

## **Impact of Internet Companies on Traditional Telcos' Business Model: A Global Research Study**

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*Traditional telecommunication operators, a.k.a. telcos, have been under tremendous pressure to keep up with technology evolution and cope with profitability erosion and industry regulation. Their challenge is to identify a strategy to effectively compete with an increasing number of Internet companies which are growing fast while relentlessly attacking the telcos' business model. A global research study conducted with 122 telecom professionals confirmed the hypothesis that Internet companies pose the highest threat on the future of telcos. The study found that the top priority for telcos should be addressing their outdated business model, the internal resistance within the organization, and the deteriorating quality in their networks and services. Investments in Access Networks and in innovative services were found to be crucial. Business services and cloud-based solutions were perceived to have the highest potential for future revenues. Partnerships with content providers and application developers were found to be critical to the future success of telcos. Significant differences were identified between participants in terms of position, line of business, and geographical regional location.*

**Field of Research:** Strategic Management, Management of Technology, Technology Strategy

### **1. Introduction**

The strong emergence of the Internet into the public domain was the engine for a mass transformation in the telecom industry. This transformation is characterized with fast-paced innovations and multi-faceted competition. Changes in the technical, regulatory, and competitive forces have resulted in a paradigm shift in the telcos' environment.

Many companies surfaced with a business model focused on exploiting the benefits of the Internet to deliver superior value to customers. Companies, such as Google and Skype, have enjoyed an exponential growth in record time (Werbach 2005). Facebook, for example, was able to reach 500 million subscribers in 6 years of existence (Facebook 2011). Skype, on the other hand, was able to hit 40 million concurrent users in March 2011 (Parkes 2011). YouTube had more than 13 million hours of video uploaded during 2010, an equivalent of 150,000 full length movies in theaters each week (Norman 2011).

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Internet companies were not a direct threat to traditional telcos until they started congesting the telcos' network with substitute telecom services at much lower prices. The problem is that most telcos are still focusing their energy on fighting other telcos and debunking the services of cable and satellite, and wireless operators. Telcos do not seem to pay proper attention to the growing threat from Internet companies. Internet companies continue to drain telcos' network resources with fast-growing traffic while challenging the fundamentals of the telcos' business model. The motivation behind this study is to assess the threat from Internet companies on traditional telcos business model. Findings from this study are different from what was reported by others and provide a distinctive contribution in terms of identifying the telcos' best strategic position in competing with Internet companies. Identifying this position will be a result of finding the right priority in each area that impacts the telcos' technology and business plan.

The following section reviews the literature as it relates to the existing challenges of telcos with focus on the potential competition from Internet companies. Next, the methodology of the research study will be reviewed in section 3, and the findings of the study will be reported and discussed in section 4. Finally, the impact of the findings on telcos and the recommendations will be presented in section 5.

## 2. Literature Review

The research performed in this study was conducted globally and across the entire telecom value chain. The goal is to test the hypothesis about the significance of the Internet companies' threat and the urgency of re-inventing the telcos' business model to enhance the telcos' long term competitiveness. The study examined challenges and opportunities in telecom, but the focus was on the impact of Internet companies on the future of traditional telcos and how telcos should respond to this growing threat.

The need for telcos to adapt to industry changes was covered in the literature mostly based on changes in the financial market (Cusumano 2009, Kam 2006, Eunni et al 2005). Challenges related to the regulatory environment were covered in the literature and the focus was mostly on Open Access regulations and their adverse impact the incumbent's investment (Gorp and Middleton 2010, Pinkdyck 2007). Challenges from Internet companies were only discussed from a Net Neutrality regulations point of view (Schuett 2010, Clarke 2009) and the focus was mainly on the right of telcos to manage their network against traffic from the Internet companies.

Other challenges faced by telcos have been discussed in some industry reports but rather in a segregated fashion [Finnie 2008, Bamforth and Longbottom 2010, Zoller 2010]. The reports were keen on highlighting industry trends and telcos' issues as it relates to the growing Internet traffic, but they stopped short of offering a strategy for telcos to follow or even considering Internet companies as a major threat [Burstyn 2008, Finnie 2010, Hall 2010, Walker 2010].

Most operators still run old networks that need major upgrades to keep up with the new demands and the emerging services. Applications and contents provided over the network continue to consume larger bandwidth that restrains the Network. The network

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needs to continue to scale for capacity and to converge to support traffic from different services (Alcatel-Lucent 2010, Mellin 2009). The literature, however, did not get into the impact of the threat from Internet companies on the telcos' network investment and upgrade decisions.

The competitive landscape in the telecom industry was not thoroughly covered as literature listed traditional competition from other telcos, cable companies, and wireless companies (Lal and Strachan 2007), but did not list the growing threat from Internet companies and Cloud Computing companies.

The importance for partnerships in telecom was highlighted in literature but mostly focusing on existing suppliers in the supply chain (Magnet and Schonfeld 1994, Lamothe et al. 2007). The focus was merely on reducing cost and risk and did not extend to the importance of partnership in bridging innovation gaps to enhance the telcos' competitive position against the innovative Internet companies.

### 3. Methodology

The research performed in this study analyzed the competitive status of the telecom industry as seen by experts in the telecom industry. The study collected the views of 122 industry professionals who represented the entire telecom's value chain, the chain of command within their organizations, and they covered the world's different geographical regions. The survey had 13 questions including 3 background questions. Multiple-choice questions were used to keep the responses focused. Since it is all about trade-offs and prioritizing to find the best overall competitive position, rating scale questions were utilized. The survey was run over 6 weeks between February and April 2011. The survey was closed when there were enough samples in every population subset and when there was no observed deviation in the survey outcome as a result of additional samples.

The survey examines different areas that relates to the competitive position and future strategy of telcos. External factors in the industry need to be identified as they could turn into opportunities or threats. Internal factors also need to be identified so strengths are leveraged and weaknesses are mitigated. By analyzing customer drivers along with the internal and external factors, telcos can determine their competitive position and decide where they need to focus their investments. Telcos also need to priorities their network investment and understand which services have the highest revenue potential. To further strengthen the competitive position of telcos, collaborations and alliances with credible business partners are inevitable. Based on the selected strategy for the new business model, success factors need to be determined and potential barriers to implementing the new strategy need to be identified and addressed.

The survey was focused on assessing the threat from Internet companies and its possible impact on the telcos' technology and business decisions. Descriptive statistics such as cross-tabulations were run to describe participant responses based on their backgrounds. Correlation analyses were utilized to look at relationships between threat from Internet companies and the responses to the other survey questions. T-tests were

used to look for differences in participant responses based on specific background characteristics. A p-value of less than 0.05 was used to determine significance. The focus of the analysis is on the Internet companies’ threat and the impact on the future of telcos.

## 4. Findings

The total number of telecom professionals who participated in the survey before it was closed was 122 participants. The following are the findings and the interpretation for the outcome of the survey:

### 4.1 Biggest Threat on Telcos Comes from the Internet Companies. Business Services and Cloud Computing have the Highest Potential for Future Revenues:

Internet companies were viewed to have the highest threat on telcos by 48 or 41.7% of the participants. For ease of reference, this subset shall be referred to hereafter as the Internet-threat subset. Cable, Satellite, and Wireless companies came next in terms of their threat with 35.7%, followed by other telcos attacking through open access with 27%.

Highest Threat on Telcos	%
Other telcos	27.0
Cable & Wireless Companies	35.7
Vendors, Builders, municipalities	1.7
Internet Companies	41.7

(a)

Highest Potential Services	Total %	Subset %
Business Services	52.5	58.3
High Speed Internet Access	14.8	8.3
New Services, Aps, Content	26.2	31.3
Smart Home Solutions	6.6	2.1

(b)

**Table 1: (a) Threats on telcos**

**(b) Services with high revenue potential**

For the rest of the survey question, we will be comparing the responses of the total population with the responses of the Internet-threat subset.

Business services and cloud computing got 52% as the service with the highest revenue potential. It was followed by new services based on contents and pay per usage at 26.2%. Ultra high-speed Internet access came third at 14.8%. Interestingly, the Internet-threat subset had the top two choices even higher. This makes perfect sense since it is harder for Internet companies to address business customers and provide service level agreements and managed services.

Table 2 shows a significant inverse correlation between Internet companies’ threat and the potential of ultra high speed Internet for future revenues. Internet companies benefit most from customers with ultra-high speed Internet access as it improves their products’ quality and paves the road for new products.

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		Potential Service Ultra-speed Internet
Threat of Internet Companies	Correlation Coefficient	-0.2
	p-Value	0.007

**Table 2: Correlation with ultra-speed Internet access**

### 4.2 Existing relationship with customers is Telco’s main strength. Bad network quality and customer service are Telco’s biggest weakness:

The survey shows a consistent response in considering existing relationship with customers as the most valuable asset for telcos. Owning the physical network and having the financial strength were rated lower. Reputation and the telecom “know-how” were last due to the technology shift which neutralized telcos’ experience. Internet companies are successful because they have demonstrated superior understanding of technology evolution and customers’ needs.

Most Valuable Asset	Total %	Subset %
Customer Relationship	48.7	47.9
Network Ownership	19.1	20.8
Financial Strength	20.9	20.8
Telecom “know-how”	17.4	10.4

(a)

Most Urgent Issue	Total %	Subset %
Outdated Network	26.1	10.4
Degrading Quality	54.8	62.5
Expensive Services	7.8	6.3
Limited Services & Aps	17.4	20.8

(b)

**Table 3: (a) Telcos’ strengths**

**(b) Telcos’ weaknesses**

Bad network quality and customer service were considered telcos’ biggest weaknesses at 54.8% and were even higher at 62.5% for the Internet-threat subset. This could be a real issue for telcos as it is hard to retain customers when Internet companies can provide better service at lower prices.

Internet companies are not the telcos’ biggest threat when the network is old as there is a significant inverse relationship. Old networks deteriorate the quality of the Internet companies’ services which makes them unattractive to customers.

		Weakness: Outdate Network	Weakness: Limited, Rigid, and Closed Products & Services
Threat of Internet Companies	Correlation Coefficient	-0.2	0.19
	p-Value	0.03	0.04

**Table 4: Correlation with telcos’ weaknesses**

When telcos have limited, rigid, and closed portfolio of products and services, Internet companies become a much bigger threat as there is a significant correlation as shown in table 4. This is mainly true if the network is relatively modern while the applications and services are lagging behind.

**4.3 Network convergence and investment in Access Networks and Services and Applications should be Telcos’ top priority:**

Participants in the survey felt that the best way to leverage existing telcos’ asset is by investing in the network to differentiate own services, and converging the network to reduce cost. The Internet-threat subset placed higher weight on network convergence since it enables telcos to provide bundled services to effectively compete at low cost.

Best Asset Leverage	Total %	Subset %	Most Urgent Investment	Total %	Subset %
Invest in Network	45.2	35.4	Access Network	45.1	37.5
Billing Relationship	14.8	18.8	Core Network	15.6	12.5
Wholesale Revenues	12.2	8.3	Services & Applications	34.4	45.8
Converge Network	33.9	37.5	Quality of Service	4.9	4.2

(a)

(b)

**Table 5: (a) Leveraging telcos’ asset (b) Investment priorities**

Network Investment can be dangerous if not accompanied by investment in services as Internet companies might be the one capturing the value. This is why the vast majority of participants voted for investment in Access Networks (45%) and for Services and Applications (34%). The ratios were almost reversed for the Internet-threat subset due to the importance of investing in Services in competing with Internet companies.

		Asset Leverage: Converge network to reduce cost	Investment: Core Network	Investment: Services & Apps
Threat of Internet Companies	Correlation Coefficient	0.2	-0.3	0.2
	p-Value	0.02	0.001	0.004

**Table 6: Correlation with asset-leverage and telcos’ investment**

The correlation analysis shows an inverse relationship with investment in Core Network and a significant relationship with investment in Services and Applications. The former might enhance the Internet companies’ competitive position since they benefit from the telcos’ modern network, while the later will definitely enhance the telcos’ competitive position.

**4.4 Telcos must continuously invest in differentiated products and services and pursue partnerships with Content Providers and Internet Companies:**

The survey shows a strong support for continuous investment in differentiated products and services (42.2%) as the best strategy for Telcos, to be followed by converging the network and relying on partnerships. This outcome was more emphasized by the Internet-threat subset where 56.3% of the participants felt that the counter attack should be through innovation.

Participants considered Content Providers (36.9%) as the most valuable partner followed by Internet companies (25%). However, the Internet-threat subset had stronger

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opinion on partnering with Content Providers (45.8%) and with the Internet companies themselves (33.3%). Providing customers access to unique contents is the best way to compete. It also makes sense to selectively partner with some Internet companies instead of competing head-to-head. The products of these companies have become too popular to ignore and it is in the best interest of telcos to enter into agreements that can deliver higher value for both companies.

Most Effective Strategy	Total %	Subset %
Partnerships	23.0	18.8
Regulatory Lobbying	12.3	8.3
Continuous Investment	42.6	56.3
Bundling Services	22.1	16.7

(a)

Most Valuable Partner	Total %	Subset %
Vendors, Builders	25.4	14.6
Wholesale Operators	12.3	6.3
Content Providers	36.9	45.8
Internet Companies	25.4	33.3

(b)

**Table 7: (a) Telcos' business**

**(b) Partnership strategy**

The survey data also shows a significant inverse correlation with system vendors, integrators, builders, and municipalities, and also with other wholesale operators. Partnerships with these types of companies add value to telcos but would not truly differentiate them when the main threat comes from Internet companies.

		Strategy: Continuous Investment	Partners: System vendors, Integrators, builders, municipalities	Partners: Other wholesale operators	Partners: Content Providers and Apps Developers	Partners: Internet Companies
Threat of Internet Companies	Correlation Coefficient	0.2	-0.3	-0.2	0.2	0.3
	p-Value	0.004	0.002	0.005	0.002	0.0005

**Table 8: Correlation with business and partnership strategy**

### 4.5 Telcos must reinvent their business model and address internal resistance as they modernize their network and enhance their product portfolio:

The majority of the participants (54.9%) felt that the main barrier to transforming telcos' business is the out-dated business model which did not keep up with changes in markets and technologies. Interestingly, the second barrier was internal resistance (24.6). So 79.5% of the participants felt that the main barriers were internal.

Biggest Barrier	Total %	Subset %
Internal Resistance	48.7	47.9
Outdated Business Model	19.1	20.8
Eroded Profitability	20.9	20.8
Strict Regulations	17.4	10.4

(a)

Best Success Factor	Total %	Subset %
Modern Network	26.1	10.4
Offer all Telecom Services	54.8	62.5
Lean/Efficient Organization	7.8	6.3
Extend Monopoly Position	17.4	20.8

(b)

**Table 9. (a) Telcos' transformation barrier**

**(b) Key success factors**

Regarding key success factors to telcos' future, 42.6% of the participants felt that it is having a modern, scalable, and reliable network infrastructure. While 34.4% of the

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participants felt that telcos should enhance their product portfolio, and 20.5% felt that telcos should have a lean organization with low cost structure.

		Success Factor: Lean Organization
Threat of Internet Companies	Correlation Coefficient	0.1
	p-Value	0.03

**Table 10: Correlation with key success factors**

Internet-threat subset had a stronger opinion about having a modern network (47.9%) and a lean organization (25%). A significant correlation is shown in table 10 with having lean organization due to the importance of cost in competing with Internet companies.

### 4.6 Filtering the Data to Detect Background-Related Biases:

Cross-tabulation was performed to detect biases based on participants' backgrounds. Data was filtered to detect the number of participants in each group that felt that Internet companies pose the highest threat.

Line of Business	Total %	Subset %
Component Vendor	12.3	10.4
System Vendor	45.9	45.8
Operator (Telco)	20.5	25.0
Others	21.3	18.8

(a)

Position within Company	Total %	Subset %
Engineer	24.6	27.1
Line/Mid Management	27.9	20.8
Executive	38.5	43.8
Educator, Consultant, Others	9.0	8.3

(b)

**Table 11: (a) Line of business**

**(b) Position of participants**

Participants were asked to answer three background questions. The first was about their line of business across the telecom value-chain. Table 11.a shows the distribution in the survey for the overall participants and for the Internet-threat subset. We notice that higher percentage of participants who work for an operator believes that Internet companies have higher threat.

The second background question asked participants to indicate their position within their organizations. Table 11.b shows that Executives are significantly more likely to view Internet companies to have the highest threat on Telcos.

Category/Biases	Area	Mean		t-value	p-value
		Exec. Opertrs	Rest		
Executive Operators vs. rest	Threats: Internet Companies	2.6	1.6	-2.6	0.008
	Investment: Services	2.4	1.7	-2.1	0.03
	Partner: Content Providers	2.6	1.9	-2.3	0.02
	Barriers: Outdated Biz Model	2.9	2.2	-5.2	0.0001

**Table 12: T-test for executive operators**



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If we compare the responses of executive operators to the rest of the population, we find a significant difference in the response relative to the threat of Internet companies. Similar significant difference appears in the importance of investing in services, partnering with content providers, and considering the out-of-date business model as the main barrier for Telcos.

Geographical Location	Total %	Subset %
North America	41.8	41.7
Europe	13.9	20.8
Asia Pacific	13.9	6.3
Emerging Markets	30.3	31.3

**Table 13: Geographical location of participants**

The third background question asked participants to indicate their geographical region. When it comes to evaluating the threat from Internet companies, Asia Pacific participants felt less threatened by Internet companies than the rest of the world.

Category/Biases	Area	Mean		t-value	p-value
		Asians	Rest		
Asia vs. ROW	Threats: Internet Companies	0.9	1.8	2.7	0.006
	Service: Ultra high speed Net	2.1	1.1	-3.5	0.0007
	Partner: Content Providers	1.4	2.0	2.4	0.01
	Partner: Net Companies	0.7	1.5	2.4	0.01
Europe vs. ROW		Europeans	Rest		
	Investment: Services-Apps	2.4	1.7	-2.6	0.009
	Partners: Content Providers	2.5	1.9	-2.2	0.02

**Table 14: T-test for Asians and Europeans**

The t-test in table 14 indicates a significant deviation in the response of participants from Asia/Pacific regarding the Internet companies' threat than the rest of the population. This is consistent with their responses to other questions where they placed more importance on ultra-high speed Internet access and less on the value of content providers and Internet companies as potential partners. This is mainly due to the unique preferences of Asia/Pacific customers that are adequately served by local providers.

## 5. Conclusion

Changes in technologies have resulted in a paradigm shift in the telecom industry where it became critical for telcos to rethink the way they do business. A global research study conducted with 122 telecom professionals confirmed the hypothesis that Internet companies pose the highest threat on the telcos' future and that telcos need to change their business model.

The study found that telcos' top priority should be addressing their outdated business model, the internal resistance within the organization, and the deteriorating quality in their networks and services. Investments in Access Networks and in differentiated services and applications were found to be most urgent. Business services and cloud-

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based solutions were perceived to have the highest potential for future revenues. Partnerships and collaborations were also found to be critical to the telcos' future, and content providers along with application developers were considered the most valuable potential partners.

Statistical analysis has demonstrated a significant correlation between participant background and their responses. Internet companies were a bigger concern for telcos and executives, and were found to be a bigger threat to telcos in North American and Europe as compared to Asia/Pacific and the Emerging Markets.

The study has showed that in order for telcos to effectively compete against Internet companies, they have to focus on continuous innovation in new products, improve the network/service quality, and converge to lower their cost base. Owning the physical network can be a factor if used to offer bundled products/services at competitive prices. This significantly enhances customer retention and paves the way to build on the existing customer relationship to introduce new products and services. Consequently, telcos will be able to defend their core business and have the best competitive position to create and capture values.

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