hard goods such as:

1. Music, videos, ringtones, online game subscription or items, wallapers and other digital goods.
2. Transportation fare (bus, subway or train), parking meters and other services
3. Books, magazines, tickets and other hard goods.

Clients can use their mobile device to pay in several ways. They may send an SMS message, transmit a PIN number, use WAP to make online payments, or perform other segments of their transaction with the phone. As phones develop further, consumers are likely to be able to use infrared, Bluetooth and other means more frequently to transmit full account data in order to make payments securely and easily from their phone. General, Mobile e-payment can be seen as one type of e-business.

Anyway, shops can obtain an authorization for a credit or debit card transaction by attaching a device to their mobile phone.

4.2.2 Four primary models for mobile payments

There are four primary models for mobile payments:

1. Premium SMS based transactional payments

The payment was confirmed and secured by sms.

2. Direct Mobile Billing

The payment was confirmed and secured via phone number, phone ID

3. Mobile web payments (WAP)

It is similar with payment via PC, but secured via phone ID and special program within mobile.

4. Contactless NFC (Near Field Communication)

4.2.3 The mobile payment achieve

To know how to achieve the mobile payment, we need to know the Categories of mobile payments, In mobile e-business situation, the main payment methods used to enable mobile commerce are:

- Premium-rate calling numbers,
- Charging to the mobile telephone user's bill or deducting from their calling credit.
- Registration of a credit card that is linked to a SIM card.
- Billing a customer's credit card through a secure user interface.

- Payments via financial service system
- Credit/Debit card, electronic fund transfers
- Strong potential through wide consumer adoption,

Global reach and strong back-end infrastructure:

- Intermediated payments
- Operator billing, loyalty points
- Suitable especially for small payments
- Direct payments
- E-cash and electronic purses yet to show popularity
- Peer-to-peer payments e.g. over Bluetooth possible

Mobile payment has been well adopted in many parts of Europe and Asia. Combined market for all types of mobile payments is expected to reach more than \$600B globally by 2013, while mobile payment market for goods and services, excluding contactless NFC transactions and money transfers, is expected to exceed \$300B globally by 2013.²³

²³ [Japanese Drive Mobile Payment Market](http://www.ericsson.com/ericsson/corpinfo/publications/telecomreport/archive/2006/january/valista.shtml)
<http://www.ericsson.com/ericsson/corpinfo/publications/telecomreport/archive/2006/january/valista.shtml>

4.2.4 The different of e-payment work in e-business and MEB

Based on the pre-study, I could made the following table to show up what is the difference e-payment work between E business and MEB.

e-payment	Mobile E-payment
Via net work	Via mobile connection(3G) or net work
Using special program to secure the user ID	Using SMS , phone number, phone fix Id, to secure the user ID
Some using special tools	By using cloud technical support
Login function via net work	Login function can via net or SMS

Figure 16 : The difference e-payment work between E business and MEB.

The e payment work in e business is via net work with special program running in PC with secured user ID and Web-application; some are using additional tools such as usb support. The client must access it via net work.

The mobile e payment is via Via mobile connection(3G) or net work, by using SMS , phone number, phone fix Id, to secure the user ID , because the mobile devices are function-less , so, some are using cloud technical support. The client can login via net or SMS

4.3 What makes Mobile e-payment so popular?

Let us have a look the following figures:

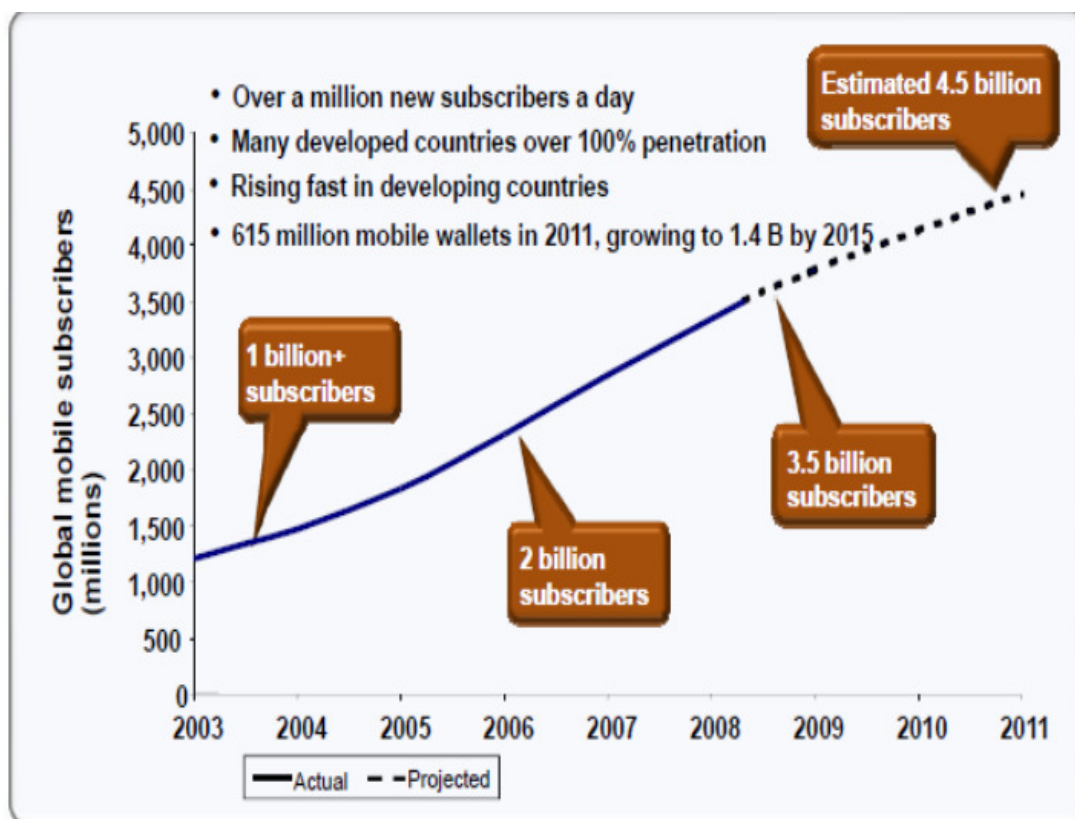


Figure 17: Increase of mobile devices ²⁴

As we can see that the mobile phone is the most successful communication device in history – it's expected to reach 4.5 billion by 2011. over a million new users per day, most important part, it rising fast in developing countries, in other word, in BRICs(Four gold brick countries).

The following figures show us that the mobile payments and contactless card payments are expected to grow significantly. Online payments will continue to dominate the “advanced payments” space but will grow at a relatively slower rate.

²⁴ 2009 Mobile Financial Services Study by Mobile payment world www.paymentscardsandmobile.com

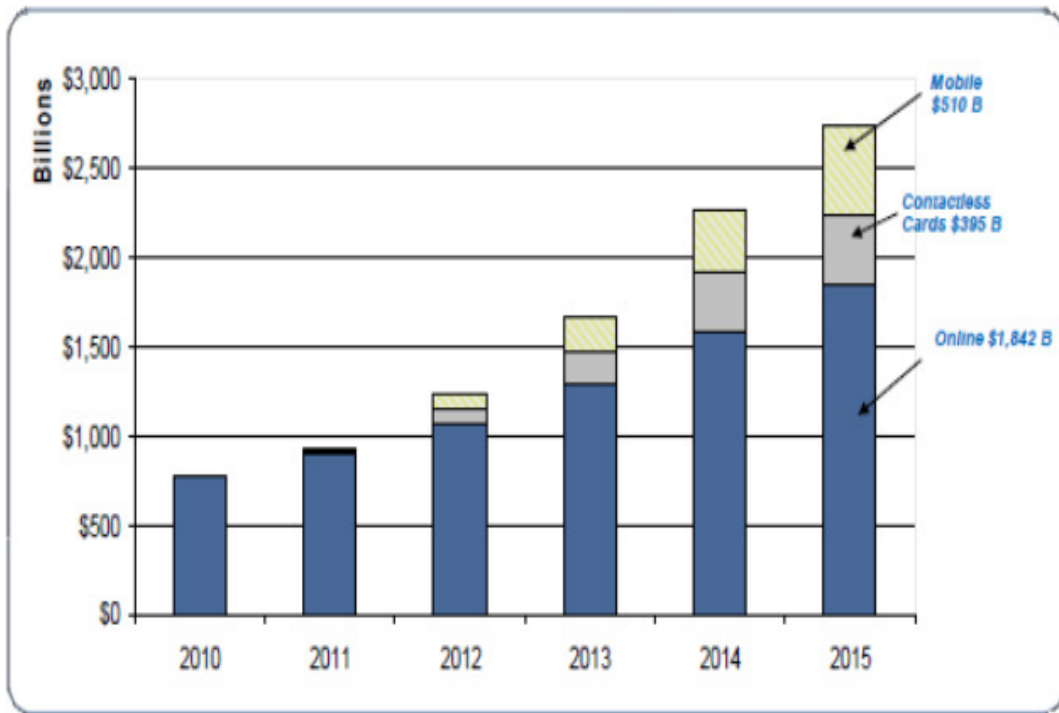


Figure 18: Global advanced payment forecasts-relative payment volumes in \$ ²⁴

Till to 2015, the mobile payment will increase to 510 billion dollars , it is less the online payment 1.842 billion dollars, but, as we can see, it growing fast than others.

The next figure has shown us the mobile banking users unbanked.

Mobile Banking Users Previously Unbanked

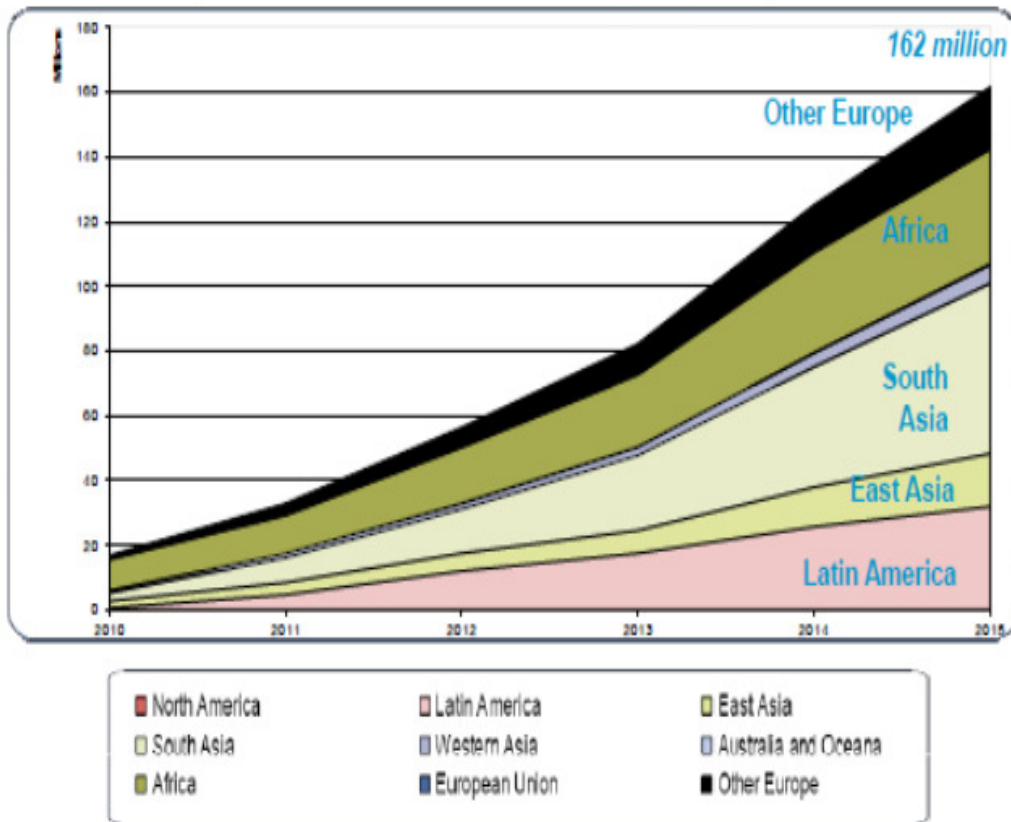


Figure 19: Mobile banking users previously unbanked²⁵

We can see that around the world, there are billions who haven't yet access to banking—but own and use mobile phones, the only access channel to banking.

4.3.1 The benefits of Mobile e payment .

Based on the above research results and figures, By using such system, it will bring us:

1. Increase revenues and average transaction value.
2. Cash and check substitution.
3. Profit for banks and mobile provider by low their cost.
4. Keep client in and make the services diversification.

Mostly, as a new thing, it has a huge market and increase fast.

²⁵ 2009 Mobile Financial Services Study by Mobile payment world www.paymentscardsandmobile.com

4.4 Security—keeps the unbeliever out

4.4.1 The e-payment security working in e-business.

First, I would like to introduce the e-payment security work in e-business.

4.4.1.1 Key element of e payment security

First, let us take a look that what are the security key element of e-payment:

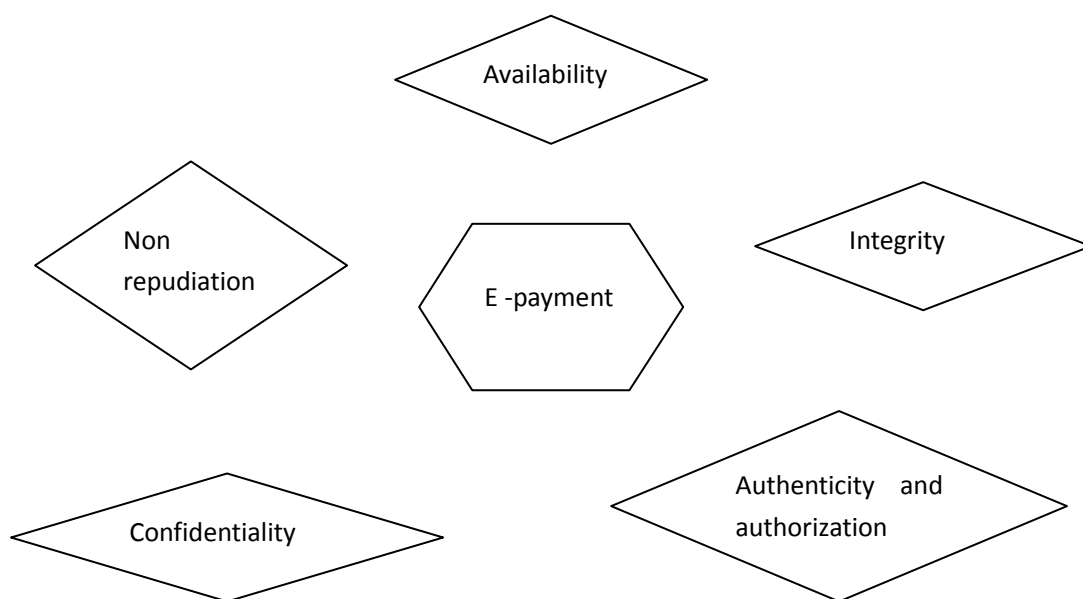


Figure 20: security key element of e payment

As we can see, for e-payment, there are some security key elements, they work together to insure that the online payments are safe.

1. Availability: The secure of e-payment must be effective.
2. Integrity: the secure of e-payment access must be complete.
3. Non repudiation: the secure of e-payment must be related.
4. Confidentiality: it must be secured.
5. Authenticity and authorization(e- signature).

More important, as part of the authenticity and authorization, the e signature has provided a way to secure e payment.

Compared to traditional payment systems, the use of the open network has allowed more convenient financial services but has also made the nature of risks more complex.

- *There is an increasing demand for security services by banking customers, above all by firms, confirmed by the vast economic literature and surveys on e-commerce and e-business*
- *Financial institutions are requested to supply on-line payments on open networks with the same security levels as traditional payment instruments.*²⁶

To win the challenge of the new technological environment, e-signature must be regarded as an enabling platform, or an essential device, to offer a complete set of trust services. These might be grouped in three levels:

A . Basic services related to validation of identity and issuance of certificates

B. Complementary services to e-signature, typically developed by the banking community, such as electronic documents management systems, attribute management, "Quality of Service" (QoS) dynamic warranty systems, secured and certified mail

C. Value added services, tailored to individual customers, like "escrow services" in business-to-business environment

4.4.1.2 Major Issues for E security:

a. Security of data transmissions

The need for treatment of cryptography in both domestic law & international agreements

- *government access to public key codes of private cryptography; &*
- *mutual recognition of cryptography standards*

b. Privacy protection

The need for explicit privacy protection laws & regulations or policies to govern the use of personal data by on-line services

c. Digital signatures & electronic contracts

The need for revising new legislation on electronic transactions

D. Certification & Certification Authorities

*The need for credibility & security for EC transactions both domestic & international*²⁷

4.4.2 Mobile-e payment security

Now, let's is going deeper, into mobile-e payment security.

Now days, the technical can provide the security for the mobile payment. The total security architecture for mobile e-business are WAP+PKI as we can see from next figure:

²⁶ E Payment System Across Nations, <http://www1.american.edu/initeb/sm4801a/epayments.htm>

²⁷ E Payment System Across Nations, <http://www1.american.edu/initeb/sm4801a/epayments.htm>

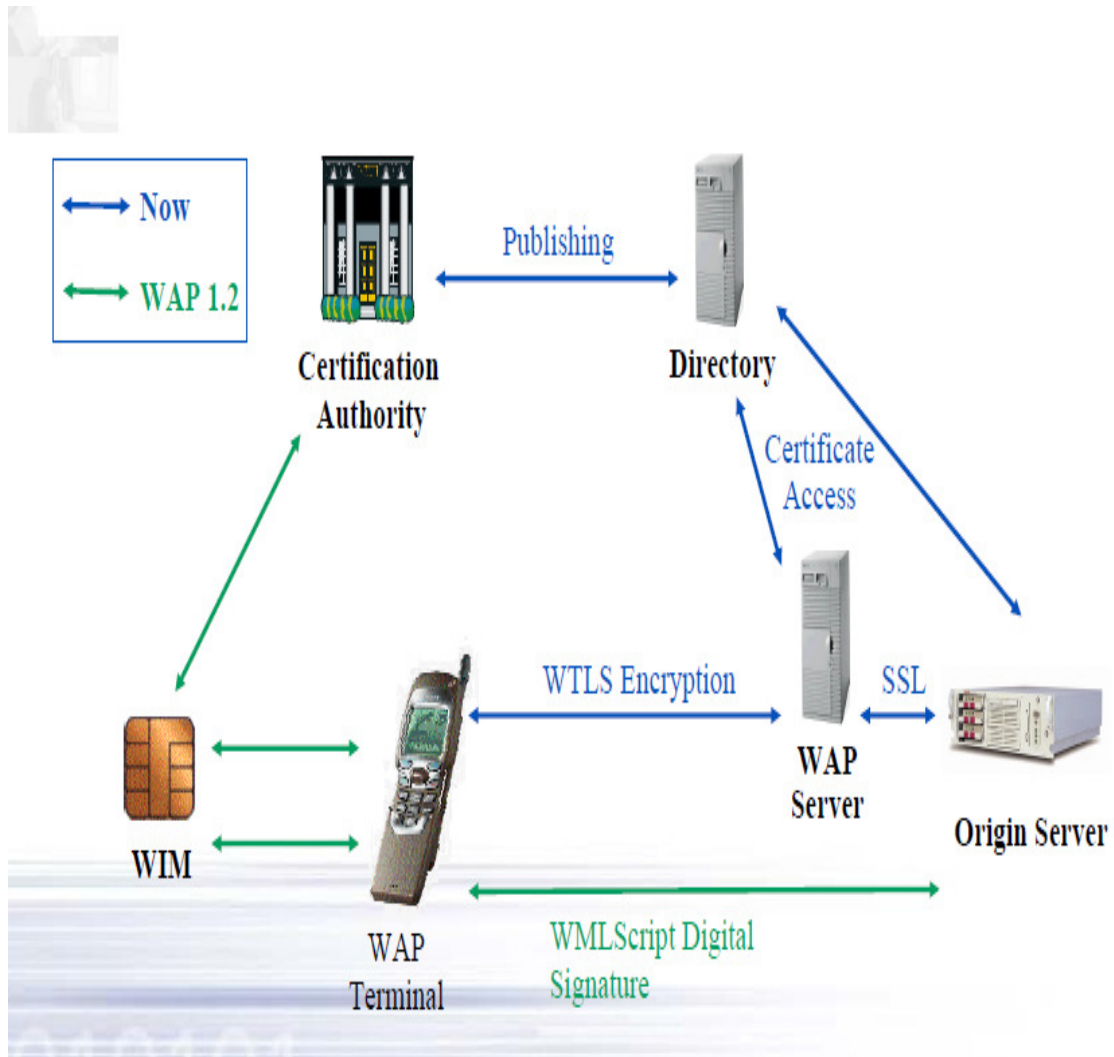


Figure 21: The total security architecture for mobile e-business is WAP+PKI

With WAP + PKI ,it will provide us the secured user environment. What is PKI infrastructure?
 PKI is a system to manage the keys, certificates on the internet based on asymmetric cryptography, which created for internet but has not been widely successful because of easy substitutes. But Plus digital signature and fix Mobile mac-ID, it will brings us a more secured payment system than PC does.

As we can see , now the mobile e-payment can give us a secured and easy use payment system, by mixed with Chip and certificate user number plus WAP digital signature. The new generation mobile phone even can install the security software which provide by banks. It is more safe than PC.

4.5 What are the opportunity and challenges in Mobile e-payment?

4.5.1 The mobile payment opportunities

Mobile devices are perceived to be in a position to exploit the mobile payment opportunities:

1. To increase transaction volumes for bank or non bank users.

The Mobile Payment (M-Payment) market is expected to grow rapidly over the next few years Mobile-Payment transaction value is expected to grow at 66% annually over the next few years, reaching USD 28.1 billion or 11.3% of the global value by 2012 as we can see from figure 18.

2. Keep client in and make the services diversification.
3. The large (and growing) gap between bank penetration and mobile penetration.
4. A large number of contractual workers who typically do not have bank accounts
5. A sizeable immigrant population making regular remittances to their home country

However, the market is still in the early stages of development and there is plenty of opportunity for new and existing players to create and capture value through a number of different business models

4.5.2 The challenges in the mobile e payment

Since the technology for Mobile e payment is already available; however, there is a general lack of standards and issues around compliance as we can saw from next photo.

Issues – Mobile Personal Payments

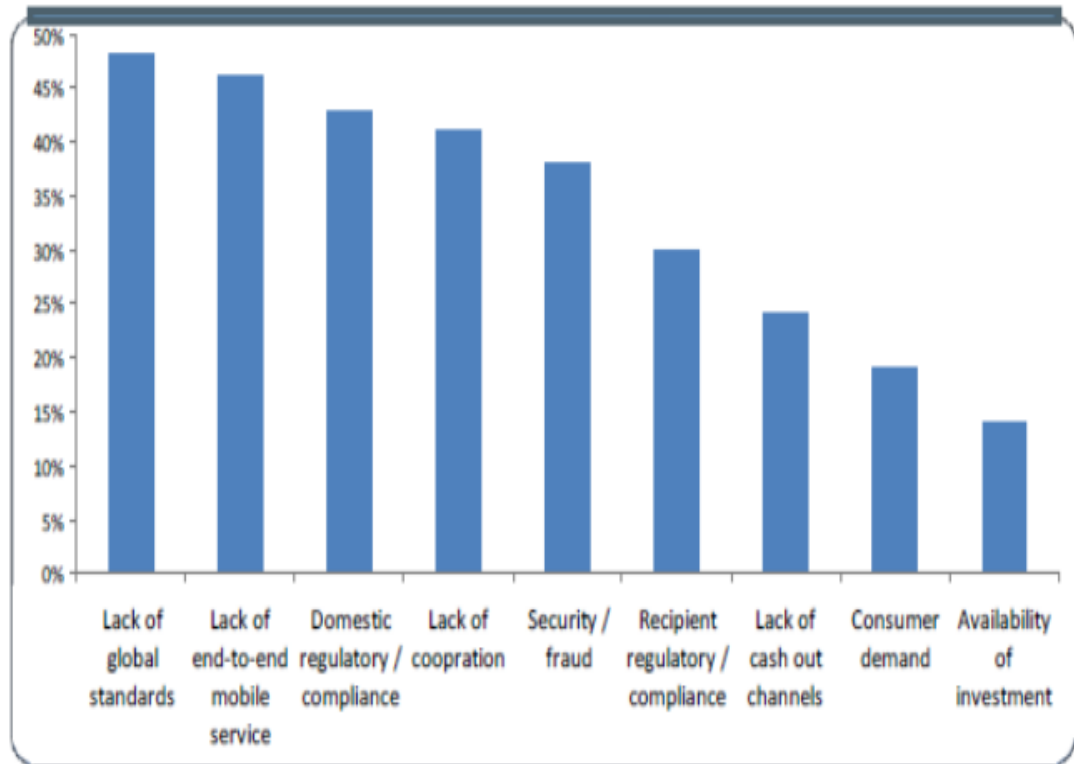


Figure 22: Key lacks for Mobile payment system²⁸

The mobile e payment opportunity is significant as shown above, and the key lacks for the mobile payment system are:

1. Lack of global standards: right now, we do not have the international standard for mobile payment, each country works alone.
2. Lack of end to end mobile service: all of the mobile service provides by the server, the end user could not contact each other.
3. Lack of cooperation and domestic-recipient regulatory/compliance: without the global (national) standards, it is impossible to manage mobile-payment.
4. Lack of security fraud
5. Lack of cash out channels and consumer demands: Customer can not take cash out.
6. Availability of investment:

So, based on the study of the lack of mobile payment, the challenges in the mobile e payment

²⁸ 2009 Mobile Financial Services Study by Mobile payment world www.paymentscardsandmobile.com

can be:

1. A large segment of the population in the MEA is not comfortable with the use of technology

- Service providers will need to invest in simplifying the technology and interface, and in educating customers

2. A wide distribution network of agents is critical to success in this market, but setting up and maintaining such a network can be difficult and costly in a number of MEP countries

3. Low start-up costs and an attractive commission structure for their network of agents will be critical for service providers as they look to develop and maintain distribution networks

4. The regulatory framework for financial transactions via mobile phones is currently not well developed

- As regulations evolve, M-Payment service providers may have to comply with stricter controls such as 'Know Your Customer' requirements (to prevent money laundering, terrorism funding, etc.), which may add costs and slow adoption

5. Some M-Payment service providers require customers to have a bank account, which limits the potential for services within the unbanked population, an important customer segment for growth

6. In addition, some service providers concentrate on existing bank customers rather than going after the unbanked population

4.6 Conclusion

In this chapter, we have discussed the e-payment and mobile payment, what is their different? General, one is use PC via net work, another via Mobile connection which can be SMS OR net work. We also discussed that how does it work in Mobile e-business, and the challenges and opportunities with Mobile payment.

Chapter 5:

How to develop and implement MES and Mobile e-payment systems-----Case study in BANKS

5.1 A Brief History of KBC bank:

KBC, as the one of the top 20 banks in Europe, is an integrated bank-insurance group, catering mainly for retail customers, small and medium-sized enterprises and private banking clientele which was merged to create by Two Belgian banks (the Kredietbank and CERA Bank) and a Belgian insurance company (ABB). It occupies leading positions on its home markets of Belgium and Central and Eastern Europe, where it specialises in retail bank-insurance and asset management activities, as well as in the provision of services to businesses. The group is also active in a selection of other countries in Europe in private banking and services to businesses. Elsewhere around the globe, the group has established a presence in selected countries and regions. KBC is a prominent player in Belgium and in Central and Eastern Europe and Russia

5.2 About e-business situation in KBC

KBC bank is the one of the biggest financial group in Central Europe, realizing 13, 271 millions euro in 2007. It has a key presence in both developed and developing markets, active fastest growing markets in worldwide.

Headquartered in Leuven, Belgium, KBC was built its ICT department and e-commerce serves based on a 3-tier architecture which makes data transfer faster.

Nowadays, Group ICT has become more visible. They rolled out the ICT Management Information Systems project (MIS KBC) in all countries in which KBC is present, and as of 1 January 2008, Group ICT Belgium will become a part of the new legal entity, 'KBC Global Services NV'. A number of additional branches will be added in Hungary in 2008 and in the Czech Republic at the beginning of 2009.

It's turnover about € 800 mil and provide Delivering end-to-end ICT solutions (software, hardware, service), Maintenance of ICT solutions, Hosting services and network & infrastructure management. Special focus on Strong governance & business-ICT alignment and Best-in-class ICT services with Multi-sourcing. All of these work for one proposal : KBC's global businesses.

An ICT application must meet different business requirements at the same time. To find the

correct technological answer is the challenge. Face this challenge, KBC built his own online dealing room. In this room, client order can be checked and solved faster and automatically.

Overall, KBC's ICT department has made so far, it has been noticed and well perceived within KBC. There is, therefore, a high level of confidence in ICT and new increased investments in systems are becoming a reality. This will bring them much closer to achieving their future goals.

According to information from presentation that was provided to us from KBC, we know that the bank is using Reuters Electronic Trading - Automated Dealing for trading (e-sales).

To describe the system (following SWOT analyze) we will use mainly the information from the mentioned presentation.

5.2.1 Strengths of e-sales in KBC:

- Single, secure log-on
- Universality (clients, traders and administrators)
- Global (appropriate for branches of KBC that are placed in different countries)
- Easy to maintenance and update and low cost.
By using e-sales system, the information communication has become bidirectional.
- Online (fast)
 - Writing the deal into the ledgers
 - Create the necessary payment transactions
 - Deliver/take the currencies from the accounts = settlement
 - Critical information must be handled within seconds
 - Most systems must operate 24/24 and 5/7
- Secure:
 - Automatically hedge the position
 - Check if the client has enough 'credit'
 - All critical systems are at least doubled in different datacenters:
 - Front-end: London + Geneva
 - Other: Mechelen + Leuven
 - Dealingrooms: New York – Brussels - Singapore

Strength of the current system is that it is easy to log-in, because user needs to use only one password. This was one of the requirements for the system before it was implemented. Single and easy use of the system however could not lead to less security of the system.

Another strength of the system is that is universal and it is easy to work with it. System has to be universal because it is used in different branches which are located in different countries so its technology needs to be appropriate for different branches. Easy to use means, that people who are working with the system (client/trader) are able to become familiar with it very soon. It is because the job of those people is not to provide the system but do the trades. So the system just helps them to do trades in simple and more effective way.

The strength side of the system is that it is working online and so it is fast and accurate. This

is general advantage of systems that are based on e-business solutions. As mentioned in the presentation system is working 24 hour a day 5 day a week.

System contains also many elements that should assure its secure, what can be seen as the strength of the system. System for example provides automatically hedge position. All critical systems are at least doubled in different datacenters. System automatically check the credit of the client.

5.2.2 Weaknesses

- The server gets more jobs to do.
- Un-intendancy of e-business in banks, which caused today's financial crisis.
- convert data into the different format:
 - Capture the deal data as it comes in XML from RETAD
 - Translate it to a generic KBC-format
 - Translate it to each specific subsystem format

Data from the system needs to be converted in different format what might lead to marginal cost and also inconsistency.

5.2.3 Opportunities

- prevent losses
- Intendancy of e-business in banks can avoid the crisis aroused by financial area.
- It is possible to build a global e-bank agreement, makes the business more easier.
- data mining

System contains elements of automated trading so it helps to prevent some big losses because the system can alarm if something 'danger' is happening on the market. This automated trading also gives possibility for data mining so big opportunities can be pointed by the system.

5.2.4 Threats

- difficult to change the system- > complication during the implementation
- Security problem.
 - > Customer identified .could be fake and system can be attack.
- Competitors can be all around the world.

Once the bank decides for one system it is difficult to change it because it is substantial investment and the system involves too many users, so it would be difficult to learn then to use different system again.

Universality of the system is surely its strength side, however if the system would be attacked the impact would be huge. So it is necessary to increase the security of the system

continuously. Also as the system is more universal it is necessary so that data that it contains will be secured against their disuse.

To have a good result, we need for precise information about the KBC, e-sales in banks and knowledge of the methods of ICT management and e-business. Here, we will discuss it from manager view; the technical program will not be concerned.

Unfortunately, the KBC bank does not provide Mobile serves right now, “I think the reason is security, I do not think it will go any farther within 5 years” said by chef of ICT department of KBC bank.

Personally, I do not agree with him, the ING bank has already implement such system , in the chapter3 , we have already discussed the security ways.

So, here, let us take a look what if KBC does provide mobile serves.

5.3 Mobile e business development path

First, let us have a look next graph which shows us the mobile E-business development path.

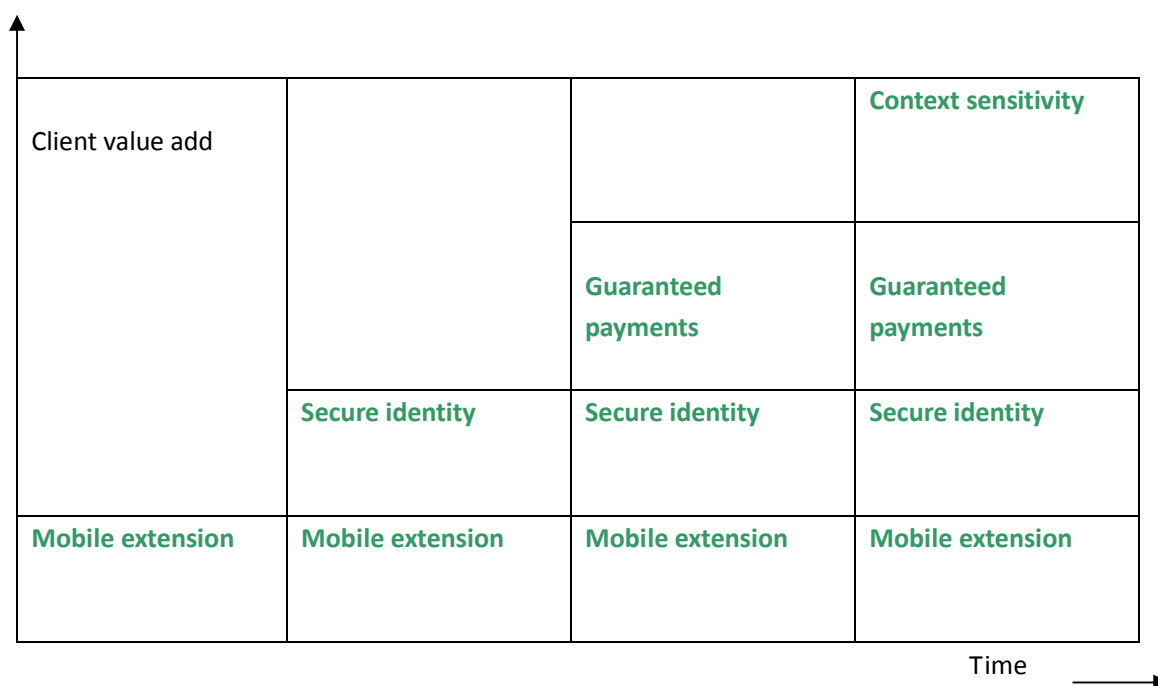


Figure 23 : The mobile E-business development path

The client value added as time passed.

As we can see, when the client want more value from Mobile device, then mobile functions extension. At first, when the client only need basic services from Mobile devices, nothing happened, then, as 3G and Mobile wap connection showing up, the client want secured identity, which push the company to provide such services. After, the client want more, they want

guaranteed payments via mobile , so they can do mobile business , the company has to do anything to catch market, as finally, the mobile e business come out.

Here, I would like use KBC case study to explain this chapter.

As we know already, the KBC does not provide the Mobile services. Is that so?

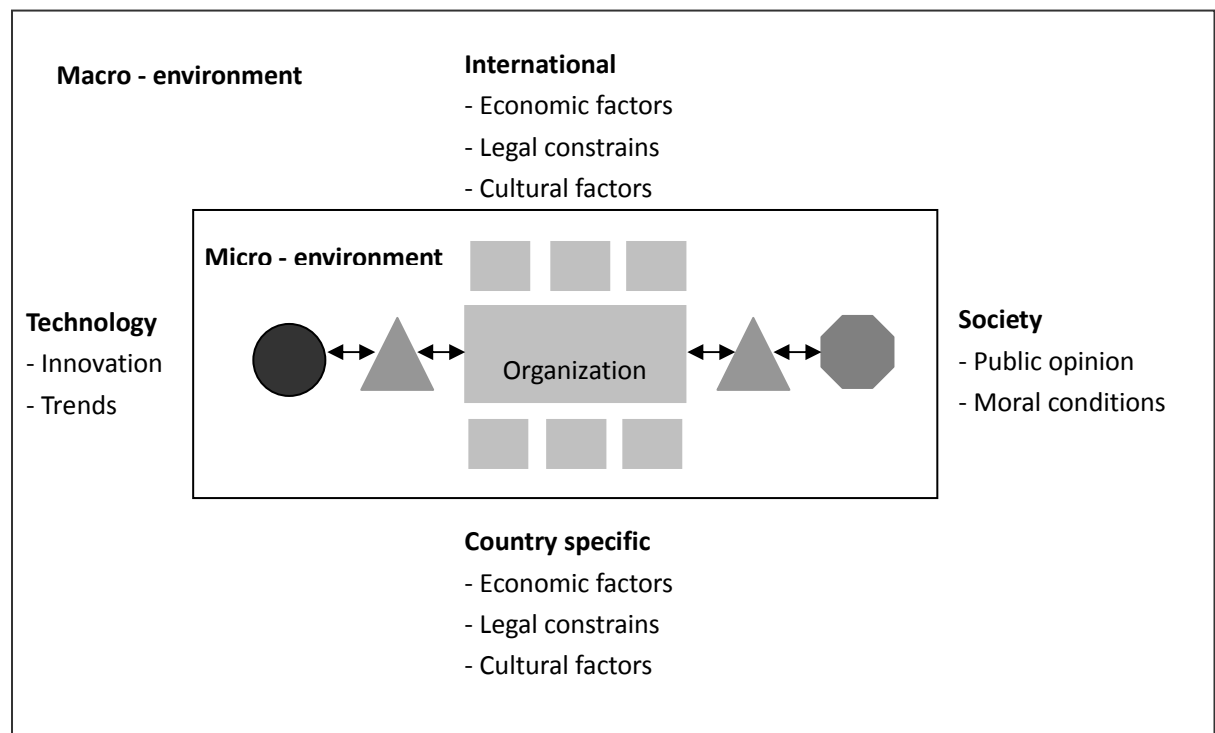
At the first, the clients only ask the basic service from KBC, such as pay phone bills, and then KBC has to work out to meet the client's demands. Make a deal with Phone service provider.

Then, the client want more, they want to pay metro card ,pay shopping bill via mobile, which will push banks to provide such services. Then, why KBC do not do it? Because, the client value (market) is not big enough, as the time going by, when the value content the need of banks to provide such services, they will do it.

The client value is increase in direct proportion to one's distance from the time.

5.4 Main influencing factors and their influences on the implementation of Mobile e-business.

In purpose to explain the influencing factors of implementation Mobile e-business in banks, we will use frame (figure 24) that illustrates the environment in which mobile e-business services are provided, as it is used in Dave Chaffey's E-Business and E-Commerce Management²⁹.



²⁹ Dave Chaffey (2007) E-Business and E-Commerce Management, 3rd Edition; Pearson Education UK



Figure 24: The environment in which e-business services are provided
 Dave Chaffey (2007) E-Business and E-Commerce Management

Chaffey divides influencing factors into macro-environment and micro-environment. For e-commerce strategy, the most significant influences are those of the immediate marketplace that is shaped by the needs of customers and how are services provided to them through competitors and intermediaries and via upstream suppliers. Immediate marketplace refers to micro-environment. Macro-environment has according to Chaffey wider influence on e-commerce strategy and it concerns local and international economic conditions and legislation as well as society impact. Technological innovations have power to significantly change the character of the market and they provide range of opportunities for company to provide superior services to competitors.

Respond to environmental influences is essential for sustainable development and growth of the company. With our case, we will deal with influencing factors and their influence in implementation of mobile e-business solutions in banks. Given factors refer to Chaffey's macro-environment.

5.4.1 From macro-environment:

The Banks today are aware of both the threat and the opportunity that the Web represents. No traditional bank would dare face investment analysts without an Internet strategy. But even a detailed and thoughtful approach to the Web does not guarantee business success. The main purpose behind the launching of online banking services is to provide the customers with an alternative, more responsive and with less expensive options. With options just a click away, customers have more control than ever. They expect real-time answers and superior usability. They also want personal attention and highly customized products and services. The focus of e-business must always be on the customer. On the other hand, the technology and the business structure follow on form of the value you intend to provide to the customer. Internet has joint the information technical with financial global growing, which has present us a new challenge age—e bank time. And the mobile device has improved it into Mobile bank time.

From the global view, there are some influencing factors could influence on the e-banks.

a. legalize and codification of e-business in banks.

In 1995, first e-bank was born in US--Security First Network Bank (SFNB), the e-bank time come. The definition of e-bank (Online Banking, Internet Banking or Network Bank) is (by US Federal Reserve): using internet to provide product and serves to clients. It have low cost and no area limited advantages compares with traditional banks.

b. The intendency of e-business in banks.

It is very important to avoid the crisis aroused by financial area.

c. E-bank duty's set off.

d. Focusing on issues related to e-payment initiatives, security and standardisation.

From the technology point, the influencing could be hack attack, new technology appears,

5.4.2 From micro--environment:

1. The company (in our case banks) are willing to implement such system, and to support it.

2. The customer is willing and has ability to use such system.

3. The Mobile devices technology support.

5.5 Main influencing factors and their influences on the implementation of Mobile e-payment.

Let us back to the figure24,

The given factors refer to chaffey's macro-micro environment are shown as follow.

5.5.1 From macro- environment view:

The influencing on the implementation on Mobile e-payment are:

1. Global standards, each country want to build their own standards and want others follow, which has slow down the access of mobile e payment

2. Economic factors:

From international view, more and more people has using mobile devices, but in some county, it is still a problem.

3. Regulatory and legal issues:

It is the key factors influencing on the implementation on mobile e payment, because, if each company follow their own rule, there will be no security. Even the technology can support.

4. Socio-cultural challenges:

Do people accept it? like the camera appears 100years ago, people afraid to using it . Now, still some people are afraid to using mobile devices by the influencing of radio effect.

5. Technology support:

The innovation of new technology can support the world wide operation or not?

6. Society support :

Public opinion support, more and more, the public opinion become powerful.

5.5.2 From micro- environment:

1. Domestic regulatory.

How to manage such system, and who made the agreement?

2. competitors and cooperation

Does competitive explosive and some time need work together .

3. Proper infrastructure

4. Security and customer demand.

To meet customer demand and make sure the services provide are secured

5. Intermediaries:

If the service need to be done through middle man, how to make agreement?

Those factors are the influencing on the implementation on Mobile e-payment , to implement such system, we need find a way to solve all of the influences .

5.6 Conclusion:

In this chapter, we have learned what does it need to development such system and we have discussed the influencing and implementation of Mobile e-business and e-payment from macro and micro environment.

Chapter 6

Conclusion

Work on report:

In this report, I am focus on the e business work in mobile information system. Here, in this last chapter I would like to say that I have learned great deal about how does E business work in or out of Mobile information system which are certainly different between both.

The key concepts I have discussed are:

What is e-business? Why and how does it adopted by company. The main reason is market need and to low the company cost. Then through E business development life cycle (SDLC), we have a clear idea about how to develop an e business system. Also, in chapter 2, I have discussed what problem may show up in e business.

Then, I explained the concept of Mobile e business and the different between mobile e-business and e-business. Based on those studies, we have find a way to approach it. also, by study the challenges and disadvantages of MEB, we have find out why the MEB is a great solution in e-business .

After, I am going deep into the main point of E-business and MEB---- e payment. The main concepts of e payment is one in which money value is transferred by electronically or digitally (via net work) between two entities for buy or sell product or services. How does it work in MEB? Mostly, through the study, I have shown us that the security is not a problem to slow it down. Then, I discussed the opportunity and challenges in Mobile e-payment.

At the end, by using the Bank case, we have a clear idea to develop and implement MEB and mobile e payment system.

Through this report study, I have learned lot which not only from the books, but also like Nokia research report and KBC bank.

Achievements:

One of the most exhausting tasks is actually to perform all of this together alone, starting from the find out the research questions and use research methodologies to defend it. So, I start with e-business as MEB can be seen as part of it. I have answered the questions why and how should it be adopted by companies. Then, I go little deep to the MEB,

Every question I had, during this report work, I found the answer on the e-book and web, this gives me a wild view and guarantee that I will be able to deal with any problem that arises in the report. Unlike many other tools that are not internet supported, if I may call it that way, Microsoft's tools enjoy that popularity indeed. I have one more time confirmed my capability for self learning and I am proud of that.

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Master Report

Mobile information management in E-business

-----With case study

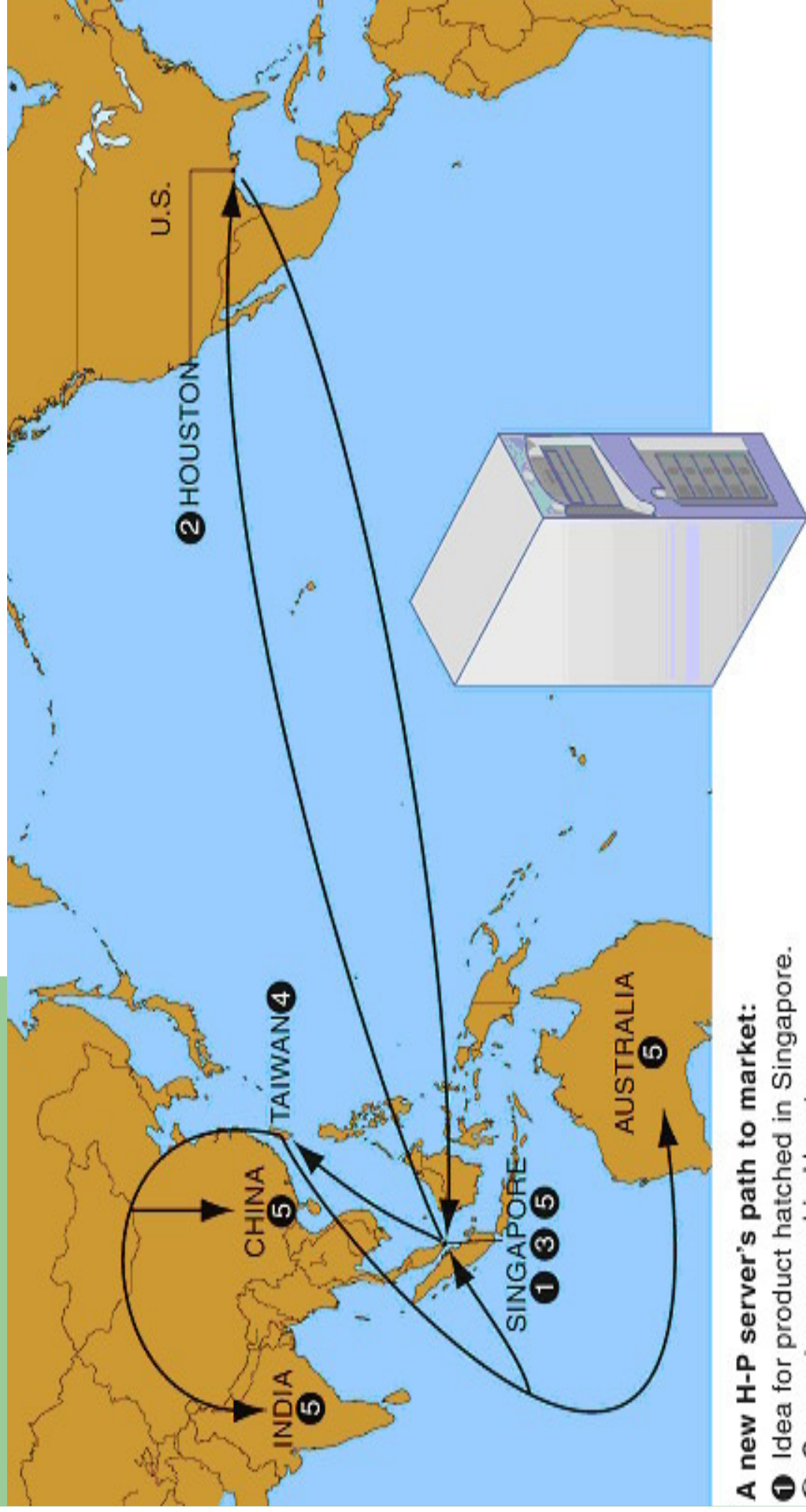
By ZHANG YANCHAO
MIS student in U Hasselt
14-06-2010

Supervisor:
Pro.-Jeanne Schreurs

Introduction

- **Summary of E business in mobile information system**
- **Report tools ,why i choose this project ?**
- **General description**

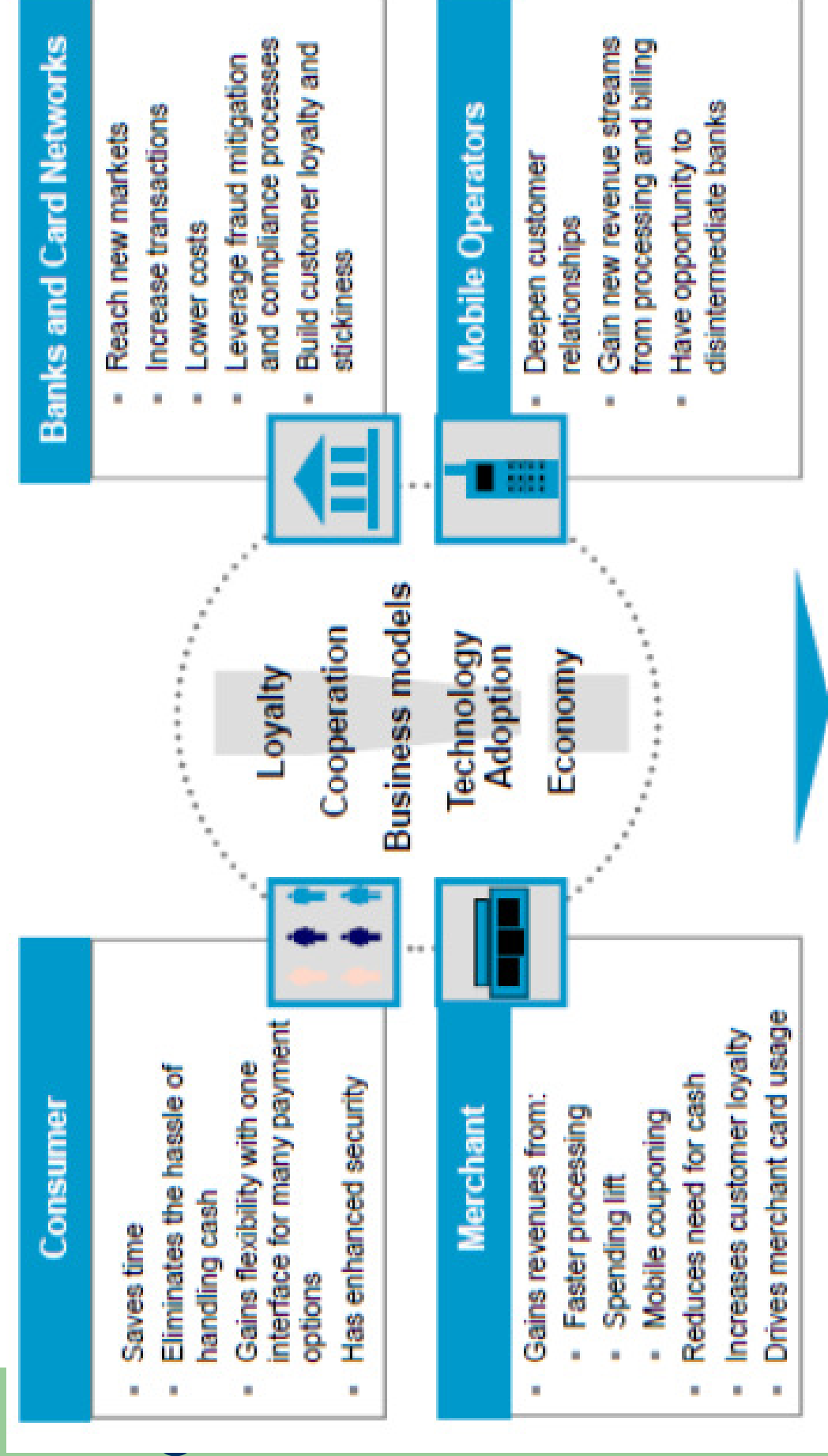
Why e-business



A new H-P server's path to market:

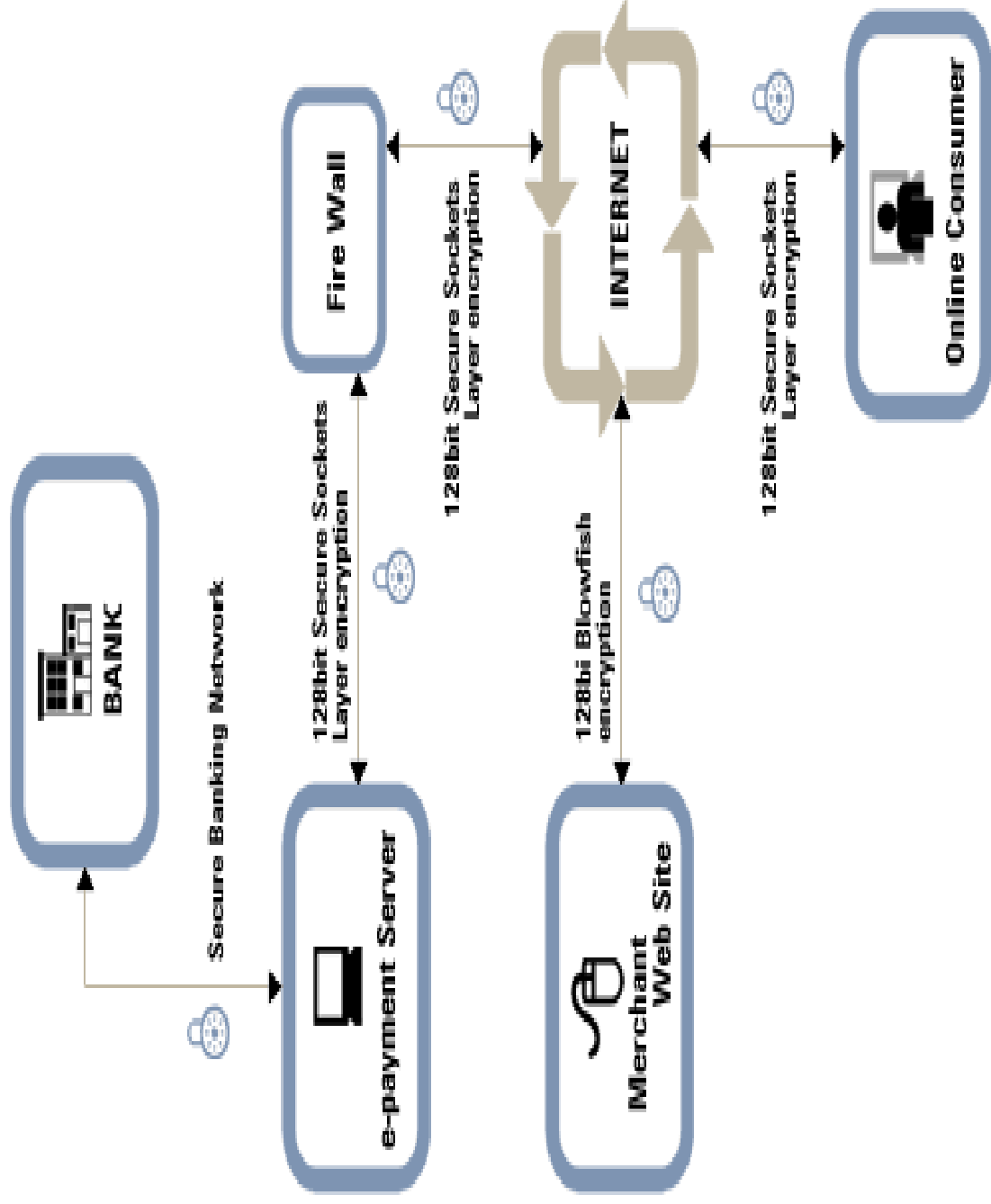
- 1 Idea for product hatched in Singapore.
- 2 Concept approved in Houston.
- 3 Concept design done in Singapore.
- 4 Engineering design in Taiwan, where many computer components are made; initial manufacture by a Taiwanese contractor.
- 5 Final assembly in Singapore, Australia, China, and India. Products made in Australia, China, and India are primarily for those markets; machines made in Singapore go to all of Southeast Asia.

Why Mobile e-business

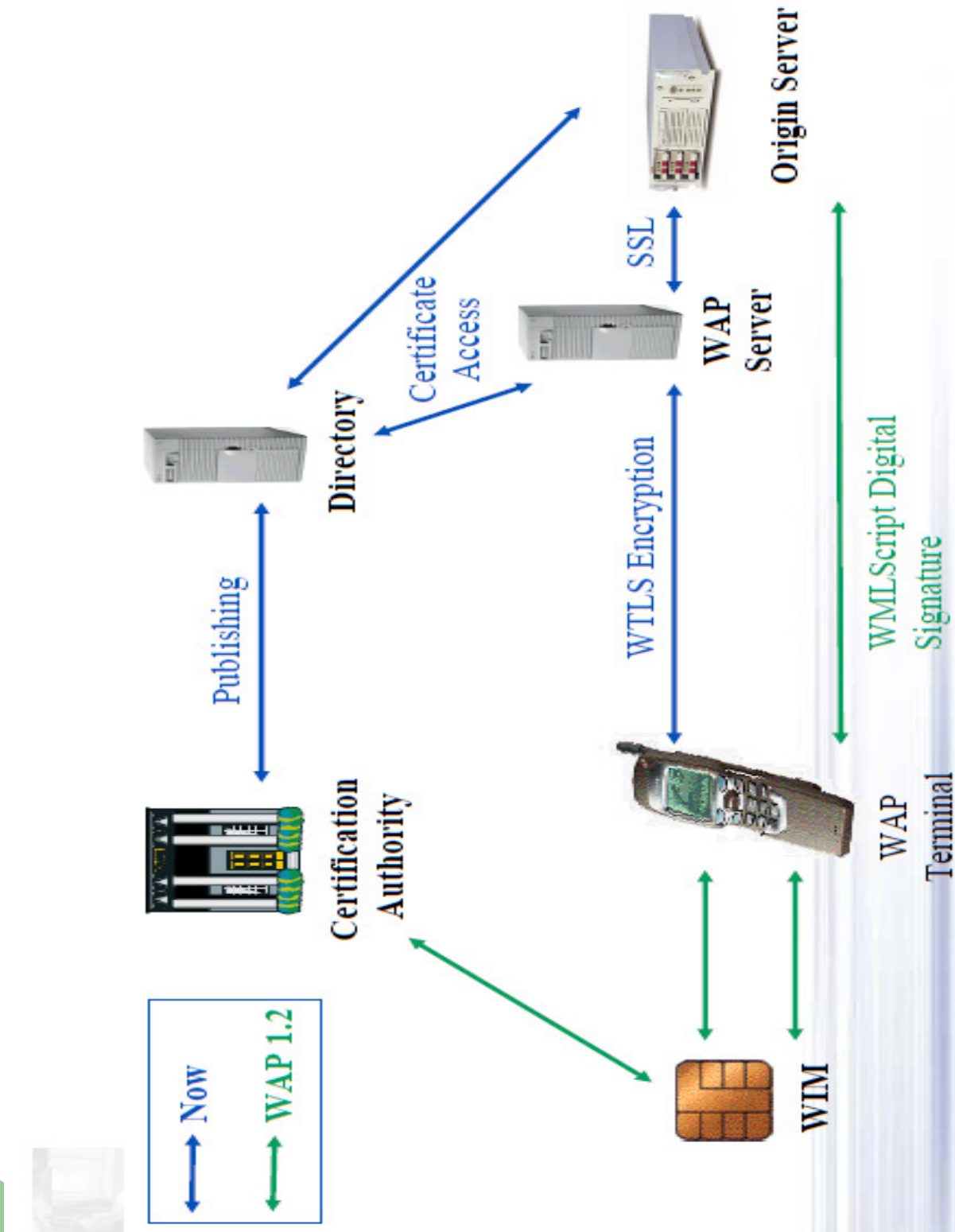


The market requires trusted and proven leaders to take m-commerce forward

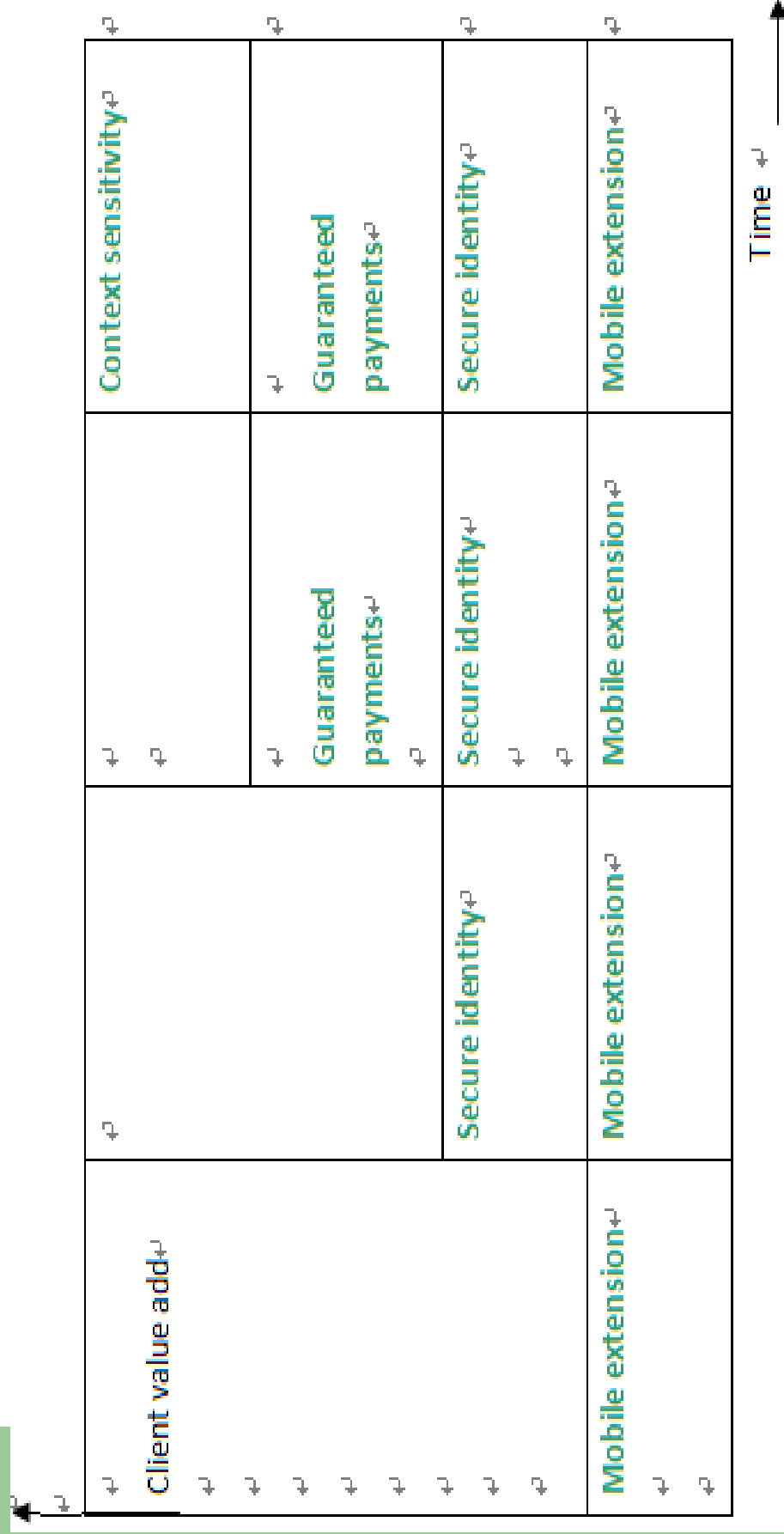
E-payment in MES



Secure your business



Mobile e business implementation





Conclusion

- Thank you for your attention
- Questions

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Mobile information management in E-business - with case study

Richting: **Master of Management**

Jaar: **2010**

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