Georg-August-Universität
Göttingen

Wirtschaftswissenschaftliche Fakultät
Professur für Informationsmanagement
Prof. Dr. Lutz M. Kolbe

White Paper

The relevance and critical success factors of Project Management in the face of convergence

By Carla I. Sánchez Aguilar

22/07/2008

Table of contents

Abstract

Quick technological changes along with political, social and economical decisions have led the Telecommunication industry to become a very dynamic and changing sector. International partnerships are everywhere and the tighter relation to IT represent high-risk potential.

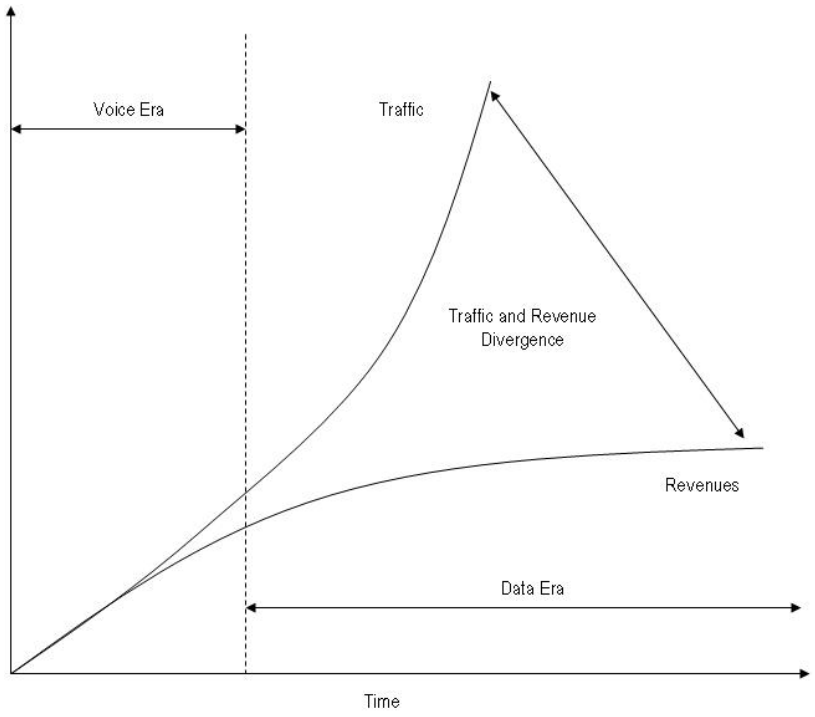
Statistics show that 70% of IT projects are either out of time or budget or simply fail. With such perspectives, measures ought to be taken to avoid the replication of this pattern. Efforts should be aimed to find out the relevant skills, practices and knowledge necessary to avoid pitfalls in the implementation of telecommunication projects.

1 The Telecom Challenge

During the last two decades, the telecommunication industry has gone through abrupt changes, we have seen the liberalization of the industry in countries where telecommunications were typically government controlled as well as a technological transformation (Horan and Schooley, 2004). Telecommunications are also considered a critical piece in the infrastructure of economic development and there are many economical reasons why countries tend to exercise tight control over their infrastructure.

A term commonly used in the telecomm sector is the average revenue per user (ARPU) , this term explains how much has been billed to a customer phone, pager, TV decoder, etc., per month. Unfortunately, ARPU has been declining in time (McClelland, 2004).

Some causes of this phenomenon are attributed to a rising traffic volume, increasing competition forcing providers to differentiate their offer based on price, causing, in turn, a drop in the revenue per bit as operators try to cut their costs per bit traffic.



Source: Alcatel-Lucent, 2007

Figure 1. Traffic/Revenue Divergence

World statistics show that the number of subscribers will continue to grow for the next 3 years up to 50% and that voice traffic will continue to be the main source of revenue for operators (Xavier and Ypsilanti, 2007). Yet the ARPU will continue to decline in developed markets and remain low in high growth markets.

Lately, the industry has also been greatly affected by new competitors entering the market like cable TV operators offering voice services and broadband and not to ignore is the great impact internet has had in our daily lives (instant messaging, for example

Skype) (Plank, 2006). What was thought to be a realm exclusive to telecomm operators has now become more of a commodity and yielding less profits for incumbents. In an attempt to counteract this profit loosing trend and to regain market share, the industry is moving in the direction of converged communications.

Converged communications propose a challenge to telcos, by forcing them to strengthen partnerships with global and local competitors, suppliers and service providers, even by forcing a cross-industry interaction (content suppliers, for example), they are also challenged by the investments they need to make in large projects to enable their infrastructure to support unified communications, which is the current technological trend followed by the industry (Morse, 2006; Xavier and Ypsilanti, 2007).

On the other hand, customers are demanding additional services: selected content, personalization, blended life style multimedia experience available universally. Such applications generate large amounts of traffic and have to be delivered at attractive rates, not to mention the large amount of investments being made to enable the infrastructure to deliver and support such services.

Due to these conditions of competition and user demands, network providers are transitioning from legacy telecom technology, networks, and services to next generation networks that support convergence and blended personalized, enhanced applications and services (Vergados et al., 2000). Providers face the challenge of a major infrastructure transformation and although the possibilities expand the spectrum of new sources of revenue; implementing, deploying, operating and maintaining this new infrastructure of networks, systems, devices and services is a complex and costly task (Lanzolla and Anderson, 2008).

Moreover, industry experts maintain that telecommunications are becoming more and more the realm of Information Technology and that a clear differentiation between the two sectors is nowadays difficult to identify (Adamopoulos and Papandreou, 2004; Oh and Lee, 2005).

Telecom organizations are engaging on projects mainly related to IT at different stages of their infrastructure, the conditions are taking them to partner with international firms and providers. Unfortunately, past experiences showed, in general, that IT projects are very risky undertakings and the IT industry still struggles to improve their efficiency rate when it comes to successful projects (Nelson, 2007). Under these circumstances, the convergence of telecommunications propose an unlimited but also risky environment, as possibilities expand also do the chances of repeating the IT Project failure phenomenon.

2 IT's Risky Territory

Most of the research has focused on evaluating information technology projects in terms of schedule, cost and functionality, and amazingly enough the findings lead us to attribute failures in any of these fields mainly to human resource issues in other words: the team and the stakeholders (Yetton et al., 2000; Napier et al., 2007; Iacovou and Nakatsu, 2008). Some factors jeopardizing success and even completion in international IT projects are depicted in Figure 2.

Rank	Risk Factor	Rating*
1	Lack of top management commitment	9.2
2	Original set of requirements is miscommunicated	8.1
3	Language barriers in project communications	7.7
4	Inadequate user involvement	7.7
5	Lack of offshore project management know-how by client	7.4
6	Failure to manage end user expectations	7.3
7	Poor change controls	7.3
8	Lack of business know-how by offshore team	7.3
9	Lack of required technical know-how by offshore team	7.2
10	Failure to consider all costs	7.1
11	Telecommunications and infrastructure issues	6.8
12	Vendor viability	6.0
13	Difficulties in ongoing support and maintenance	6.0
14	Low visibility of project process	5.8
15	Cross-cultural differences	5.8
16	High turnover of vendor employees	5.8
17	Constraints due to time-zone differences	5.8
18	Lack of continuous, face-to-face interactions across team members	5.7
19	Threats to the security of information resources	5.3
20	Negative impact on employee morale	5.2
21	Unfamiliarity with international and foreign contract law	4.8
22	Differences in development methodology/processes	4.8
23	Political instability in offshore destinations	4.4
24	Negative impact on image of client organization	3.1
25	Currency fluctuations	2.8

* The following rating scale was used to assign importance by the experts: 10=very important; 7=important; 4=slightly important; and 1=unimportant.

Source: Iacovou and Nakatsu (2008)

Figure 2. Risk factors of international projects

There are, on the other hand, assumptions that the IT project participants might require a unique set of technical, social and emotional skills to achieve success. The question

magnifies when it comes to managing culturally mixed teams. Hofstede and Hofstede (2005), and Trompenaars and Woolliams (2007) argue that culture is the underlying factor that leads humans facing similar situations to act differently based on their values, beliefs and/or customs.

Demeester (1999) affirms that "science and technology are context-blind components of real life problems, but they can only affirm themselves in a cultural context". The question then arises if new technology deployments in the telecommunication industry are not being jeopardized or constrained due to the reasons exposed above.

In many IT-related studies, project success has been attributed to specific critical success factors (CSF). Nevertheless, CSF differ from one manager to another depending on the context he faces in the organization and according to geographical regions (Rai et al., 1996; Niazi et al., 2006). Other studies have shown supportive evidence of the impact of culture on managerial practices (Allen et al., 2005; Kayes and Kayes, 2005; Kanungo, 2006). Despite globalization and trends towards convergence of management practices, there appear to be many differences still between behavioural patterns.

But what is actually going on in the telecommunications sector? What are the success factors for project management in this field? How can we better understand and leverage the factors that foster project success?

3 Scholars in Action

At the department of Information Management, we are concerned with the low rate of success of IT projects. Particularly, watching the speed at which the telecommunication sector is demanding IT services and products, we focus in unveiling the skills and practices necessary for successful IT project management in this industry. Based on a multi-country analysis of projects, a typology for each participant country is to be derived and a cross-cultural framework for IT can be proposed.

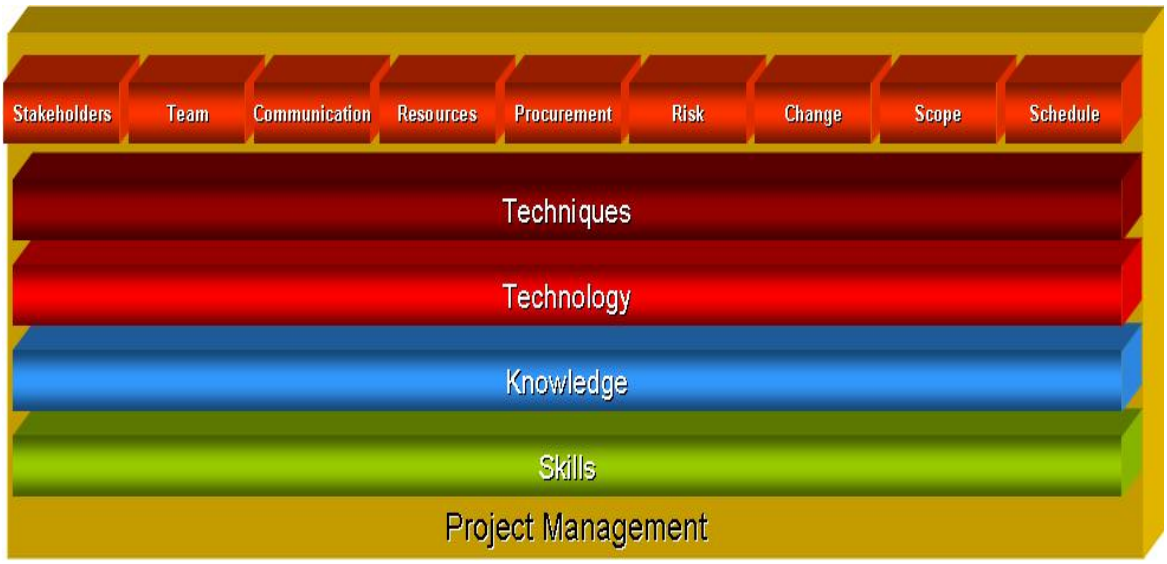


Figure 3. Project Management Environment

Our suggestion is to describe the project management environment assuming that skills, knowledge, technology and techniques are the fundament of a successful project. This fundament should support key areas of the a project as shown in Figure 3.

Moreover, asking professionals in the field is a tool widely used in the scientific community. Involving field experts enable us to collect important facts that in turn enrich the body knowledge confirming, rejecting and generating new assumptions about this phenomenon.

By using qualitative research methods it is possible to derive a set of skills and practices relevant to the specific context of telecommunications and provides the basis for generalization. This evidence aids in the design of a questionnaire (using likert-scale) to be applied in a larger sample for further analysis. Based on advanced statistics, we are able analyze the extend of the critical success factors, its impacts in a project realization and the role of the project manager and the necessary skills accordingly.

4 Conclusion

Developing and implementing IT projects requires a large understanding of the context in which the project is carried out, the technology involved, the management techniques and the people involved in the process. Although some research has been performed in the project management field in general, there is not a reliable source of information for the telecommunications industry, which addresses their specific concerns and needs.

Not to forget is the immense technological change occurred in the last two decades. nowadays, we constantly hear about new implementations and concepts such as 3G to 4G services and infrastructure, next generation networks, wireless communications, broadband, VoIP, IP Multimedia Subsystem, etc. all of them being accompanied by a massive investment in information technologies.

A wide accepted concept, by both practitioners and researchers, is that of critical success factors, basically implying those key areas where things must go right for an undertaking to develop appropriately. Still, the CSF's validity is constraint by the organizational and cultural context. This fact becomes relevant for the telecommunications sector because the industry's dynamics is characterized by international mergers, acquisitions, joint-ventures, partnerships as a result of the deregulation, liberalization and globalization process.

Scientific research is our proposition to address concerns to this problematic. Conducted by an impartial team, with profound understanding of the industry and methods to provide insightful information.

References

Adamopoulos, Dionisis X.; Papandreou, Constantine A. (2004): Enabling Value-Generating Telecommunications Services upon Integrated Multiservice Networks. In: de Souza et al. (Eds.): ICT 2004, Springen Verlag Berlin Heidelberg 2004, pp. 221-226

Allen, Richard S.; Takeda, Margaret; White, Charles S. (2005): Cross-cultural equity sensitivity: a test of differences between the United States and Japan. Journal of Managerial Psychology, Volume 20 Number 8, pp. 641-662

Cianca, Ernestina; De Sanctis, Mauro; Ruggieri, Marina (2005): Convergence Towards 4G: A Novel View of Integration. Wireless Personal Communications, Volume 33 Number 3-4, pp. 327-336

Demeester, Michel (1999): Cultural Aspects of Information Technology Implementation. International Journal of Medical Informatics, Volume 56 Number 1-3, pp. 25-41

García-Murillo, Martha (2005): Regulatory responses to convergence: experiences from four countries. Info - The journal of policy, regulation and strategy for telecommunications, Volume 7 Number 1, pp. 20-40

Grover, Varun; Saeed, Khwaja (2003): The Telecommunication Industry Revisited: The Changing Pattern of Partnerships. Communications of the ACM, Volume 46 Number 7, pp. 119-125

Hofstede, Geert; Hofstede, Gert Jan (2005): Cultures and Organizations: Software of the Mind. McGraw-Hill

Horan, Thomas A.; Scholley, Benjamin L. (2004): Market Dynamics and Local Policy Choices for Converged Systems: Case Study of Integrated Telecommunication Design and Deployment. Information Systems Frontiers, Volume 6 Number 3, pp. 205-218

Iacovou, Charalambos; Nakatsu, Robbie (2008): A Risk Profile of Offshore-Outsourced Development Projects. Communications of the ACM, Volume 51 Number 6, pp. 89-94

Kayes, D. Christopher; Kayes, Anna B. (2005): Essential competencies for cross-cultural knowledge absorption. Journal of Managerial Psychology, Volume 20 Number 7, pp. 578-589

Kanungo, Rama Prasad (2006): Cross culture and business practice: are they coterminous or cross-verging? Cross Cultural Management: An International Journal, Volume 13 Number 1, pp. 23-31

Lanzolla, Gianvito; Anderson, Jamie (2008): Digital Transformation. Business Strategy Review, Volume 19 Number 2, pp. 72-76

McClelland, Stephen (2004): East Asian Mobile Futures: South Korea: a CDMA success story. Telecommunications, Volume 38 Number 9, pp. 56-58

Morse, Joni (2006): Converged services next telecom battle ground. RCR Wireless News,

Volume 25 Number 12, pp. 8-8

Napier Nannette; Keil, Mark; Tan, Felix (2007): IT project managers' construction of successful project management practice: a repertory grid investigation. Information Systems Journal, OnlineEarly Articles Dec. 2007

Nelson, Ryan (2007): IT Project Management: Infamous failures, Classic Mistakes, and Best Practices. MIS Quarterly Executive, Volume 6 Number 2, pp. 67-78

Niazi, Mahmood; Wilson, David; Zowghi, Didar (2006): Critical Success Factor for Software Process Improvement Implementation: An Empirical Study. Software Process: Improvement and Practice, Volume 11 Number 2, pp. 193-211

Oh, Sangjo; Lee, Heehin (2005): How Technology Shapes the Actor-Network of Convergence Services: A Case of Mobile Banking. 26th International Conference on Information Systems 2005, pp. 483-493

Plank, Kilian (2006): Multi-technology Interactions in Mobile Telecommunication Markets. In: Proceedings of the Twelfth Americas Conference on Information Systems, Acapulco, Mexico August 4th-6th 2006, pp. 1970-1977

Rai, Arun; Borah, Santanu; Ramaprasad, Arkalgud (1996): Critical Success Factors for Strategic Alliances in the Information Technology Industry: An Empirical Study. Decision Sciences, Volume 27 Number 1, pp. 141-155

Trompenaars, Fons; Woolliams, Peter (2007): Business Across Cultures. Capstone Publishing Ltd.

Turner, Colin (2005): The international strategies of Europe's incumbent telecommunications operators: towards a strategic typology. European Business Review, Volume 17 Number 4, pp. 340-351

Vergados, Dimitris; Vayias, Evangelos; Soldatos, John; Mitrou, Nikolas (2000): IP-based Convergence of Fixed and Cellular Networks and Services in the Light of Liberalization. In: Rao, S. and Sletta, K. I. (Eds.): INTERWORKING 2000, Springer-Verlag Berlin 2000, pp. 51-64

Xavier, Patrick; Ypsilanti, Dimitri (2007): Universal service in an IP-enabled NGN environment. Info - The journal of policy, regulation and strategy for telecommunications, Volume 9 Number 1, pp. 15-31

Yetton, Philip; Martin, Andrew; Sharma, Rajeev; Johnston, Kim (2000): A model of information systems development project performance. Information Systems Journal, Volume 10 Number 4, pp. 263-289

About the University of Göttingen

The Georg-August-Universität of Göttingen was founded in 1737 with an inherent commitment to the critical spirit of the Enlightenment. Throughout the course of its history, the “Georgia Augusta” has succeeded in attracting and retaining world-class researchers whose groundbreaking basic research led to the establishment of the University’s international reputation, both in the natural sciences and in the arts, and who remain influential in the shaping of the University profile to this day; the name of Göttingen is associated with more than 40 Nobel Prize winners who have lived and worked here.

About the Department of Information Technology

The chair of Information Management perceives the management of information and information technology (IT) as a crucial key success factor for corporations in the digital age. Therefore research is performed in cooperation with the industry and strives to find answers for relevant questions in IT management. In parallel, research is targeted towards acceptance in the academic community such as leading conferences and journals.

M. Sc. Carla I. Sánchez Aguilar

Georg-August University Göttingen
Institute of Information Systems
Chair of Information Management
Platz der Göttinger Sieben 5
D-37073 Göttingen
Germany
csanche@uni-goettingen.de
http://www.im.wiwi.uni-goettingen.de
T: +49 551 / 39-22254
F: +49 551 / 39-9735