
Critical success factors in mobile communications: a comparative roadmap for Germany and India

Bardo Fraunholz and Chandana Unnithan

Deakin University, School of Information Systems,
Faculty of Business and Law, 221, Burwood Highway,
Burwood, Melbourne, Victoria 3125, Australia
E-mail: bardo@deakin.edu.au E-mail: Chandana@deakin.edu.au

Abstract: The world of telecommunications, especially mobile communications, continues to evolve with innovative technologies and high-speed data services. In many economies, mobile phones have overtaken fixed lines. In this dynamic context, we have envisaged to study mobile communication diffusion in Germany and India, from a historical comparative perspective. The basic standard for comparison has been Global Systems for Mobile Communications (GSM) and its data services, which was adopted by both economies. Subsequently, critical success factors in each economy is drawn and compared with the other, to elicit future directions.

Keywords: mobile communications; Germany; India; data services; GSM; diffusion; critical success factors; historical comparative research; open coding; SMS.

Reference to this paper should be made as follows: Fraunholz, B. and Unnithan, C. (2004) 'Critical success factors in mobile communications: a comparative roadmap for Germany and India', *Int. J. Mobile Communication*, Vol. 2, No. 1, pp.87–101.

Biographical notes: Bardo Fraunholz is a Lecturer in Information Systems, Project Management, Enterprise Modelling and Business Communication Systems. He has a German master's degree in Information Systems/Accounting. Further, he is a post-graduate in legal studies specialising in IT, Media and Corporate Law from London. He spent several years in the Information Communication Technologies sector as coeditor/board member of a publisher specialising in IT and Telecommunication Magazines. Currently, he is actively involved in managing/consulting with a number of projects dealing with SMEs and information systems. His main research interests are mobile communications, IT & Law and IS/IT Project Management.

Chandana Unnithan is a Lecturer in Business Information Systems and IT/IS Project Management. She has a master's degree by research in Business Computing and an MBA from Australia. She has spent 14 years in the Information Communications Technology sector, some highlights being with IBM GSA and TATA of India. Her current research focuses on project process modelling, mobile applications in project management, and impact of new generation mobile technologies in various economies. She has a special interest in comparative cross-cultural or cross-economy mobile communication studies.

1 Introduction

The world of telecommunications has been transitioning rapidly over the past decade with mobile technologies enabling data services [1]. By the end of 2001, over 90% of countries had a mobile network in place, and 97 countries had more mobile than fixed telephone subscribers [2]. In 2002, 51% of the world's phone owners were mobile phone subscribers [3]. Parallel to the rapid uptake of mobile phones has been the adoption of Global Systems for Mobile Communications (GSM) standard by 197 countries [4] and its acclaimed General Packet Radio Services (GPRS) data services [5].

The key objectives of this paper are to derive some critical success factors for mobile communications, specifically in the two countries – Germany, a developed economy, and India, a developing economy. Despite their differences in stages of development and infrastructure, there seem to be interesting similarities in the mobile communications diffusion and the accepted network standard of GSM. In this precinct, we endeavoured to examine the critical factors in mobile communication diffusion from a *historical comparative perspective* [6] focussing on the evolution of the mobile telephony sector, networks and data services as leading indicators. The following section describes our methodology.

2 Methodology

Our philosophical perspective for the purposes of this research has been interpretive, that is, the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations [2,3]. Through this approach, we expected to give our research the practical orientation as we study meaningful social action, not just observable behaviour of people. We hypothesised that there may be inherent meanings behind the uptake and diffusion of mobile communications within each of these countries and, perhaps, critical success factors could be derived. Many authors recommend exploratory studies when there is relatively less information regarding an evolving phenomenon – to advance knowledge further [2,3,7]. Our study was exploratory but *evaluative* using cross-sectional data, and taking into consideration the rapid time transition in mobile communications.

We have used the *comparative* historical technique for data collection, to accommodate a mix of qualitative data such as existing statistics, documents, observations and random semi-structured interviews, which were found necessary to measure/conceptualise critical success factors in mobile communications. *Comparative researchers examine patterns of similarities and differences across cases and try to come to terms with their diversity* [6]. It helps in identifying aspects of social life that are general across units (or cultures in this context). The approach often encourages the researchers to ask questions that challenge their own cultural traditions. With both the researchers involved in studying relevant countries, the interpretation of socially relevant meanings were easily possible. Our research question was: *what may be some of the critical success factors in mobile communication diffusion in Germany and India?*

Within the approach, the *cultural context* type was the mobile communication diffusion process within the two economies. *Conceptual equivalence* (the ability to use the same concept across divergent cultures) and *measurement equivalence* (measuring the

same concept in different settings) was applicable. The concept of mobile communication diffusion could be measured across the two economies, as the technologies and adoption patterns were found to be similar – although motivations may differ. We used the *open coding method* to elicit emerging themes and build them into critical success factors. As the comparative method often stimulates theory building [8], we expected to synthesise the critical success factors that may emerge into future frameworks for furthering academic research.

A variety of themes such as mobile penetration rates of mainly cellular phones, pricing of mobile packages, activity/motivation of cellular providers, availability of phones emerged as critical success factors. The paper is structured as follows. We begin with a contextual introduction and methodology of the research. Subsequently, we build taxonomy on relevant mobile technologies and standards to place our research in context. Further, we analyse emerging themes, elicit critical success factors and draw conclusions to form ground for further research.

3 Definitions and taxonomies

A common definition of mobile communication was found to be evasive due to the evolutionary nature of the term as well as the differences in interpretation among global communities. In broad terms, mobile communications encompasses any form of communication that is exchanged over mobile networks [5]. The term is increasingly used as a reference to a broad spectrum of applications ranging from communications to infotainment, consumer transactions and corporate services [9]. Mobile communications imply a connected society, increased speed of service, simplicity and convenience [10]. To place our research in the context, we attempted to build a taxonomy of mobile communication technologies that are relevant in the following paragraphs.

The foremost is the mobile or cellular phone which is basically a two-way walkie-talkie that acts like a telephone [11]. In the ‘cellular’ phone system, the geographic region is divided into cells, to make most use of a limited number of transmission frequencies [7]. Each connection, or conversation, requires its own dedicated frequency and the terms ‘analogue’ and ‘digital’ refer to this transmission mechanism. The major difference is in how the audio signals are transmitted between the phone and base station. With *analogue systems*, the audio is modulated directly onto a carrier while with *digital systems* the audio is converted to digitised samples, transmitted and converted back at the receiving end [7]. The earlier mobile systems were analogue (e.g. AMPS) and the latest are digital (e.g. GSM). As technology progressed, analog systems are getting phased out, and digital systems are either adapted or adopted – depending on the country [7].

GSM is one of the leading digital cellular systems, introduced in 1991. It uses narrowband TDMA which allows eight simultaneous calls on the same radio frequency. As of April 2003, GSM service has become the de facto standard in Europe, Asia, South America and Africa [4]. TDMA (Time Division Multiple Access) is a technology for delivering digital wireless service using time-division multiplexing and is the second most popular digital wireless standard [12]. TDMA works by dividing a radio frequency into time slots and then allocating slots to multiple calls. In this way, a single frequency can support multiple, simultaneous data channels [13].

CDMA (Code-Division Multiple Access) is a digital technology that uses *spread-spectrum* techniques, i.e. every channel uses the full available spectrum. Originally developed as military technology, Qualcomm claimed patent and became the first to commercialise it [14]. EDGE (Enhanced Data GSM Environment) is a faster version of GSM wireless service that enables data to be delivered at rates up to 384 Kbps on a broadband. The standard is based on the GSM and uses TDMA multiplexing technology [12].

Third generation (3G) is an International Telecommunication Union specification for the third generation of mobile communications technology which promises increased bandwidth, up to 2 mbps in fixed applications, 384 Kbps when a device is moving at pedestrian speed and 128 Kbps in a car [15]. It works over wireless-air interfaces such as GSM, TDMA and CDMA [16–18]. UMTS (Universal Mobile Telecommunications System) is the 3G standard identified by the UMTS forum – an offshoot of International Mobile Technologies 2000 (IMT2000) group that is defining standards for 3G mobile communications based on International Telecommunication Union (ITU) recommendations [16,19,20]. It is the natural evolutionary choice for GSM operators.

GPRS (General Packet Radio Service) is a standard for wireless communications which runs at speeds from 64 up to 171.2 kbps, compared with current GSM's 9.6 up to 14.2 kbps. GPRS, which supports a wide range of bandwidths, is an efficient use of limited bandwidth and is particularly suited for sending and receiving small bursts of data, such as e-mail and web browsing, as well as large volumes of data [21].

Text Messaging refers to the process of sending text messages, usually not longer than a few 100 characters, between two or more mobile devices [13]. SMS (Short Message Service) is the service that uses this concept, as a GSM Phase I standard [4], to send short messages from one mobile phone to another, usually not longer than 160 characters using Latin alphabet or 70 characters using Arabic or Chinese [13]. MMS (Multimedia Message Service) is a store and forward method of transmitting graphics, video clips, sound files and short text messages over wireless networks using the WAP protocol [13]. Location Based Services build on the tracking facilities of GSM networks to offer services to customers that are based on their location [22]. Such a service can be the provision of hotels or petrol stations in the proximity of the customer as well as the tracking of a mobile if it has been lost or misplaced [23].

In this research, we are focusing on the GSM standard and its data services (see Table 1) as they were found to be relevant to both the economies under review.

Table 1 Roadmap of data services for GSM

	<i>Timeframe</i>	<i>Capabilities</i>	<i>Notes</i>
9.6 kbps service	Available	Circuit-switched data and fax	Service available from most GSM operators today
14.4 kbps service	Available	Higher speed circuit-switched data and fax	Should work identically to 9.6 kbps service only at higher speed. V.42 bis compression will further increase throughput by about 200%
Direct IP access	Available	Circuit-switched connection directly to internet	Reduces call set-up time and provides a stepping stone to packet data. Will also be available for high-speed circuit-switched data services

Table 1 Roadmap of data services for GSM (continued)

	<i>Timeframe</i>	<i>Capabilities</i>	<i>Notes</i>
High-speed circuit-switched data service (HSCSD)	Available	High-speed rates to 64 kbps	A software-only upgrade for carriers not requiring expensive infrastructure. Operators will need to decide whether to offer this service or GPRS or both
GPRS	Available	High-speed packet data with transmission speeds over 100 Kbps, with most user devices offering about 56 kbps	Extremely capable and flexible mobile communications
EDGE	Available	High-speed packet data which will triple the rates available with GPRS	
Third generation cellular	Available in some countries	High-speed packet data up to 2 Mbps	Completely new air link

Germany was one of the earliest GSM members and has continued to work with GSM and its data services. It has not adopted CDMA nor has there been any other mobile technology standard in Germany. This may be so because of the closeness to other countries and the European Union, where it is especially important to have the roaming facility available. Germany is committed to the UMTS (3G standard) as part of the European Union [24].

The Indian government had adopted GSM as a 'the' standard and although cellular licenses were made technology neutral in 1999, all the private operators continued to offer only GSM based mobile services [25]. However, CDMA [26] technology is particularly attractive to India, as the market had clearly defined points of usage within a telecom circle where unlimited mobility of GSM may not be required. As 20% of the subscribers are willing to try cheaper CDMA services [27], CDMA connections are likely to affect GSM operators. In May 2003, 3G services were introduced with CDMA2000 1X platform [8] in 92 cities. However, CDMA is still expected to coexist with GSM and future 3GSM services.

Given the above, for the purposes of historical comparison, we have limited this research to GSM and related data services, which are present in both economies.

4 Mobile communications in Germany

Germany, as an industrialised country, has had a modern telecommunications infrastructure. In 1989, 'Deutsche Telekom' – then a monopoly – introduced incentives for customers to switch from analogue to ISDN telephone lines. The intentions were multifold – to benefit from the better services, a second phone line and digital data transmission. At the same time, the first digital mobile network, the D1 network, was rolled out to coexist with the then established analogue network C-Net. This was also the start of privatisation because a second license (D2) was issued to a private

telecommunication company, Mannesmann Mobilfunk GmbH. Both networks utilised the GSM standard and both used the GSM 900 MHz frequency band [28].

Mobile services were first introduced as a duopoly under a license fee regime for a period of 20 years in 1989. The first private mobile phone license was a great success for the old economy business – Mannesmann. This was because the business was already desperate for a new line of business and had begun exploring/getting involved in high-technology areas such as automotive electronics. Mannesmann's early success attracted other businesses into the industry and, in combination with deregulation of the telecom industry, Germany soon had more than 20 service providers reselling D1 and D2 services. However, the market for service providers did not prosper for long and soon after the first mergers and consolidations took place [29,30].

The concept of multiple service providers was introduced with the expectation that there would be sufficient competition to have a de facto privatised mobile network. However, this did not work in the manner expected by the regulating office – which was then the federal ministry for the postal service. The concept was that there should be competition between the service providers. However, the prices at which the network services could be resold were very much determined by the network service providers and, therefore, the expected competition did not take place [29,30].

The situation changed slightly with the introduction of the 1800 MHz networks. The first license for the so-called 'E-Netz' was granted in 1994. The second license was granted to O2 in 1998 [29,30]. This improved the competition situation a little, but the limitations of reselling services at a virtually fixed price from the network operators did not help too much. This situation will not change unless the network operators will be forced to allow override so that the user has a free choice of operator. The current situation, however, still results in comparatively high prices for mobile communication when compared on an international scale [31].

Critical Success Factor 1: Government policy on competition has a significant impact on the pricing structure of mobile network services in Germany.

With competition of four networks in place and a new 3G technology just round the corner, each of the network service providers are keen to secure a significant share of the mobile phone market [32]. In order to attract customers, there is a heavy subsidy on mobile phones. This results in cheap phones, to make the entrance into the mobile market easy for the consumer, by being able to get a phone virtually free and then pay a subscription fee around EUR 50 and a monthly line rental of EUR 10. The result of this policy by network service providers is that there are many (currently 58 million) mobile phone users registered, but hardly any of them use the phone and, if they do, it is a comparatively small turnover. These customers are expensive for the network service providers in the long term as they have to bear both the upfront costs of the phone, as well as administrative costs of sending out monthly statements and keeping accounts updated [33].

Another result of this fierce war over customer subscriptions is a significant targeting of the youth market. Network service providers have identified the youth as a prime user for mobile services – ranging from SMS, MMS to mobile calls. Many of the phone users in Germany today are under 18 years of age and have their parents paying the bill. The parents are initially happy for their children to have a mobile phone, but once the heavy bills start rolling in there is trouble [16]. This often gets back to the network service provider because many parents view this as the responsibility of the provider. This causes bad publicity and sometimes legal disputes [33].

Added to this has been a policy (or a technical issue) connected with the sending of SMS and prepaid mobiles. Some network providers did not deduct the cost of the SMS directly from the prepaid account but bulk billed the usage at a later stage. At times, this resulted in a large accumulation of bills over the period of three months, as the youth using the prepaid mobile was not aware of the situation and therefore kept using the mobile happily to send SMSs to the world [34].

Critical Success Factor 2: Mobile subscriptions in Germany grew rapidly due to fierce competition for subscribers by network providers.

Germany has a high teledensity of 61.05% [35] – which is amongst the highest in the world. At the same time, there is little growth expected in the German fixed line market because there is hardly any growth in the number of households. In addition, there has been a continuous penetration of both rural and urban areas with the ISDN initiative during the 1990s [28]. Many households have ISDN lines providing three numbers and two channels for telecommunication. Generally, the telecom infrastructure is good and in the eastern part – or former GDR – it is among the most modern in the world. Security is deemed to be good as there have not been many instances of telecommunication fraud or subscriber embezzlement. This is further assisted by the penetration of digital lines which make it far more difficult to tamper with [28]. In recent years, there has been a substantial move towards the personal phone. This has been facilitated by the continuous drop in mobile phone handset and subscription prices [35]. There is a general notion that you should be able to contact a person directly at any time without first having to call the household and go in search for the person.

Critical Success Factor 3: The expectation to get direct, omnipresent contact with anyone, and therefore providing a personal phone for each person, rather than a household phone, seem to be a motivator for mobile communication in Germany.

The mobile phone can generally be seen as the liberation of people from the fixed location requirement. The mobile phone in combination with the internet has made the vision of location-independent work possible. The mobile phone is an integral part of today's private as well as professional lives and has even found its way into unlikely areas like policing or other services for security and reliability reasons [34].

There is a continuous trend for more and more industries to use mobile technology in their day-to-day transactions. This may be the tracking of staff, retrieving information from the server while with a customer, feeding back important data while on a building site, doing last-minute negotiations or simply changing appointments. The mobile phone has found its way into day-to-day life in Germany and will continue to be an important way to communicate [34–36].

Critical Success Factor 4: The accentuated growth of mobile communication continues as it is a cost-effective way of business/personal communication and demolishes the person–location restriction.

SMS is probably one of the most unlikely and underestimated success stories of mobile communication in Germany. Being an unwanted and rather reluctant side service to GSM, around 75% of mobile phone users use SMS at least once a month [17]. Within the age group of 14–19 year olds, more than half are sending more than one SMS per day [37]. The total number of SMS messages had well passed the 5 billion mark in 2000 and is expected to rise even further. This trend has not been affected by a recent price rise for the SMS within all German networks which, in some instances, nearly doubled the cost of sending an SMS. The structure of payment for SMS is such that most

parents pay for their children and, therefore, the actual price of the individual SMS seems to have little bearing on the sender [37].

The mobile phone has long served as a status symbol, but now the use of SMS is becoming an increasingly important, fashionable or rather trendy way to communicate with peers [37]. The majority of SMS messages sent are of a personal nature. They are mostly used to send greetings, locations and love messages to friends and partners sometimes using the SMS service as a means of control. However, the notion of SMS marketing is slowly evolving within the economy. To deal with the 'SMS Generation' TV stations such as VIVA or RTL targeting youth with SMS competitions or SMS mailing lists for news and promotions are becoming common [19]. VIVA, a German music cable channel has recently launched a competition for modelling with entries by SMS only. Interested people had to come up with a phrase to make them interesting and had to send it to the sponsor by SMS [19].

SMS has created a whole new language that has reached a level of code to make it difficult for parents to understand what their children are talking about. The constant presence of communication at any given point has an impact on behaviour as well as the ability to normally communicate. There is a new challenge to deal with the upbringing of children and to set an example on the 'do's and don'ts' by setting an example comparable to eating in front of the television [34].

In this context, there have been concerns on the impact mobile phones and SMSs have on relationships. There is a distinct feeling of safety that comes with the possession of a mobile phone. In contrast, there is always a notion of control and the welcoming distance to be able to send someone an SMS with a message that one would rather not deliver in person [34]. The behaviour however, is dependent on the type of personality and the relationship involved. This has distinctly different implications accordingly [18].

Critical Success Factor 5: SMS has evolved as a major cash cow and draw factor for the youth market in Germany.

With current 3G (UMTS) licensing and the huge cost involved, there is scope for further consolidation in a not-too-competitive market. The nature of telecommunication with licensing and heavy investment keeps the market entrance hurdle high and the regulator has also stopped cooperation between 3G providers by ruling that they are not to share or jointly develop infrastructure [38]. Customers are demanding more innovative services and a higher bandwidth. Therefore, there is pressure on network service providers to introduce the new technology in good coverage as soon as possible, in order to be the first one in the market. The first network service provider to offer the new UMTS service is likely to get the bigger market share in the anticipated new market – as this service will be the only 'hot' service in an almost saturated market. In addition, the handsets industry is also demanding innovation and new standards. There has been a decline in the sale of new handsets and profit margins over the past year [20].

Critical Success Factor 6: Innovation and functionality are the main drivers for customer interest in the German mobile telecommunication market.

5 Mobile communications in India

Towards the turn of the century, the Government of India introduced mobile services as a duopoly under a fixed license fee regime for a period of 10 years. With liberalisation in the sector coming in the mid-1990s, the sector was opened up to private competition and

licenses were awarded to private operators, with the country being divided into four metropolitan cities and 19 telecom circles [39–42]. However, as the private sector participation preceded the set up of regulatory authority and tariff rebalancing, licenses were auctioned at exorbitant amounts, leading to a high cost structure and unaffordable tariffs. This led to near bankruptcy of the mobile sector in 1998 [39–42].

The new telecom policy NTP 99 brought in a lower cost licensing structure through revenue sharing, providing greater degree of competition and flexibility in the choice of technologies. Mobile tariffs have dropped by over 90% since May 1999 (INR 2 per minute in 2001 as against INR 16.80 per minute before 1999). As the government rationalised levies, resulting in high turnover, operators were able to venture more into cities and towns. In parallel, they began offering consumers plans to buy a mobile phone, over a period of 12 months or more, on a low cost of USD42, on a committed period of services [39–42]. The government is promoting the mobile sector as it not only generates revenue for the exchequer, but also reduces the costs of infrastructure rollout especially when connecting remote villages.

Critical Success Factor 1: Government intervention and stimulation had a deciding role in the growth of mobile sector.

The number of mobile network providers is currently organised by licensed circles, i.e. every region is licensed for an average of four service providers [40] and there were 42 networks on air within India as on August 2002 serving over 1400 towns and cities, and thousands of villages. The Indian government classifies the country's telecom market into 'metro' and 'A', 'B' and 'C' circles or zones, based on subscriber potential [41]. Table 2 shows the spread of mobile subscriptions spread among the respective circles as on March 2003 [42].

Table 2 Spread of mobile subscriptions between networks – divided by circles (March, 2003)

<i>India</i>	<i>12,687,637</i>
Metro circles	4,439,524
'A' circles	4,364,943
'B' circles	3,374,538
'C' circles	508,632

The cellular subscriptions [25] had overtaken fixed lines during the April–June period or the first quarter of 2002. The sector is one of the fastest growing, globally, in the decade and the main driver for a more than 100% growth each year in the past six years has been falling tariffs in a sector where a dozen money-losing firms have launched a fierce price war to grab market share [43].

The sector has the lowest rate of USD16 a month for a 300-min talk-time plan compared with other developing nations such as USD21 in China and USD77 in Brazil [22,25]. However, mobile operators pay between 8.0 and 12% of their revenue as license fee as compared with no license fee in China. Low tariffs, along with price wars by cellular operators, are supported by massive consumer demand, especially the youth in metropolitan cities.

Critical Success Factor 2: Fierce price war by firms offering cheap call rates is helping the growth of the sector.

India has a low teledensity of 4.5% compared with a global average of more than 15% [44]. The number of households in the rural areas is expected to grow to 360 million by 2010, making them an attractive audience. On the other hand, the thickly populated urban city areas are less motivated to get a fixed line network [44]. To explain the cause of this de-motivation, an example would be the densely populated metropolitan Mumbai, where every suburb is connected with metro railway lines – lined by illegal slums. An average householder has to not only cut through the red tape for installation but also live in the fear of a slum dweller tapping into the line, resulting in enormous bills. In addition, the relative lack of privacy within small households often drives youth into public telephone booths – where an elder will not be in the earshot. Thus, the mobile phone offers privacy, low cost and convenience as compared to fixed lines. Most firms expect the market for mobile services to grow by between 10 and 14 million new subscribers in 2003 [41].

Critical Success Factor 3: *Indians are choosing mobile phones over fixed telephony.*

With the steady growth of the mobile market and affordability of phones, the legal market for mobile phones still remains small [45]. The grey channel which includes smuggled handsets, parallel import and phones brought in by travellers abroad, accounted for 86% market share in 2001. There is a price differential of up to 35% which arises from customs and sales tax in the legal market, which is set off in the grey counterpart. Since the size of the legal market is small, vendors do not provide extensive after sales support. When the phone is available for cheaper rates and with no other real incentive, consumers choose to buy from the ‘grey’ market – which is considered normal by the population [45].

Critical Success Factor 4: *The ‘grey’ market supports cheap availability of handsets.*

Mobile communications has reinvented the role of fishing captains into logistics and supply chain managers [46,47]. For example, the fishing industry in Kerala, a south-western state of India, generates USD600 million in a year in revenues. During the day, prices vary throughout the day at 17 landing ports around the main port of Cochin. Currently, 8000 fishing boats carry mobile phones to locate the best offers before landing in the port, saving expensive fuel by calling in carrier boats that take the catch to the shore. In addition, the agents, handlers and middle-men also carry mobiles to get their best deals. Two competitive firms are offering services to these ‘communities of interest’ [46].

The boom of young IT professionals carrying mobiles and also the growing concept of mobile workers in densely populated metropolitan cities, where commuting otherwise takes hours, are becoming increasingly commonplace.

Critical Success Factor 5: *Mobile communications offer convenient, cost-effective and personalised services for businesses.*

Innovation and affordability demanded by the youth in metros seemingly is motivating network providers to offer value added services such as SMS [23,46]. The burgeoning young IT professionals within metros also are patronising the service due to the convenience/cost-effectiveness it offers. A fair example would be of an office executive, stuck in a traffic jam before a presentation, sending an SMS to the office. The non-intrusive nature of the service makes it popular among the youth in a society which is communal and yet power distant.

SMS is creating a revolution in India [58] with an estimated 60 messages sent per phone per day, from India’s 8 million mobile phones owners in early 2002. SMS was reported to be four times more than normal (or a 500% jump) during major festival

seasons such as Diwali – equivalent to New Year’s Eve [49]. There are also initiatives to promote this service, such as school children obtaining their final results by SMS – a project run jointly by Ericsson Mobile and Bharti Telecom, the network providers who hold major market share within India [50]. In May 2002, the capital city of New Delhi was introduced to traffic police SMS – a service aimed at providing aid in answering the average queries of a motorist as well as to help the traffic police operating the field [47]. For example, a vehicle being towed away is immediately notified to the owner. Many celebrities now provide mobile numbers to fans as SMSs do not intrude their privacy [51].

Interestingly, human rights activists in India have condemned the diffusion of SMS especially among the youth as a cause of breaking up relationships [48]. For example, a typical ‘U4Me’ message was cited to have sparked marital discord ending in a divorce. However, the growth of SMS seem undeterred with operators clocking a nine million short messages in one single festival day, in the capital city of New Delhi alone [48]. A vital aspect behind the success of SMS is that the costs range from USD0.042 in some circles to USD0.010 and free in others. The income from SMS is currently 10% of the total revenue for many network providers [51].

Critical Success Factor 6: *SMS is a key value added service for mobile sector growth.*

6 Discussion and roadmap

Due to the nature of the economies, i.e. developed and developing, the mobile communication development process too varies.

Germany is a highly industrialised developed nation, with saturated fixed digital ISDN networks alongside mobile communications. GSM has been ‘the’ standard for mobile communications in EU nations, including Germany. Government policy on competition among mobile network service providers has had a significant impact on the pricing structure of mobile network services. Mobile subscriptions grew rapidly due to the fierce competition for subscribers by network providers, in a saturated market.

Innovation and functionality are the main drivers for customer interest in the German mobile market. Service providers have targeted the youth as they form a lucrative segment to tap, especially with the growing demand of SMS. On a social level, text messaging has become ‘trendy’ with the youth, and also offers a comfort distance for passing on a message. In contrast, the expectation to get direct, omnipresent contact with anyone, anytime, anywhere seems to be the key motivator for mobile communications in Germany. As it has become a cost-effective tool for business as well as personal communication, without having the person–location restriction, the growth of mobile communication is accentuated.

Therefore, it could be well said that innovation, functionalities, convenience, trend, government policy on competition and its cascading effects on pricing structure are the critical success factors for mobile communications uptake in Germany.

In India, telecom liberalisation with government stimulation and intervention seem to be the main critical success factor. The restructured revenue sharing low-cost regime has motivated operators and is supported by high demand from the growing middle class that prefers a mobile phone to fixed lines. Affordability of the phones was helped with lower tariffs, the country opening up in mid-1990s to foreign influx and the growth of the ‘grey’ market. With the blessing of government subsidies, increased demand and subsidised

handset levies, network providers have launched into a fierce price war, especially targeting the youth market. The adoption and acceptance of SMS that is creating a mini social revolution within India has become another critical factor. However, it is a long way before the critical mass is achieved. It may be well said that government support, affordability, convenience and the perceived freedom offered by the mobile communications are the driving critical factors for India.

On a comparative note of these economies, there are some interesting factors that come to the fore. In Germany, four network providers offer similar services across the country, offering uniform coverage of services and no differences within the economy. In India, the network operators are divided into circles, such as metro, A, B and C, and varied services are offered by licensed operators within these circles. The variation is due to the demand, social structures, culture and language. Even a licensed operator – who may be looking at two metros – may be offering different services due to these issues.

In Germany, fixed telephone lines are a norm and every household will have a telephone. In some cases, there are two or more lines within the same household. With the existing social structure, privacy is not affected and is respected by all members of the family. There is also no issue of space constraint within homes. Mobile phones have become ‘individual’ phones, more for the person to be available always to the caller. However, there is no possibility of not having a fixed phone within a household. Interestingly, in India, space constraints within homes, the existing social structure which tends to ‘eavesdrop’ on conversations, especially youth vs. elders, and the hassles of acquiring a fixed line phone in some circles are increasingly driving the public to choose a mobile phone instead of a fixed phone. In C circles, where individual home spaces are wide (such as rural farm houses, etc.), there may be more than one connection. However, the ‘listening in’ social problem is increasingly luring people to get mobile connections over a fixed line. This is especially the case with the upcoming youth or new generation of professionals who seem to value their private spaces and individual privacy of conversation.

It is interesting to note that SMS and demand by the youth market has been one of the common success factors in both economies, despite their disparities otherwise. However, another factor that needed consideration was that in Germany, mobile phones were early to penetrate the market and coexisted with fixed line telephones. There was no question of not having a fixed line phone in a household or, rather, choosing a mobile phone over a fixed line telephone. The affordability of the handset and services were not at all issues and the population more or less grew up with the innovations. In India, the cost factor of the mobile phone deterred the population to a large extent and is still a factor in achieving the critical mass that uses mobile phones. However, it is increasingly common to choose a mobile phone over a fixed line phone, given the hassle free, cost-effective conveniences it now offers.

In conclusion, the success factors provided in this paper may be few and there may be more as the whole sector evolves in both economies. We have provided a preliminary roadmap and with continuing work in the area, we hope to develop this framework into a model for comparing critical success factors in many economies and also for evaluating the mobile communication diffusion globally.

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Abbreviations

INR = Indian National Rupee

USD = United States Dollars

Euro = European Union Currency