ICT Strategy of GrameenPhone (GP) in Bangladesh

Md. Shafiul Alam Chowdhury[1,] Ayesha Jahan[2], Rokeya Akter Jui[3], Sadeka Parvin[4]

[1]Department of Computer Science & Engineering, Uttara University
H-5, R-15, S-6, Uttara, Dhaka-1230, Bangladesh
shafiul.a.chowdhury@gmail.com

[2] Management Information Systems, Northern University Bangladesh
Banani, Dhaka, Bangladesh
ajahan29@gmail.com

[3]Department of Computer Science & Engineering, City University
40 Kamal Ataturk Avenue, Bulu Ocean Tower, Banani, Dhaka, Bangladesh
rokeya.jui@gmail.com

[4]Department of Computer Science & Engineering, Uttara University
H-5, R-15, S-6, Uttara, Dhaka-1230, Bangladesh
shuvo_laboni@yahoo.com

Abstract: In today's hyper-competitive global market Information and communication Technology (ICT) has become the key player for small and large organizations. Now companies have started thinking strategically and so developing their ICT architecture and strategies to gain the maximum benefits from their businesses. This report presents a case study that leads to an analysis of ICT strategy in the case company "GrameenPhone (GP)", the leading telecommunication service operator in Bangladesh; with over twenty-five million mobile subscribers. As a telecommunication service operator GrameenPhone extensively uses ICT in the business. The report presents an analysis of the ICT strategy in GP by first identifying the strategic use of ICT in the business and how ICT helps GP to gain sustainable competitive advantages over its competitors. Apart from that the report also tries to assess the maturity of strategic alignment between the ICT strategy and the business strategy. The report includes the results found from both the interview and the survey conducted to collect the necessary data for a deeper analysis. The analysis is done using several well known methods and frameworks. Finally some possible ICT solutions have been suggested that can be considered by GrameenPhone for its future strategic planning.

Keywords: ICT, Grameen Phone (GP)

1. Introduction

In today's hyper-competitive global markets where technology is changing hurriedly and so is the way of doing business. The business environment is getting more turbulent day by day. Large number of organizations still following make-to-forecast strategy and the rest at the same time breaking through the predominant environment by coming up with built-to-order (BTO) strategy. A survey conducted in 2003 by cio.com of more than 500 IT executive, came into conclusion that strategic thinking and planning was the number one concern for the CIOs. Now most companies are paying their attentions to possess the best effective ICT strategy. But how to define the best ICT strategy seems to be another big question.

Every firm has its inimitable characteristic, its own problems and its pre-designed organizational structure and the ICT strategy of that firm has to be adapted to all these criteria to achieve its goal. So, there is no such ICT strategies that can be declare as the best ICT strategy for all the firms. Although there is no best ICT strategy in common but depending on the firm's context it could be the one which can lower the organization's cost in a maximum degree, can greatly increase the organization's efficiency, can wipe of all the duplicated work, can make effective communications among the office personnel, can offer great service to its customers, etc. Choosing a good ICT strategy for a company is absolutely not an easy task. It is a serious strategic decision which should be made not only by the ICT department but also by the general managers of an organization. Today if we look at the successful firms we see that their business strategy drives both organizational strategy and ICT strategy. It is important, from the beginning, for a firm to be very careful about making decision on what will be the overall infrastructure of the firm which in future will support the firm's ultimate goal though their business strategies. The firms must be aware of the balance among these strategies to assure that they are complement of each other. Changing any of these strategies without proper thinking of the effects on the others may lead the organization to great inefficiency and even to severe adversity.

2. Specific Research Field

For the last decades, organizations adopted strategic role for ICT to address their internal and external circumstances. In this decade, the primary role of ICT is found to be adding value to organization's activities. Today's business environment can be characterized as one with increasing globalization and competitive pressure, frequent mergers with rapidly changing technology and with evolving patterns of consumer demand. Organizations must learn quickly to adapt to these changes otherwise may turned down by the competitors. In the face of changing technologies and turbulent business environments, a key concern of the firms is to use ICT Strategy effectively and efficiently. In order make

a significant and strategic difference firms must define what role ICT will play to support its organizational goal.

The importance of alignment has been well articulated since the late 1970s. In recent years, it became among the top-ranked concerns of business executives. Alignment between ICT and the business intrinsically refer the alignment between the ICT strategy and the business strategy. The alignment of ICT and the business strategy is critical not only for competitive advantage, but also for the business to survive in this uncertain business environment. By aligning the goals of the organization and the ability of ICT to contribute to those goals can lead organizations to great gains in productivity and excellence in their business. However, to achieve and sustain this synergistic relationship is not an easy task. The fast pace of changes in ICT makes the organizations facing a big challenge to link this continuously evolving technology with the their business.

With all the advancements of ICT, it is now hard or even sometime unwise to think of running a successful business without any competition. In fact, rivalry among the business is one of the most significant threats for the companies today as competitors can emerge anytime anywhere in the world. Innovative use of IS and IT/ ICT can provide companies with substantial advantages over their competitors; good example of this has been Dell Inc., Wal-Mart, Amazon.com, etc.

3. Research Questions

Three questions have been formulated for the research. In

the case company:

- How ICT is used strategically to support the business strategy?
- Is ICT strategy aligned with the business strategy?
- Are there any possible ICT solutions that could be adopted to sustain competitive advantage?

4. Objective

The objective is to identify the concurrent ICT uses in the case company for strategic purpose and to analyze the alignment of ICT strategy with business strategy, as well as to suggest some possible ICT solutions that could be adopted in the case organization to gain competitive advantage.

5. Purpose of the study

The purpose of this study is not just to analyze the ICT strategy of the assessed organization, but to have a holistic approach on how to give essential inputs for ICT strategic planning in the case company. At the end of this study when the analysis is done, some possible ICT solutions will be proposed that can be considered by the case company to adopt in their future ICT strategic planning. Secondly, the purpose of this report is to present the

research work in a precise and easy way for the reader. The report should provide the intended reader with some knowledge on the area of strategic management of ICT by analyzing the ICT strategy in the assessed organization.

6. Research Methodology

By considering the subject area of the research into account and to increase the validity of the study both the qualitative and quantitative research methods has been employed to carryout this research.

As in nature of a qualitative research method the study conducted an interview with CTO in the case company who is an expert in the subject field. To collect further information the company archival records such as service records, organizational records, etc are also considered. To increase the validity of this work to a satisfactory level quantitative research method has also been employed. A survey is conducted in a sample size of twenty selected staffs from different departments of the case company. All of the participants had to answer a set of Multiple Choice Question (MCQ). Adequate literature review (books, journals, web sites, etc) is done in respect to the subject area leveraging the understanding of the research context. To summarize and lining up all the steps involved in the entire study from the very beginning till the end, it all started by selecting a topic for the research, abstract away the research background while formulating the problem statement, performing the required literature review, sampling and questionnaire designing, field work and data analysis and finally reaching to a conclusion.

7. Models & Frameworks

Several frameworks and models have been employed through out the study to formulate the interview questionnaires, analyze the data collected from the sources and to find out possible ICT solutions. As the alignment between ICT and the business is considered to be crucial for any ICT related firms, the model for assessing the alignment maturity in the case company has been chosen carefully. For this reason Luftmans's *Strategic Alignment Maturity Assessment Model* has been employed.
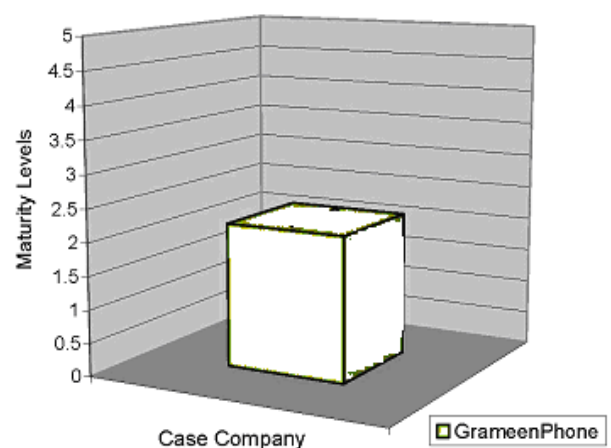

Figure 1: Alignment maturity level in GrameenPhone

There are also other strategic alignment models existing to work with but the reason for selecting Luftmans's model implies to its well recognition and to the relevance with the nature of the case study. It is hypothesized by the authors of this report that there exist at least some alignment between ICT and the business in the case company. Using Luftman's model will help to identify the maturity of the existing alignment as well as find if there is any alignment gap in between the business and ICT.

Moreover to analyze the competitive advantages gained and can be possible to sustain by the case company two models have been employed. First, the renowned model *Porter's Five Competitive Force Model* is employed and then *D'Aveni's Hypercompetition and the New 7S's Model* is used to bring more refinement to the analysis. Finally SWOT analysis has also been added to leverage the idea of digging out possible ICT solutions.

8. Results

The questionnaire formulation for both interview and survey conducted in the case company, Information collection steps along with the reliability and validity issues, the results came out of the survey and calculates the result-data and finally current uses of ICT in the case company (GP) for strategic purpose is identified.

8.1 Questionnaire formulation

To collect essential data for analysis, an interview and a survey was conducted in the study. Here, questionnaire formulation was done in two separate steps. At first, the focus went on making the interview questionnaire. To prepare the preliminary set of questionnaire, knowledge from both the literature and case company archival records were used. The questionnaire was categorized under four sections. First section contained some general question about the business strategy of the case company whereas the other three sections were specific to the thesis questions. Finally, before taking this questionnaire set to the actual interview it was reviewed by an expert on this area. With his assistance couples of changes were made in both terminologies and appropriate use of good English sentences. A few more questions were added to make the core assessment questions clearer.

In the second step a set of multiple choice questions (MCQ) was build. The aim of this MCQ was to collect quantitative information about the case company. As a part of this study it was required to assess one model for the alignment maturity of the case company. It was pondered that beside the qualitative data, quantitative data may add more value or even may give a new turn to the analysis. In this step also knowledge from the literature review was used at first to make the early version of the MCQ set. While building up the MCQ each criteria of the Strategic Alignment Maturity Model were followed carefully so that it enables the assessment properly and fits in the case company as well. However, before finalizing the MCQ set, it was sent to two participants working in GP as a pre-test. This pre-test resulted in a

little more explanatory and condensed version of MCQ, which was finalized to be used in the survey.

8.2 Information Collection

All the data used in this study are gathered in several steps. First, the data collection began with an in-depth interview with the CTO of GrameenPhone. The interview was conducted over the phone and last around 35 minutes. The aim of the interview was to get a better understanding of the case company emphasizing on the ICT strategy. From the interview valuable suggestion came out.

On the second stage of the data collection, a survey comprising a set of structured questionnaire was carried out in a sample size of twenty staffs from major departments in GP. The addressed respondents belonged to departments where: ten persons were interviewed as ICT staff and ten persons as business staff. ICT staffs were selected from two divisions: eight persons from the Information Technology Divisions and two from the Information Department. Whereas the business staffs were chosen from more diverse areas: three persons from Customer Management Division, two from Marketing Divisions, two from the Finance Division, two from the Sales and Distribution Division and one from the Human Resource Division. We tried to make an equal distribution in our sample between the business and ICT staffs keeping the idea of alignment in mind.

The third source of information was several company archival records such as service records, company annual reports, and other organizational project reports. The annual reports are found in GP official website whereas other records are collected from the company. Finally, adequate literature review was done which can be considered as another source of information.

8.3 Validity

Several steps have been taken to raise the validity to a satisfactory level. Firstly it came up with the procedure of making the questionnaires for both of the interview and the survey conducted in the assessed organization (which is described clearly). For instance, the interview questionnaire was built primarily from selective literatures. Then the questionnaire was reviewed by an expert on this area, and came up with some more changes that in turn increased the appropriateness and understandability further more. For the survey questionnaire a pre-test was carried out to seek suggestions from the respondents, which also enhance understandability of language used in the questionnaire.

Secondly, all the data from the case company presented in this report are up-to-date. By saying all the data it is meant the data from the recent interview and the survey as well as the data from the most recent company archival record such as annual report of GrameenPhone, 2007 and 2008. Therefore, validity issues related to the period of data demand not to be questioned.

It is presented here, some performance measurements on alignment maturity in the assessed organization through qualitative study and quantitative study. Here, one can claim that results derived from qualitative and quantitative studies are not interchangeable. However, it is claimed that these studies should be regarded as complementary, not competing methods of generating scientific knowledge and should be chosen depending on the nature of the study [36]. That is why to enhance the validity, both qualitative and quantitative research methodologies have been employed here.

8.4 Reliability

Reliability is the extent to which the same result is accomplished when a measure is repeatedly applied to the same target group. Reliability issues in this study primarily focused on the data that has been obtained from the assessed organization. In this study besides the survey, direct interview with the subject is conducted which increases the reliability problems of the data used. Because the reliability issues may also depend on how knowledgeable the interviewee was, it should be noted here that the interviewee is an expert in the study field. However, for the participants in the survey it cannot be assured how knowledgeable they were as they are chosen from various departments of assessed organization.

8.5 Survey Results

The survey was conducted within a selection of twenty staffs in GrameenPhone. For each of the questions, respondents had to evaluate GP Business with ICT alignments on five levels of choices ranging from choice 'a' to 'e'. Here certain values for each of the five choices are assigned based on their alignment level (choice 'a'=1, 'b'=2, etc) for the sake of calculation. To reach a conclusion from the survey *weighted arithmetic mean* theorem is used and calculated the average of the results found for every questions.

8.6 Calculations on survey results

Six figures for six alignment maturity assessment criteria that present the average score obtained by each of the questions in their respective criteria. To calculate the average (mean) of each criteria of arithmetic mean formula is used.

8.7 Strategic use of ICT in GrameenPhone

Information & communication Technology has been the most influential factor on the earth for the last decades or so. This applies also to the business and the management areas. Today's fast changing business environment has forced various organizations across the globe to adopt ICT into their business. GrameenPhone, the largest telecom operator in Bangladesh, has also decided to use ICT in order to manage their organizational activities. Following are some reasons why GP involved ICT into its business:

- To solve existing problems

- To reduce management cost
- To make the organizational processes efficient
- Customer satisfaction
- Competitive advantage
- Increase revenue

GP moves continuously toward being the largest mobile operator in its area using and effective business strategy. GrameenPhone ICT infrastructure is designed to support business needs and strategic purpose. They use technology to satisfy customers and enhance customer experience. Software, Network and Database are the key components that GP scrutinizes in development and implementation.

List of some strategic uses of ICT tools and solutions proposes which are significant in GP's business:

1. Enterprise Resource Planning (ERP)
2. Business Intelligence Solution
3. Data Mining
4. Data Warehouse
5. Decision Support System
6. Customer Relationship Management (CRM) systems
7. Supply Chain Management (SCM)
8. Web Based Systems
9. GP Website
10. Intranet Solution for Employee Management

9. Analysis and Discussion

The analysis and discussion of the results found from the interview and the survey taken into consideration. For analysis of the alignment maturity between GP business and ICT with a Strategic Alignment Maturity Assessment Template has been used. The competitive advantages sustained by GP from its strategic use of ICT are also under research domain.

9.1 Analysis of the alignment maturity in GP

From the survey, strategic alignment maturity level between ICT and GP business is calculated to level 2+. This result is derived from a number of sequential steps of calculation done at first from the question level then at the alignment assessment criteria level to the final alignment maturity level. In the second level of calculation each of the alignment assessment criteria scored some average values. To analyze these results first, justifications for those scores and then their implications are considered.

9.2 Analysis of competitive advantages in GP

GrameenPhone is the leading mobile service provider in Bangladesh. GP's market growth is dependent on the competitive strategic advantages that it sustains. The main objective of a competitive strategy is to create strong position in the market place and also to create a better return on investments. To find-out the sustainable competitive advantages for GP using well founded models like Porter's Five Forces model, D'aveni's

Hypercompetetion Model and the new 7Ss model used. SWOT analysis is also employed to find GP's strength, weakness, opportunity and threats.

10. Possible ICT Solutions (proposed) to be adopted in GP

Some ICT solutions have been proposed to be adopted in GrameenPhone. These solutions have been formulated after analyzing GP's current ICT strategy as well as considering the business strategy. I believe that these ICT solutions can provide GP with increase in revenue and can help minimizing its costs as well.

IP Telephony for home user: IP telephony allows voice communication over internet protocol (VOIP) network. This solution is combining voice and data on one network that can be centrally maintained. The solution has earned its popularity mostly for its cost effectiveness. GP can offer fixed telephony through the IP telephony solution with broadband services.Bangladesh is one of the most densely populated countries in the world but its fixed line density is the lowest in south Asia. So in Bangladesh the market for fixed phone business is absolutely promising. GP can take this opportunity to enter into this market as they have the largest network coverage in the country.

Push-To-Talk(PTT): PTT also known as *Press-to-Transmit*, is a method of conversing on half-duplex communication lines, including two-way radio, using a momentary button to switch from voice reception mode to transmit mode. Push to talk over cellular is a characteristic similar to walkie talkie that is provided over a mobile phone network. GrameenPhone can introduce this service where subscribers will use it simultaneously with their current mobile service. Push to talk solution is very cost effective particularly for the subscribers. Offering this service GP can increase their corporate clients in various sectors.

Mobile Television: *Mobile television* is television watched on a small handheld or mobile device. Mobile Television refers to the transmission of audiovisual content via mobile telecommunication network, most likely in the mobile phone or a mobile device. It offer the possibility of viewing any content, any time, anywhere and also provides for a new world of interactivity. Currently there is no mobile phone operator in Bangladesh offering Mobile TV. GP can add this service to their Value Added Service (VAS) list because most of the GP subscribers live in rural areas where TV is not available.

Broadband Service: The term *broadband* refers to the wide bandwidth characteristics of a transmission medium and its ability to transport multiple signals and traffic types simultaneously. GP has over 3500 base stations scattered all over Bangladesh. Most of these base stations are physically connected with wires. Using the existing infrastructure GP can expand their business. Broadband relates to telecommunication that provides several channels of data over a single communication medium,

generally using some method of frequency or wave division multiplexing. Broadband services offer high rate of data transmission which is preferred by Internet users. GrameenPhone can offer this service for Bangladeshi internet user.

E-Classroom Training system: Web based learning technologies allow organization to keep their employees up-to-date and training via the web specifically intranet. These web-based services allow employees to log into a chat room or a voice conversation interface where professionals in the specific technical line answer questions impulsively. GP can introduce E-Classroom Training system to train their employees online, anytime, anywhere. This system can minimize training cost and efforts. This online corporate training typically offers striking cost advantage (e.g., saving traveling costs, overcoming class size restriction).

Billing and Payment system improvements: GP can involve advanced ICT technologies for billing and payment system; it can gain huge number of subscribers even from its competitor mobile operators. Particularly the corporate people will be the main beneficiary from this System. They will pay their bill from their office or home rather than spending hours on waiting in the queue at the banks.

Mobile Phone Payment system: GP can introduce a payment system where customers will pay their monthly bill from their mobile phones. This can save both valuable time and money of the respective customers.

Online payment: GP can introduce online payment system to help its customers by providing the facility of online payment. So the customers can use their bank accounts to pay their bills online to GP**.**

11. Restrictions

The data collection procedure could not be made as transparent as it can be expected. The names of the respondent and their job titles are not revealed because of confidentiality issues.

To accomplish the objectives of the study most relevant and popular methods and tools have been chosen. Again it can not be guaranteed that other methodologies cannot cause in better efficiency in analyzing the study results.

12. Conclusion

This study contributes to the analysis of ICT strategy in GrameenPhone by fist assessing the AS-IS strategic alignment maturity level between ICT and the business. Then a broad range of possible solutions are suggested that can be adopted in GP's ICT strategy, for instance, IP-based fixed phone for home users, Push-to-talk service, Billing and payment system improvements, etc. A flexible and easy payment method can brought GP a bulk of happy customers who can even migrate from other companies.

In order to gain a sustainable competitive advantage GP should foresight the balance between upcoming technology and customer needs (supply & demand). GP should build a sophisticated but flexible ICT architecture to adopt emerging technologies to keep pace with the market trend. Currently, GP is sustaining great competitive advantages by offering a number of Value Added Services to its subscribers. However, in this heterogeneous industry of telecommunications, how to differentiate the products with particular ICT services or applications will be a key factor for GP to gain advantages over its competitors.

GP's business growth is mostly dependent on its ICT strategy and how efficiently and effectively it supports the overall business. In order to make the best use of ICT, All the Mid/Top-level executives in GP must learn how ICT can add value to the business. For this purpose GP must consider the alignment between ICT strategy and its business strategy very seriously. GP has to decide weather to use ICT as a strategic weapon or as a survival tool. GP has to keep in mind that in this hyper-competitive market there is little room for error but many opportunities to be benefited from mistakes made by others.

13. Suggestions for future Work

Further work can be done on analyzing ICT strategies of other telecom operators (including Multi National Companies/MNC). A comparative analysis between GP and other companies may lead to interesting outcomes. Other telecom operators in the modern world (especially the neighboring countries) can also be included in this analysis.

References

[1] Md. Shafiul Alam Chowdhury, Ayesha Jahan & Rokeya Akter Jui "Study on the IT strategy of the leading telecommunication service provider in Bangladesh" - *Proceedings of the 7th Asian Business Research Conference*, 21 – 22 December'2012, BIAM Foundation, Dhaka, Bangladesh; Organized by: World Business Institute-Australia & RAPI-Bangladesh; ISBN: 978-1-922069-16-0

[2] Efraim Truban, Dorothy Leidner, Ephraim McLean, James Wetherbe, Information Technology for Management: Transforming Organizations in the Digital Economy, 5th ed., John Wiley & Sons Inc., 2006

[3] Jerry N. Luftman, Christine V. Bullen, Donald Liao, Elby Nash, Carl Neumann, Managing the Information Technology Resource: Leadership in the Information Age, Prentice Hall 2004

[4] Keri E. Pearlson & Carol. S. Saunders, Managing and Using Information Systems. A Strategic Approach, 3$_{rd}$ ed., John Wiley & Sons Inc., 2006

[5] Bakos, J.Y. and Treacy, M.E. "Information Technology and Corporate Strategy: A Research Perspective," MIS Quarterly (10:2), June 1986

[6] Grameen phone annual report 2005http://en.wikipedia.org/wiki/Online_advertising accessed on 29-04-2007

[7] Zaiyong Tang and Bruce Walters named "The Interplay of Strategic Management and Information Technology" published in IT-Enabled Strategic Management: Increasing Returns for the Organization edited by Bruce Walters, Idea Group Inc., pp. 1-15, 2006

[8] Qualitative Research in Information System http://www.qual.auckland.ac.nz/ retrieved on 23-05-2007

[9] The IMRAD Research Paper format http://www.uta.fi/FAST/FIN/RESEARCH/imrad.html retrieved on 25-05-2007

Authors' Profile

Md. Shafiul Alam Chowdhury received the Bachelor of Computer Applications degree from University of Madras (India), M.Sc. in Computer Science degree from Bharathidasan University (India), M.Sc in Interactive Systems Engineering degree from Royal Institute of Technology (Sweden) in 2001, 2003 and 2007 respectively. He stayed in Expertise Centre for Digital Media & Hasselt University in Belgium under a research project during 2007-2008. He served Information-Technology Manager Post in Rahman Export Import Trading (S) Ltd Company in Singapore during 2009-2011. He has College and University level of teaching experience in Cantt-Public School & College - Dinajpur, Uttara University, and City University in Bangladesh respectively. He now is working as a Chairman (Head of the dept.) of Computer Science & Engineering department at Uttara University, Bangladesh. He actively participated number of International conferences. He has research interest in the area of Ubiquitous Computing, Pervasive Computing, Human Computer Interaction, IT-Management, IT-Strategy, CRM etc.

Ayesha Jahan is currently working as a Senior Lecturer in Management Information System in Northern University Bangladesh. She has five years teaching experience in three different leading business schools. She received her BBA and MBA degree from East West University at 2004 & 2007 respectively. She also did CCNA Exploration 4.1. As a young researcher, her areas of research interest are Enterprise Networking, E-commerce, Social and Ethical impact of IT in Business etc. Beside her regular profession she is also an active participant in different social works. She has very significant attachment with cultural field as well.

Rokeya Akter Jui received the B.Sc. in Computer Science & Engineering degree from Dhaka University of Engineering & Technology (DUET), Bangladesh at 2010. She has received talent award from Dhaka University of Engineering and Technology (DUET). She also received 4 years Diploma in Computer Engineering from Dhaka Polytechnic Institute, Bangladesh at 2005. Now she is working as a Lecturer in CSE department at City University in Bangladesh. She has research interest in Artificial Intelligence, Fuzzy System, Information Technology and Pattern Recognition.

Sadeka Parvin Received B. Sc (Engg) in Computer Science & Engineering Degree from Uttara University, Bangladesh in 2011. Presently she is continuing M. Sc in Computer Science & Engineering degree at the same institution. She has research interest in the area of Information Technology, IT-Management, IT-Strategy, CRM etc.