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Abstract

New technology based start-ups play a very important role in developing the economy of a country. In India telecom sector has seen unprecedented growth over the decade and this has led to emergence of several telecom related start-ups. However, product based B2Bstart-ups are still rare and they have to undergo several challenges to stay afloat. Surprisingly not much research work has been undertaken in identifying capabilities among early stage start-ups although the early phase represents a very crucial phase for product based firms and in determines the success or failure for start-ups. Present study explores the inherent marketing capabilities that enable commercialization among such early stage start-ups by adopting a multiple case based inductive methodology with Indian telecom start-ups as our context. We have identified market orientation, positioning and segmentation, selling and after sales services as components of marketing capability of such start-ups. We also identify several idiosyncrasies among telecom start-ups vis-à-vis established firms in the sector. Finally we make a case for policy level intervention to promote telecom start-ups in the Indian context.

Keywords: Entrepreneurship; Telecom based new ventures; Marketing capabilities; Knowledge acquisition;

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Introduction:

Technology based new ventures have been known to play a significant role in the development of economy of any country especially in today's knowledge based environment. It has been shown by extensive research that such new firms grow more and distribute wealth more effectively as compared to established firms (Schumpeter, 1934, 1942; Wagner, 1994; Tether and Massini, 1998; Brixy and Kohaut, 1999). In the Indian scenario telecom as a sector has shown consistent double digit growth since 2002 (IIR, 2009). Sensing opportunity in niche areas several telecom related start-ups have sprung up across the country. However, most such start-ups have a services outlook and only a few have ventured into product based technology markets in India. Although telecom equipment market size for 2008-09 in India has touched USD 30 billion (TEMA (Indian telecom equipment manufacturers' association) website) but still firms have been reluctant to enter high end equipment market due to high technological skill requirements, capital intensiveness, time consuming nature of product development related to telecom and lack of adequate marketing skills among start-up firms (Dutta et al, 1994).

Present work looks into identification of marketing capabilities among telecom product start-ups looking to sell their products to either telecom/internet service providers (TSP/ISPs) or other enterprises. However, selling to other larger firms brings in an entirely different set of problems for these business to business (B2B) firms as compared to consumer oriented technology firms. According to Das (2005) B2B market is known to have fewer customers, longer and more complex selling cycles and a much higher requirement for customization. These start-ups lack adequate marketing experience as well as infrastructure or brand name required for breaking ice in marketplace. Moreover competition to such players comes from large MNCs such as Nokia-Siemens or Huawei. But these start-ups need to be nurtured as they are bound to play an important role in the Indian economy. According to TEMA the telecom equipment and software industry could generate 10 million jobs directly or indirectly and contribute to 10% of total gross domestic product (GDP).

The rest of the paper is structured as follows. We begin with a brief literature review to emphasize on our research questions, and then we discuss our methodology, present brief case

descriptions and discuss our analysis framework. We then analyze data from our case studies to identify marketing capabilities and further drill into identified capabilities to understand their antecedents and characteristic differences with respect to established firms. We finally end with discussion and a peek into future scope for research in the section on conclusion.

Literature review:

We refer to two different threads of literature to help us in examining and building further on the identification of marketing capabilities among the telecom start-ups. The first strand we refer to is the marketing capability literature which has mostly looked at established firms, their marketing capabilities and how these capabilities could help in achieving competitive advantage. The second strand of literature has looked at marketing capabilities from an innovation and new product development perspective.

The first perspective has the resource-based view or RBV at its core which identifies heterogeneity among the firms due to valuable, rare, inimitable, and non-substitutable resources as the source of sustainable competitive advantage (Amit and Shoemaker, 1993; Barney, 1991; Wernerfelt, 1984; Peteraf, 1993) and views firms as bundles of resources. Following the RBV marketing capability has been defined as integrative processes designed to apply collective skills, knowledge and resources of the firm to the market-related needs of the business, enabling business to add value to its goods and services, adapt to market conditions, take advantage of market opportunities and meet competitive threats (Day, 1993, 1994; Vorhies et al 1999; Atuahene-Gima, 1995; Srivastava et al, 2001). Day (1993, 1994) in his seminal work has categorized capabilities into outside-in focused, spanning processes and inside-out focused capabilities. The distinctive capability of market driven organizations has been identified as capability of market sensing and customer linking which are outside-in focused capabilities according to his categorization. The role of market oriented learning has been extensively highlighted as central in developing market sensing capabilities.

Vorhies (1998) studied largest strategic business units of fortune 500 firms and has empirically established that the firm's business strategy, organizational strategy and market information processing capabilities influence the development of marketing capability. However comprehensive benchmarking of marketing capability and corresponding cataloguing has not been carried out (Menon at al. 1999; Moorman, Slotegraaf, 1999). Vorhies and Morgan (2005)

have made a beginning in this respect and have identified eight distinct marketing capabilities, namely, product development, pricing, channel management, marketing communication, selling, market information management, market planning and market implementation. But it can be argued that not all of the above mentioned activities could be capabilities across the firms operating in different sectors as well as at different stages of their life cycles. In terms of exploring the effect of marketing capabilities on firm performance, rich empirical literature has emerged over the years. Hooly et al (1999) have presented a hierarchical model of marketing capability and presented propositions linking them to performance in central European context. Zou et al (2003) link product development capability, distribution capability, communication capability, and pricing capability with Chinese export based firm's low cost and branding advantages and its performance in the export market. However, none of the works have looked at marketing capability and performance related issues of start-ups.

In the second strand, as already mentioned, marketing capability has been studied in the context of innovation and new product development. Weerawardena (2003) explores the linkages between entrepreneurial intensity and marketing capability on one hand and marketing capability and organizational innovation on the other hand. The link between innovation capabilities and marketing capabilities has been touched upon by Weerawardena in his work. However, the actual identification of marketing capabilities has not been the focus of this strand of existing literature.

Literature on marketing related to new ventures has been relatively scarce and most scholars have focused on the marketing issues related to established firms. Among the works focusing on new firms prominent ones are related to multi-stage model of evolution of marketing by Tyebjee et al. (1983), Carson (1985) and Boag (1987). The models propose four distinct stages with small differences across each of the models and try to look at aggregated picture of evolution. Although the models are informative but due to the very aggregative nature they have been criticized as describing the evolution incompletely and stages do not bring out the deliverables of each stage (Gruber, 2005). Moreover, none of these works look at marketing from the RBV perspective. The major contribution of above mentioned scholarly work has been in terms of identifying the marketing issues among start-ups as distinct from those of established firms (Gruber, 2005).

So, existing literature although very informative does not address the concerns raised by us such as capabilities related to the first time entry into a market and survival in the market. In order to make the definition more meaningful in our context we define marketing capability as integrative processes designed to apply collective skills, knowledge and resources of the firm to identify and

exploit market opportunities, to enable market entry of a firm with its product or service, enable adaptation to market conditions, and enable surviving in the market. Specifically we are looking to answer the following research questions through this work,

1) How can the marketing capabilities be identified among the technology based start-ups?

2) What constitutes marketing capability among the product based B2B telecom start-ups that enable commercialization in an Indian context? What are the drivers, and sub-components of these capabilities?

The B2B nature of start-ups presents an added dimension of complexity to the problem.

Methodology:

We use a multiple case based inductive approach to answer the questions posed by us. Pettigrew (1997) has brought out the issue of "proc ess being embedded with in the context" and it has been established in capability building literature that capabilities are strongly connected to the context (Grant, 1996; Teece, Pisano, Shuen., 1997; Eisenhardt, Martin 2000; Montealegre, 2002; Pan, Pan, Hsieh, 2006). Case based study is ideally suited to answer questions related to process inquiry as well as answering how and why kind of questions (Eisenhardt, 1989; Yin, 1994). Choice of cases or sampling is a very critical stage for case based studies. Miles and Huberman (1994) have described several ways by which cases can be selected and we resort to maximum variation classification.

This maximum variation has been advocated by Eisenhardt (1989) as an aid in ensuring external validity and developing more generalizable theory. Another important issue in case based research is the number of cases and it has been recommended (Eisenhardt, 1989; Eisenhardt, Graebner, 2007) that three to four cases upwards is a good number for appropriate theory development if done in a rigorous and detailed manner.

We identified 12 companies within the telecom sector (through entrepreneur network) operating in different domains such as voice over Internet Protocol (VoIP) infrastructure development, technology platform for offering value added services, equipment manufacturers, network management. To fulfill our objectives we were looking at the firms with following attributes. The companies had to be product companies looking to sell their end product to either telecom/Internet service providers or other enterprises and none of them was to be purely a services based company. Since we were interested in understanding marketing capabilities

leading to commercialization, we needed early stage firms which already had customers and were in the market for at least a year. A time window of 3-4 years from inception of the firm was considered adequate as beyond that the firm moves to a growth stage. The companies had to have their registered corporate head offices in India. The reason for the above filter was that companies started out of India would face a different external environment in terms of the ability to raise capital as well as the risk appetite of the entrepreneurs and investors as compared to those based in US or UK. The companies had to be independent and not promoted by any large diversified conglomerate as a company promoted by such group would be a diversification move rather than a start-up company.

We sent letters to all the 12 companies which we identified from their respective websites and sent mails to them identifying ourselves and explaining the purpose of our work. We requested each of the companies to let us have a session with each of the founders to understand and assess the evolution of their firms over the years. Of the 12 firms three choose not to respond and two were found to be services oriented firms. Finally, as a part of our classification we chose four firms based on fundamental differences in terms of some of the observable traits (see table 1). By in depth case studies on four different telecom start-ups we try to identify marketing capabilities among the telecom start-ups, understand how they went about the process of building these capabilities and what were the various issues that they were faced during the process.

Among the four companies one of the companies (C3) is no longer in existence and had to be closed down due to various business reasons even before we started our work. This company is of special significance in our work as it could help us in identifying any divergent pattern amongst the other firms. We talked to the founders in all cases separately and this also helped in triangulation of data that we collected. Once data was collected the interviews were rigorously transcribed and converted to case histories to focus on the questions to be answered. The case histories so prepared by us were sent to respective firms for their approval in establishing the chain of events. This was followed by cross case analysis and subsequent conceptualization of the insights gained into a framework for the evolution of marketing capabilities among the telecom start-ups. In the next section we present a short description of the four sample firms that we studied.

Table-1: Sample firms with differences across various parameters

Parameter	Company Name			
	C1	C2	C3	C4
Technology	WiMax (wireless)	VoIP	Circuit emulation over Ethernet	Bluetooth (wireless)
Area of operation	Equipment development	Platform development	Equipment development	Platform development
Hardware/software	Both	Software	Both	Both
Incubation	No	Yes but at later stage (IIT Madras)	Yes (IIT Bombay)	No
VC investment	No	Yes	Yes	Yes
Customers (Tech Vs Non-tech)	ISP/TSP (Tech)	ISP/TSP (Tech)	ISP/TSP (Tech)	Community center, retail malls (Non-tech)
Patents	Yes (Pending)	No	Yes	Yes (Pending)
Success/Failed	Success	Success	Failed	Success

Case Studies:

Company C1:

C1 was founded in Bangalore in the year 2005. The two founding members were highly educated with post graduate degrees in technology; one had a MS from US and other was a MS from India. Both founding members were first generation entrepreneurs without any prior start-up experience. The founders worked for well known telecom related companies which included exposure to both hardware as well as software. The main driver of business was that wireless broadband using WiMax would be the way to go for the future and entrepreneurs expected a huge pent up demand for broadband. So the team decided to get into manufacturing of WiMax based He searched the market for investors, had discussions on the business plan within his project team and once convinced of being able to raise some money, together he and his associate founded their own company to pursue this opportunity. One of the founders took on the role of CEO and other became the CTO.

They developed a small base station using the chipset used by Wavesat (semiconductor manufacturer) for their customer premise equipment and that base station could be mounted on a tower or house top. The company went along with its development work and was able to bring its product into the market and is today among admired start-ups in the field of WiMax from India. In 2008, company had about 30 employees and had already sold its product to a company each in Canada and France. C1 mostly sold through a licensing model wherein they licensed their software and recommended specific hardware to their customers. However, the company could not solicit funds from any venture capitalist and was completely funded by the promoters which has restricted its growth due to lack of funds.

Company C2:

C2 was founded in the year 2000-2001 in Hyderabad. Both the founders were highly educated with a post graduate degrees in management; one also had a BS degree from IIT in engineering at the under graduate level. Both the founding members were first generation entrepreneurs without any prior start-up experience. One founder had prior experience working for well known software MNC as a project manager and then for an Indian ISP as the business development in-charge related to web services division. Co-founder joined the same ISP as a (fresher) management trainee looking after sales and marketing role for the web services division of the ISP. Both the founders gave up their job to start the new company. The first founder became the CTO and the other was designated as the CMO (Chief Marketing Officer).

During this time regulation was passed making VoIP (Voice over Internet Protocol) services legal between PCs in India to phones, mobiles and PCs abroad. The founders who were developing convergence engine and were trying to develop voice based application found VoIP services to an ideal opportunity for them to be able to use their technological skills. The business idea was to develop VoIP infrastructure for ISPs who already had network and other infrastructure of their own and let them offer the VoIP services using the product developed by the company. The pivotal innovation behind the company was the development of soft switch with de-coupled application server and front end, which allowed easy transition between protocols. C2 became the first company to offer end to end VoIP infrastructure among the Indian companies. Later the company got invested by a VC based in Coimbatore and shifted its base to Chennai under the aegis of the TeNeT group of IIT Madras. The company was also invested by Venture East, the investment arm of TeNeT group. Once the company became a part of TeNeT it could access services offered by IIT as well as technical consulting from the faculty. By 2005 the company had

acquired several clients both in India and abroad, had become self sustainable and was planning to diversify into platform provider for the various telecom service providers. The number of employees stayed around 30 even with a regular attrition from the company. C2 has been one of the pioneers of VoIP products in India and is a unique company of its kind in India.

Company C3:

C3 was founded in late 2002 in Mumbai. All the three founders were highly educated, one with a PhD in Electrical Engineering from IIT Kanpur, second with post graduate degree in management from an university in US and the third holding a post graduate degree in Electrical Engineering from IIT Bombay. First founder worked as a faculty member at a leading institute of technology in the Electrical Engineering department and had 5-6 years of consulting experience in the area of networking. Second founder was running a successful family owned business related to manufacturing customer premise telecom equipment such as Modems. The third co-founder had about two years of experience related to software development with a major Indian company. Neither the first nor the second founder gave up his job to start the company; third founder was a fresher and was on a look out for a suitable job.

The driver behind the business was that it was recognized that future networks would essentially be Internet Protocol (IP) based packet networks. Founders of company C3 were looking to develop a multi service interface that could use the existing infrastructure but provide the data, voice and video capabilities with the minimum change in the equipment, with minimum capital expenditure and highest quality of service. They decided to develop with Ethernet at the core of the technology as it was well understood and simple and cost effective to deploy. C3 was able to solicit investment from a US based VC with proven credentials in telecom related investment as well as SIDBI, an India based funding company. The company went forward with its plans of development and did achieve limited success in its development efforts and was able to successfully test its earlier version of product with one of the clients although it faced several problems in manufacturing high end hardware in India. But due to sudden changes in the business environment of its only prospective client coupled with rise of wireless broadband, it could no sustain in the market for long and was shut down in mid 2007. C3 also received a patent for its efforts related to development of an adaptation layer for communicating voice over Ethernet in 2005.

Company C4:

C4 was founded in Bangalore in the year 2004. The two founding members were highly educated with post graduate degrees in management and graduation in technology (one with electronic engineering and other with computer applications). Both founding members were first generation entrepreneurs without any prior start-up experience. The founders worked for well known software companies in their telecom software division and also worked for a telecom related start-up in various technical and managerial positions. They could sense a business opportunity for developing sub-components for speeding up product development in companies engaged in mobile applications and this led them to start their own company. One of the founders took on the role of CEO and other became the technical director.

They developed a several components for mobile application development and then in 2005-06 tried to move into m-commerce with a suite of products enabling m-ticketing, logistics etc. However, soon they realized the lack of volumes in m-commerce related business and moved to Bluetooth based products to reduce their dependence on the telecom service providers. C4 came up with innovative idea of transforming community centers into Bluetooth enabled zones for promotion and advertising over existing mobile handsets. C4 completed its development work by early 2007 and was able to bring its product into the market by converting a famous retail mall in Bangalore as the first Blue-Fi enabled mall in India. C4 subsequently acquired several new clients in the same space. Today C4 is among pioneers of Bluetooth based media companies in India. It not only sets up a Bluetooth network using its product but also maintains the network for their customers. C4 has about 50 employees and mostly sells through a revenue share model wherein the retailers pay them a fixed fee for their product and the maintenance of the existing network. C4 received its first external funding to the tune of USD 250,000 from VC's in 2006 and has been looking to spread its Bluetooth zones across a 1000 centers in India.

Analysis framework:

In order to identify the marketing capabilities we need to conduct a cross comparison of the marketing activities across the firms. If certain marketing activity, skill or routine that the firm has accomplished in its own way has played an important role in commercialization or bestowed a competitive advantage, then such an activity or skill is a candidate for further study and has been discussed in details in the section on detailed analysis. However, if some activity is considered below par by the entrepreneurs then we do not consider that activity for further study and eliminate it from the set. The point we want to emphasize upon is that, just a presence of

certain activity cannot make it a capability (Helfat and Peteraf, 2003) but certain level of excellence or maturity has to be achieved with respect to the activity and its outcomes. After identifying activity sets as possible candidates for constituting marketing capability we further conduct detailed inquiry into their sub-components. Summarizing the above discussion, three important attributes of the activities that could help in identifying marketing capability are that the activity should have,

- Made critical contribution to the commercialization process
- Been performed well consistently leading to competitive advantage (Helfat and Peteraf, 2003)
- Evolved in to identifiable routines overtime (Nelson and Winter, 1982)

However, it needs to be mentioned here that a limitation of the above process is that the process has the danger of suffering from entrepreneur's bias towards certain skills or activities as they might be overemphasized in hindsight. We wave tried to minimize the bias by talking to most members of the founding teams and getting their opinions as well thereby achieving triangulation. In cases where this has not been possible we have taken a call based on our understanding of the case.

Identification of components of marketing capability:

From our detailed case description we have identified the following marketing activities among the telecom start-ups under study,

1. Market information management
2. Positioning and segmentation
3. Pricing
4. Promotion
5. Sales
6. After sales service
7. Distribution channel management

Below we summarize the findings from four cases on an activity basis and analyze each activity on the basis of three point criteria set forth in section on analysis framework and the effort by the entrepreneurial team towards the activity.

1) Market information management:

   a) All the four firms attached a high importance to connecting to the market from the earliest days. However, none of the firms engaged in any formal market research during the opportunity recognition phase or during the development phase due to lack of funds.

   b) Based on inputs from various sources, three start-ups made major transitions, C1 from 3G to WiMax based product, C2 from voice text convergence engine to VoIP, and C4 from components for mobile applications to m-ticketing and then finally to Bluetooth based product.

   c) Internet was the most important source of information for the firms through the blogs, websites of competitors, white papers, and other relevant details that could help in ascertaining the upcoming trends in the specific market.

Inference:

Given the dynamic environment any firm operating in the technology intensive telecom sector needs to scan its external environment to understand the changing needs of prospective customers, understand the way competitors are moving and trying to anticipate from the market conditions the way certain product or service is set to evolve. We would expect any technology start-up to make special effort in developing environmental scanning and information acquisition skills during the early phase of its establishment as it is critical for survival. All our firms have acknowledged doing well in connecting to their markets. This seems apparent from their survival in the competitive landscape and the fact that they made successful product/technology transitions in their journey to their final product states. It can be concluded from the above discussion that the activity has been well performed. Thus information management to generate market related knowledge can be identified as a component of marketing capability of the telecom start-ups among our sample of start-ups.

2) Positioning and segmentation:

   a) The common theme among the companies when they began were low cost India centric product and that all start-ups were unique companies (from product perspective) in India with the only competition coming from the MNC's like Nokia, Motorola, Alvarion etc.

   b) Initial positioning was mostly decided during the opportunity recognition phase and the product conceptualization stage along with the target segment which for C1 was large

equipment manufacturers, for C2 and C3 was the large TSPs and/or the ISPs and for C4 other technology firms that could utilize their components for developing mobile-phone based applications.

c) As the firms made transitions from one product category to the other (like from 3G to WiMax for C1) start-ups successively positioned their products for the respective markets.

Inference:

As the start-up made their product category or technology changes, the final target segment for three of telecom start-ups under study (C1, C2 and C3) were the established service providers and so for these firms targeting was a simple exercise. However, later the firms underwent market based learning and repositioned their solutions towards the second tier service providers. Apart from this the start-ups experimented with different revenue models such as OEM based revenue share, and licensing model in search for an appropriate model for their product. So it can be argued that although the initial positioning by the start-ups wasn't appropriate but they learned and re-positioned themselves and this re-positioning of the firms is a critical skill which they performed well given their respective product categories. Based on above positioning and segmentation can be considered a candidate for being a component of marketing capability of the firm.

3) Pricing:

a) All the companies were ignorant about Intellectual Property (IP) related pricing as the entrepreneurs mostly had prior experience of services company based pricing, which is contractual in nature mostly based on hourly rate per person.

b) Pricing was mostly "gut feel" based as none of the firms had any benchmark for pricing their products in India.The mark-ups were ad-hoc for example C1 decided to multiply the hardware costs by a factor of three and C3 decided to charge a markup of 50% over hardware cost.

c) In the case of making sale to large customers like the big TSPs or ISPs the small firms did not have much leeway and were price takers.

Inference:

Pricing is an important activity but the start-ups due to their lack of experience could not come up with appropriate models for putting the right value on their products. The start-ups did not have enough resources to conduct elaborate market research to ascertain the value that they were creating for the customers. Left to themselves to figure out the prices with no benchmarks in the Indian market they resorted to either acquiring market information about similar products of competitors abroad and tried to adapt their pricing models or charged based on what the entrepreneurial team felt was the right price. As an evidence according to the CEO of C4,

"The pricing, I think you need to have a gut feel a s an entrepreneur, there are two things either you are in a space where there are established rules you know what is the pricing you want to quote for example in services you would know what is the kind of pricing you want to charge, similarly when you are selling a banking software, more or less you know what is the price you could ask for because there are several products, if you are coming out with a product which is completely different, product or service which is not available, you need to look for benchmarks what the customer would give for, we went in with a gut feel in terms of what will define this market, what will survive this market".

Above view was strongly endorsed by C1 and C2 as well. Another important aspect here is in case the firms are looking for selling new products to large customers is that any sophisticated model is bound to fail as such customers have a huge say in deciding on the final prices given their dominant positions. The start-ups mostly agree to the prices being dictated by the large firms as it is a question of survival for smaller firms and if they refuse, the larger firms can get hold of some other start-up with a similar product. Although the start-ups worked hard in this respect but they were much behind in understanding pricing as compared to established firms. We can say that at this early point in the life cycle of start-ups, pricing was neither critical nor performer very well. As evidence to this, according to CTO of C3,

"This was our ad-hoc model, we do not know if it is the right model or if this is the model followed by big companies like Cisco etc. So these are things about which we did not have any prior information".

Based on above discussion, pricing in our context does not constitute a candidate set for being a component of marketing capability.

4) Promotion /Public relations:

    a)   Mostly word of mouth based promotion. Websites, blogs, wikis and brochures too were

commonly used but mostly firms were resource constrained and given their B2B nature did not feel it appropriate to be spending huge budgets on the promotions.

b) Companies visited specific conferences and trade fairs to promote their product and make their presence felt among the relevant technology community.

c) News release by companies on receiving certain awards or on acquisition of clients helped them get some media coverage.

Inference:

Promotional activities were limited mostly for the want of resources as all our sample start-ups had to face resource crunch during development and hence formal promotion was viewed as a non core activity. As an evidence for this, according to the CEO of C4,

"It is not easy to spend the marketing [promotion r elated] budget in a right way and especially for a technology company, what is it that you want to achieve by spending a lot of marketing budgets."

So all the companies stuck to the route of internet based promotion via blogs and word of mouth publicity. Awards and recognitions helped two of the start-ups (C1 and C4) to get media attention when they were awarded as "innovati ve start-ups" by various entrepreneurial forums for their products. Apart from this, not much of activity was shown by start-ups on this front and promotion as an activity was not attributed as particularly critical by the entrepreneurs as being known to just the right group (clients) was considered sufficient by the companies. Promotion for the above reasons is not an activity for being classified as a marketing capability of the telecom start-ups among our set and was mostly conducted as a part of sales activity itself.

5) Sales:

a) Personal sales pitches were made by the person in charge of marketing in all the cases. These were aimed at convincing the top management of the client companies.

b) Convincing the customer regarding the stability of the company as well as the stability of the product is a major issue. All large service providers are apprehensive about the service level of the company and the actual performance of the product.

Inference:

All the entrepreneurs looked at the activity of generating sales leads and thereby closing final

deals through direct meeting with the prospective customers as the real marketing activity. The selling skills among the team members can be considered rare and valuable for the firm. Across the firms one of the founding members was responsible for closing the deals and this activity played a central role in the commercialization process. Also since C1, C2 and C4 were able to make repeated successful sales it can be concluded that the activity was performed well by these firms. Selling activity can thereby be classified as component of the marketing capability of the firm.

6) After sales service:

a) All the four firms cited after sales support as a very important criteria for carrying out selling activities.
b) Separate team was established in C1, C2 and C4 for looking after the process. C4 had to operate the Bluetooth zones that it created as a part of its business model and this required it to develop maintenance cum support team for the purpose

Inference:

After sales service, among the established firms is associated with setting up dedicated team to serve the existing customers. The start-ups strived to establish separate teams for the customers but fund constraints led to overlaps between the actual development teams and the sales service teams. The start-ups had a shorter response time as compared to larger companies but the after sales team lacked in quality as compared to after sales teams of the established companies. However, the level of after sales being projected by start-ups played a very important role in securing final order and had significant impact on the commercialization of the start-up. So on this basis after sales service can be identified as a critical activity. Moreover, C2 and C4 did particularly well in terms of providing after sales service to their customers. After sales service can be identified as a candidate set for being a component of marketing capability of the start-ups.

7) Distribution channel development/management:

None but company C3 was active on this front and it was thought that distribution was not very important as direct selling was the norm for the kind of products that the firms were offering. With no emphasis on this activity it cannot be classified as an activity candidate for being a part of marketing capability in our context.

Our criteria of identification brings us to the following results presented in table 2,

Table-2: Identification of marketing capabilities

Activity	Identified as critical	Performed well	Routinized	Identified as capability
Market information management	Yes	Yes	No	Yes
Positioning and Segmentation	Yes	Yes	No	Yes
Pricing	No	No	No	No
Promotion	No	No	No	No
Sales	Yes	C1,C2, C4	No	Yes
After sales service	Yes	C1,C2, C4	Limited to C2	Yes
Distribution channel development	No	No	No	No

Detailed analysis and theory generation:

We need to analyze the identified individual components of marketing capabilities in more details and at the same time we need to establish the antecedents and sub-components of the above mentioned marketing capabilities.

Market information management:

The entrepreneurs across all the four cases recognized a need to connect to the market and acquaint themselves with the market for fulfilling their objective of selling successfully to the customers. An entrepreneurial urge to learn and understand (learning propensity) about the market can be attributed as the source of this activity. A high learning propensity among all the four sample firms was evident as they took proactive steps (such as reaching out to the customers, experts etc.) to learn about the market for their products. According to CEO of C4,

"Only way I can acquire information about the market is by being in the market. There is no other mechanism other than talking to the customers and talking to others in the field. Apart from these I don't think there is any other information which is right. Of course you can talk to experts in the market".

All the start-ups in our study had a non-hierarchical structure, were open to discussion with employees, interacted regularly for learning from each other but most ideas originated from the entrepreneurs and were passed on to the team. Some of the above mentioned characteristics such as learning propensity or commitment towards learning, and open mindedness have been identified in literature as a part of learning orientation of the firms (Sinkula et al. 1997, Baker and Sinkula, 1999). So it can be said that the start-ups displayed traits of learning oriented firms.

The following quote from CEO of C1 brings out the process of market information management very clearly,

"Off late we are directly in touch with the custome rs, on constant basis we get ideas about where we are going wrong, what features he needs more urgently, what he needs a little late. So we talk to him, bargain with him, that is how we get the idea of what he needs most and then we kind of extrapolate the trend saying that this is where the market is moving and this is the kind of features we need to emphasize on and we can keep those features for later, we do that".

Marketing executive of C2 further stresses on the role of competition and regulations apart from anticipating the future customer needs, he says,

"Understanding them [customers] and anticipating th eir upcoming needs becomes very important. Selling to telecom operators is very different as it interacts with all of other systems and you need to understand his systems, you need to do a lot of learnings not just about your products but also markets [competitors] and other products in his network…We follow all telecom related news through newsletters and we also visit sites of DoT and TRAI sites and find out what is happening on VoIP regulation. We also exchange news with other people in the industry… We do not write it [learnings] down but it is there in our head. We discuss it and share it amongst ourselves".

Based on our case write ups and above quotes, we can identify **three stages** in the entire process of market information management. The **first stage** of the process is acquiring information related to the market. This information could be regarding the change in customer preference, upcoming products from competitors, changes by regulatory bodies, changes by standard setting bodies and other technology related changes that might be captured from various sources. The sources could be friends, prospective customers, peers, experts acquainted with the market, blogs, wikis and scholarly or trade journals in the telecom domain. However, information acquisition

among start-ups is based on informal interaction with few prospective customers or experts they could get access to, unlike systematic marketing surveys conducted by established firms. This aspect is a weak link within start-ups due to resource constraints.

The **second stage** involves the analysis of information by the marketing team and by the other founding members. On receiving the information team tries to interpret and understand how the information could impact the present and future state of the product and the overall market. The analysis of acquired information would comprise a cycle of debates and discussions between the founding members until some consensus or convergence in views is achieved. This would ultimately lead to a shared mental model of the business environment which would then be propagated within the organization. The shared mental models are critical for product based start-ups as they need to understand the needs of customers which are not explicitly expressed.

Guided by the shared mental models the firm would formulate its stand on issues of concern (e.g. related to positioning or pricing of the product), take a decision or formulate a strategy to achieve pre-identified goal. This decision making forms the **third and final stage** of the process where the gained insight is actually put to use or implemented by the start-up. We also argue that the above three stages not only map the process of market knowledge acquisition but also the process of evolution of marketing capabilities.

Comparing our construct of market information management with extant marketing literature we find that the characteristics are closely those of the market orientation construct (Kohli and Jaworski, 1993, 1996; Kohli and Jaworski, 1990, 1993; Slater and Narver, 1995). Literature comprises two schools of market orientation (MO) that look at the construct from either behavioural or cultural perspectives. Literature on behavioural perspective has identified three stages of MO, namely markets information generation, information dissemination and responsiveness to market intelligence which again corroborate closely with our inferences drawn from the field. Here we find in our context we are much closer to Kohli and Jaworski's stand of behavioural perspective on MO as market related learning element is very critical among the start-ups. *Further in the paper we use MO for market information management as we have established that the market information management happens through process of MO.*

The parallel strand of literature on MO that talks of customer orientation, competitor orientation and inter-functional co-ordination misses out the role of regulatory bodies and standard setting bodies independently acting as sources of information and corresponding drivers of change. Also

the role of inter-functional co-ordination is not significant in the case of start-ups as rigid departmental boundaries that exist in established firms do not exist here. Slater and Narver (1998) have pointed out that the critical difference between customer led and market oriented approaches is the need to understand the latent needs of the customers. In our case studies we have evidenced strong emphasis on the shared mental models which enable the entrepreneurial teams to unravel hidden requirements of the customers thereby strengthening the original insight provided by Slater and Narver. Based on above discussion we propose that,

Proposition 1a: Higher learning orientation towards market coupled with an ability to develop shared mental models about the evolution of product and its market among the entrepreneurial team will lead to a stronger market orientation among the start-ups.

Proposition 1b: Market orientation among the start-ups is the primary source of market based learning, is a component of marketing capability and contributes positively to the overall marketing capability.

The start-ups made transition between product categories and even technologies for instance C1 adopting WiMax from 3G, C2 moving to VoIP, C4 made two transitions one from mobile component development to m-commerce and then finally from m-commerce to Bluetooth based product development. All the transitions were guided by MO of the firms together with the technical knowledge of the firms.

Proposition 2: High market orientation (component of marketing capability) coupled with technical knowledge (source of technological capability) among the start-ups leads to evaluation of existing opportunity as well as new opportunity recognition among the start-ups.

Positioning and segmentation:

Positioning in the context of start-ups is akin to setting a direction for the product, wherein the entrepreneur decides the product functionalities to be offered making it comparable or better than the existing products, decides on the strategy for pricing whether the product has to be portrayed as a premium product or as a low cost alternative, decisions regarding the business model to be

adopted, size and structure of sales team as well as the level of after sales service that the company should provide (Lodish, Morgan, and Kallianpur, 2001).

As the firms under study made product or technology transitions, entrepreneurs were required to successively identify the target segments and accordingly re-position their product based on their understanding of the market. For example when C4 changed itself from mobility solutions company to m-commerce company it changed focus from technology companies as clients to media or retail companies. Similarly, focus customers for C1 changed from equipment manufacturers to service providers.

However, due to complete lack of detailed formal market research by the start-ups due to lack of funds and even lack of understanding about market surveys, initial positioning was not the most appropriate and needed fine tuning through iterations. For instance in C2, on getting to know from the customer that billing module was critical for the end product, the entrepreneurial team quickly decided that in order to create a complete product which served as an end to end solution and not a piece-meal product they needed to work on the billing module. This decision was then implemented in the form of specific instructions to technical team for developing the module and thus re-positioning the product as end to end solution for VoIP providers. Similar instance was observed in company C1 when the founding team after analyzing existing products and studying prospective customers, realized the need for integrated network management system and then decided to work on such a system for the product. This led to creation of a completely installable and ready to use product. Thus market related learning brought on by market orientation is the source of re-positioning among the firms. The statement below by one of the CEO's presents a strong evidence for the same,

"I think in the first leg of the product development we kind of ignored some of the things, I think the learnings suggest that when next time you develop those products, like the ones we are getting into, the second set of products we are doing a much more comprehensive survey of what the customers may want, what they already want and what they may want in future and take decisions on what might compel them in to buying or not buying and stuff like that. So, what is attractive and what is not attractive, what is a feature that they are willing to pay for and what is the feature that they don't may not want to pay for. So these are the some of things that we are going for. So I think we are more and more becoming a company of product engineering, taking marketing requirements in to the product development" .

Based on above discussion we can say that,

Proposition 3a: Lack of detailed formal market intelligence contributes negatively to the positioning skill of the start-up thereby leading to iterative re-positioning among the start-ups.

Proposition 3b: Higher market orientation is positively associated with stronger positioning capability among the start-up.

In the context of telecom the presence of software as an integral part of the telecom product can help in quicker re-positioning of the product when required. The presence of software component within the product endows the product with more flexibility in terms of ease of change as compared to completely hardware products. This flexibility is most evident in the case of C4 that made transition from component development to m-commerce to Bluetooth based product. Although Bluetooth was very different from the earlier development but C4 could still use its components, adapters and frameworks for quick development. Similarly, in the case of C3 with a higher hardware component the scope for any re-positioning was limited and a very costly proposition involving changes in the chipsets and circuits. Therefore the cost of re-positioning in the case of telecom start-ups which have a software heavy product can be much lower as compared to other start-ups. Based on this we can propose;

Proposition 4: Start-ups with prominent software component in the product as compared to hardware component in the product, show higher flexibility in positioning as they a) require lower cost to re-position and b) take lower time to re-position, thereby contributing positively to the positioning capability of the start-up.

The start-ups constantly worked on their revenue generating models, adopting different models from licensing based on transactions (C1 and C2) to revenue share agreements (C4). The decision to adopt new business models was based on either generating better revenues or was a result of inability to sell within the existing model. The complexity inherent in pricing of knowledge based products has already been highlighted in the previous section of this paper. Adoption of a new business model as a part of re-positioning also required technical changes to be made to the product. For example licensing based on subscribers needs to be technically implemented. Similarly, price of the product has to be made compatible with the new business model. Based on

this discussion we propose that,

Proposition 5: Ability to adopt a new business model and make corresponding technical changes to the product is positively associated with positioning capability of the start-up firm.

Selling:

Analysis of data from our case studies informs us that according to entrepreneurs sales activities include the following sequence of activities namely; proactive networking through existing social network or conferences and seminars for generating sales leads, meeting prospective clients and making sales pitches, and finally closing the deals. Each of the stage requires specific skill to do well at that stage as shown in table 3.

Table-3: Stage specific skills required in selling

Stage	Skill Required
Generation of sales lead	Networking skill
Making sales pitch	Convincing skill
Closing deal	Negotiation skill

The performance comparison across our four sample start-ups is summarized in table-6. The ranking is based on the judgment of 5 independent researchers (doctoral students) who were made aware of the case facts and then asked to rank the firms across three stages. C2 was able to outperform other firms easily followed closely by C4 but it needs to be pointed out that both C1 and C3 were selling a more complex hardware based product as compared to C2 and C4 which possibly required less effort in convincing the customers. This aspect has already been highlighted in the section on positioning.

Table-4: Performance of case firms in different stages of selling

Stage	C1	C2	C3	C4
Generation of sales lead	average	good	poor	average
Making sales pitch	average	good	poor	good
Closing deal	good	good	poor	good

The selling activity in B2B telecom market becomes more complex due to the fact that product being sold is new to the market and is usually targeted at enabling the service providers in offering a new service to their customers or enabling an existing service through a different paradigm such as in the case of C1, C2 and C3. In case of non-telecom B2B customers like in the case of C4 problem lay in convincing the malls to adopt an entirely new concept of Blue-Fi zone. The basic difference between the two markets is that in case of telecom service provider customers, the buying party is technologically informed and well versed which is not the case with non telecom customers that C4 was dealing with. However, the decision making for buying of the product for customers of our start-ups happens to be a strategic one and so is driven top-down in an organization rather than from the purchasing department as in the case for other products. This fact is confirmed by all the entrepreneurs in our study who have consistently identified the CEO and CTO of prospective client as the most important people to convince for the selling of the product. Convincing skill here stands for the ability to reach a consensus with the customer on the claimed benefits and getting ratified by the customer. So a sales pitch would need to educate the client top brass of benefits of the product over the existing products and corresponding benefit to the buying organization.

Our sample entrepreneurs have also expressed the need for stressing upon the customers about the start-up firm's endeavour to constantly upgrade the existing product. This sincerity towards up-gradation with time further helps in convincing the customers to try out the product and reduces the uncertainty in their mind. Evidence to this fact is the following quote from CTO of C1,

"The customers will be ready to take the product, w hatever you do, provided they think that the product will keep getting enhanced as long as they think like that they will buy it".

Proposition 6: Ability to convince the top management of a company regarding the benefits of the new to market product and convincing them about its regular technological enhancement positively impacts the selling capability of the product based start-ups.

Another skill that has been emphasized upon by the entrepreneurs is the negotiation skill to work out the deal to mutual advantage. However, three of the start-ups in our study sample were dealing with large service providers and as has been already pointed out were mostly price takers. Although not much negotiation happened in the first few sales as the power of buyers was much higher but it did help in price discovery and helped in reaching to an appropriate price. According to CTO of C2,

"We did not have any benchmark for pricing in India and we could not use the prices being charged by the firms abroad, so negotiation with clients helped us understand the appropriate price that we could charge".

Based on the above discussion we can say that;

Proposition 7: Ability to successfully negotiate with customers aided in the benchmark price discovery among the start-ups and contributed positively to the selling capability of the start-ups.

Networking skill includes ability to create new network links, maintain the existing links as well as exploiting the network effectively for generating leads. In each of the cases it was the existing network of the entrepreneurs, which brought the start-ups in contact with the prospective customers. In the case of C1, company could generate their first sales leads only because of referrals generated by their chipset partner (supplier). Professional acquaintances helped C2 and C4 in getting first clients. All the entrepreneurs have attached high importance to the networking as is evident from the following quote of CEO of company C4,

"I think networking is one of the most important as pects when it comes to growing your business".

Once a start-up could sell to a customer the subsequent sales were strongly influenced by the referral generated by the existing customer or even other network partners such as suppliers, friends or acquaintances. The referrals which could either be formal or informal (say an e-mail or telephonic conversation). These served as sign of credibility among the other customers and played a very important role in the acquisition of new customers. C2 was especially supported through referral in their quest for bigger customers like VSNL (now Tata Communications) by their first customer and their incubator. The incubator helped by allowing access to its larger network and enhancing the credibility of the firm. Association with famous and successful telecom incubator helped reduce techno-commercial uncertainty in the customers mind. In all our cases sales mostly happened through referrals. Based on the above discussion we can say that,

Proposition 8: Superior networking capability (extend, maintain and exploit network) coupled with referrals from existing customers positively impact the selling capability by aiding in the acquisition of new customers among the start-ups.

After sales service:

From the installation of the product in the beginning to the later maintenance of the product, all fall

within the ambit of after sales support services offered by a firm. On the basis of our case write-ups we have identified some characteristics of after sales services that could help in assessing the extent and role of the activity among the start-ups (refer table-5). We need to compare the start-ups in our study on the basis those characteristics to understand their after sales service.

Company C1 and C3 did not have a separate team for after sales which led to overlap between the development team and the after sales service team causing delays in product development. Company C2 on the other hand due to its earlier experience of testing the product in live network of its first client realized the importance of having a separate team (they too began with the same team looking after both development and service) and there on consciously worked on to develop a stronger support team. C4 had to have a separate team as their business model required them to set up the networks and also maintain those networks for the customers as they could not maintain them. As a result they had to develop a strong maintenance and support team in addition to an activation team. The purpose of activation team was to assess the issues and problems the customer were experiencing while switching on their Bluetooth radios and since retailers could not provide this information C4 had to develop their own team.

In term of onsite and offshore support all the firms were active on the offshore but it was firm C2 and C4 which were proactively good at onsite support. C2 created a 24x7 support for their customers. Although other entrepreneurs agreed that were available on call anytime of the day but only C2 operationalized such support. C1, C2 and C4 had annual contracts built in to their cost structure for support but C3 did not have any thought process or effort in this direction. In fact, C3 failed to answer questions regarding the level of customer support they could render when in talks with their prospective customers which may have been a major factor in its inability to garner customers.

The formalization of communication between customers and support teams through exclusive website or hotlines was non existent, however, in case of firm C2 frequency of communication was higher due to onsite support. Also in firm C2 there were formal meetings between the after sales and development team that were especially conducted to help the development team understand the problems from after sales service team. As has been mentioned earlier for C4 such communication did not exist as it had to operate and maintain the network all by itself, so it was like an internal communication for C4. All the above discussion has been summarized in table-5.

Table-5: Characteristics of after sales services among the case firms

Parameter	C1	C2	C3	C4
a) Presence of separate team	No	Yes	No	Yes
b) Nature of support	Mainly offshore, limited onsite	Both (24x7)	Offshore	Both
c) Cost structure	Annual contract	Annual contract	No decision taken	Annual contract
d) Formal processes for communication with development team	Ad-hoc	In existence but few in number	None	Ad-hoc

The analysis of performance of C2 and C4 in after sales service leads us to the inference that even though the start-ups are resource constrained but they can still provide good after sales service. However, the nature of after sales service is distinct from that provided by established firms based on extensive infrastructure support. Distinctive features of after sales service offered by start-ups are ready access, quick response and well thought out support structure which can be agreed upon right at the time of selling.

Moreover, the ability of the start-ups to work closely on various problems of small scale with their clients further works in their favour enabling competitive advantage in Indian conditions as such small projects are not feasible for larger firms. As an evidence to support our view we cite CTO of C2,

"In India we were the only ones who were having the se kind of technologies [VoIP], all the others vendors were mostly either big companies like Nortel etc, only these big companies were doing this kind of work, where as if we were chosen we will be much more adaptive, speed of response would be great, they can call up any time. That kind of nearness to customers was there. So, ability to act fast was our core differentiation with respect to bigger firms".

Based on above evidence we can say that,

Proposition 9a: Early creation of separate team for after sales support and proactive decision making regarding terms of after sales services right from earliest days (after acquiring first client itself) contributes positively to after sales service capability of the start-ups.

Proposition 9b: Clearly defined after sales service policies contribute positively in convincing the customer thereby contributing positively to the selling capability of the start-up.

Above proposition finds indirect support from the work of von Hippel (1988) who suggests that product companies should start off with more formal structure of marketing department. After sales service is an activity which require a firm to respond to customer problems and as such it is a customer focused activity. Since market oriented firm by definition is a already customer focused so we would expect a market oriented firm to fare better in developing its capabilities for after sales service.

Summary of findings:

All the above discussion about marketing capabilities has been summarized in the table-6 and structured into columns labeled as source/driven by, constituents of each capability and peculiarities in comparison to established firms.

Table-6: Summary of findings

Capability	Source/ Driven by	Constituents	Differences with respect to established firms
Market Orientation	Learning orientation, motivation to succeed	• Ability to develop shared mental models about latent customer needs • Ability to predict future trends of market • Ability to recognize new opportunities	Formalized market intelligence gathering not present
Positioning and Segmentation	Market orientation	• Ability to be flexible in products • Ability to adapt to new business / revenue models	Iterative, absence of any prior brand equity and prior credibility
Selling	Market orientation, Positioning and segmentation	• Ability to network • Ability to convince • Ability to negotiate	Top down driven selling process from customer perspective, based on referrals, aids in price discovery
After sales services	Market orientation	• Ability to work closely with customers (high customization)	Extensive infrastructure to support customers absent, based on ready access and quick response

Conclusions:

Our work contributes to both theory and practice in many ways. We utilized three attributes of capability from existing literature, that is, criticality, consistency in meeting performance objectives and routinization to identify the marketing capabilities among the product based B2B Indian telecom start-ups. However the role of routinization among the attributes was found to be limited given the very early stage of firms under study, firms were yet to evolve concrete routines. We identified market orientation as an important component of marketing capability as well as a source of market based learning among the start-ups. We also presented the role of marketing orientation

in the development of other marketing capability components namely, positioning and segmentation, selling and after sales services. Further we presented evidence regarding problems faced by start-ups due to limited infrastructure leading to iterative re-positioning, difficulty in closing deals with larger customers due to uncertainty about their existence and at times lower quality of products. We also presented evidence for important role played by strong after sales team from earliest days as it could assist in convincing customers. The role of referrals and influential financing partners or suppliers in getting to customers has also been highlighted.

Our work also points out role for policy level intervention in promoting the products of these start-ups such as funding through public private partnership projects targeted at upcoming firms as well as extending small trial based orders from public sector undertakings to test and certify the products of such start-ups. From a theoretical point of view there is a need for rigorous statistical testing of various propositions developed by us. This would entail development of an instrument for measuring capabilities and our work could help in this respect as we have identified sub-components for each of identified constituents of marketing capability. Future work needs to extend the existing instruments keeping in view the entrepreneurial nature of such firms. However, we need to point out that we have specifically focused on marketing capabilities in this work but most organizational capabilities like technological, marketing and financial capabilities are closely intertwined and studying this interaction could be another area for upcoming research. Future work may also look at simulating various marketing capability scenarios for the further development of theory related to capabilities among the start-ups.

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