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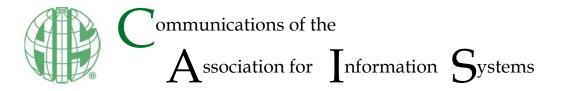
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Teaching Case

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Persevere or Exit: What is the Right Strategy?

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Abstract:

The teaching case describes India's telecommunications market as it went through a major transformation due to its adopting mobile telephony. The country's huge market size and low teledensity have provided an attractive opportunity for foreign multinationals. Telenor entered the Indian market through a joint venture with Unitech Wireless under the brand name of Uninor and targeted the value-conscious segment of mobile customers with its attractive pricing schemes. After a few years of rapid growth, Uninor faced a huge business risk when the Supreme Court of India ruled that its purchased spectrum was illegal. The case describes the aftermath of the 2G spectrum scam and how it adversely affected Uninor's future. At this critical juncture, Telenor faced a strategic decision dilemma. Should it continue its operations in the ever-growing Indian mobile market or should it cut its losses and exit before receiving further damage to its global brand? This teaching case imparts important lessons about doing telecommunications-related business in an emerging economy with high returns and immense business risks.

Keywords: Emerging Economy, Joint Venture, Spectrum Scam, Strategic Decision, Telecommunications Industry, Telenor.

Editor's note: a teaching note for this case can be obtained from bose@iimcal.ac.in.

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1 The Indian Telecommunications Industry

After 2009, India's telecommunications industry experienced exponential growth in its subscriber base after the government decided to expand mobile telephony by selling wireless spectrum to more companies. In doing so, it increased the number of telecom players in the Indian mobile market. As of 2011, India was the second largest and the fastest-growing mobile market in the world with around 400,000 telecom towers in the country (Holton & Abboud, 2012). Figure 1 shows the growth in number of wireless subscribers in India from 2006 to 2011. In 2011, telephony services had about 846 million subscribers and wireless telephony subscribers had around 811 million. Among these subscribers, nearly 698 million subscribers used the popular GSM technology, and about 113 million subscribers used the CDMA technology. The country boasted a huge population of nearly 1.2 billion. Its teledensity (including both wireline and wireless services) was nearly 70 percent, and there was a huge opportunity for growth in the penetration rate for telecommunications services (Telecom Regulatory Authority of India, 2011). As a result, foreign firms sought to operate in India. However, one driver that made the market challenging was the country's extremely low calling rates, which were substantially lower than those of other countries. However, these rates were necessary to cater to India's low-income population. Moreover, any new player would have to offer rates that were lower than the ones already offered to customers in order to successfully capture market share.

Further, urban areas had much higher connectivity than rural ones. By March 2011, urban teledensity had reached about 157 percent, but the rural teledensity was only around 34 percent (Telecom Regulatory Authority of India, 2011). The stark difference in teledensity clearly indicated the need for a further drop in prices to make mobile telephony a viable option for a large section of the Indian population that resided in its rural areas. The Indian market had room for more telecommunications service providers, especially those who were willing to hit the rock bottom with their prices. Such offerings from companies would be attractive for the rural population that was eager to adopt mobile telephony and use it mostly for voice calls. Interestingly, the wireless subscriber growth rate in rural areas was nearly 41 percent as opposed to about 34 percent in the urban areas, and the number of wireless subscribers who resided in the rural region was nearly 273 million (Telecom Regulatory Authority of India, 2011). Thus, while the country had seen rapid growth in its wireless segment, it saw only modest growth in its wired segment.

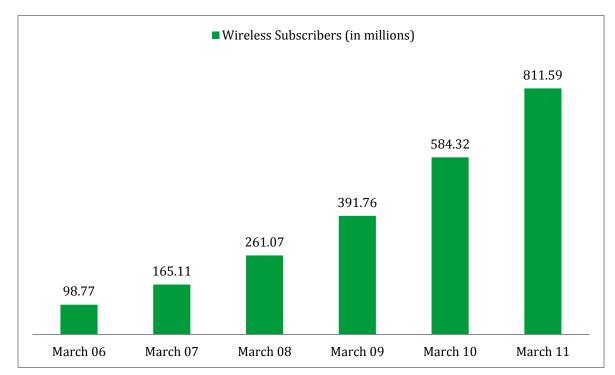


Table 1 provides a historical timeline of major events that have shaped the Indian telecom market.



Year of occurrence	Event	
1992	Private telecom players can provide value-added services (i.e., all services beyond normal voice calls	
1994	National telecom policy is formalized to ensure world standard telecommunications services on demand for all residents of the country.	
1997	An independent regulator, the Telecom Regulatory Authority of India (TRAI), is established to oversee policy making.	
1999	The Department of Telecommunication (DoT) established a state-owned telecommunications company named Bharat Sanchar Nigam Limited (BSNL).	
2002	International long distance (ILD) services are opened to competition and license fees are reduced.	
2003	Unified access licensing regime is established to allow operators to procure licenses and provide wireline and wireless voice and non-voice services in their operation area(s).	
2004	Broadband policy is established to accelerate development of telecommunications infrastructure to ensure a minimum download speed of 256 kilobits per second (kbps).	
2005	Limit of foreign domestic investment (FDI) is increased to 74 percent.	
2006	Portability of mobile numbers is proposed.	
2008	3G policy is announced along with third party auctions for allocating spectrum.	
2009	Central Vigilance Commission directed Central Bureau of Investigation (CBI) to investigate irregularities in 2G spectrum allocation.	
2010	The Comptroller and Auditor General (CAG) submitted report on 2G spectrum allocation to Indian Government that stated a major loss due to irregularities in the execution of the spectrum auctions.	

Table 2. Registered Connections by Operator (Adapted from GSMA Intelligence, 2011)

Operator	Registered connections (millions)	
Airtel	169.2	
Reliance Communications	143.3	
Vodafone	141.5	
Idea Cellular	95.1	
BSNL	91.8	
Tata Teleservices	91	
Aircel	58	
Uninor	26.3	
MTS (Mobile TeleSystems)	11.7	
Videocon Mobile	7.1	

As Table 3 shows, three big players dominated the Indian market: Airtel, Reliance Communications, and Vodafone. These three players together enjoyed nearly half of the market share in India and focused on the upper echelon of society. The state-owned BSNL and its sister company MTNL owned a small part of the market share.

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In 2009, the country witnessed innovative pricing models that firms used to lure the value-conscious customers. Tata Teleservices introduced per-second billing for mobile telephony, which pressurized market leaders such as Airtel, Reliance Communications, and Vodafone to follow suit. With the innovative model that Tata Teleservices offered and the support of mobile number portability, a large number of subscribers migrated from their parent network to the company that provided the "best and cheapest deal". This migration indicated the change coming about in the Indian telecom sector, which was now poised to become a fiercely competitive market with a rapidly changing subscriber base. At this time, Telenor entered the market.

2 Uninor: The Company

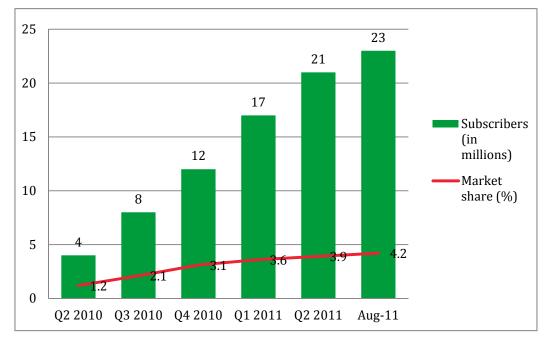
Telenor Group, a mobile operator, was one of the top 500 global companies by market value in the world. It offered services in the Nordic region (i.e., Norway, Sweden and Denmark), in Central and Eastern Europe (i.e., Hungary, Serbia and Montenegro), and in Asia (i.e., Thailand, Malaysia, Bangladesh and Pakistan). Based on its success in several Asian countries, Telenor was keen to establish its presence in India. The company believed that its operations in India would result in similar benefits as its operations across Asia had done so far. Telenor aimed to gain an eight percent share of the Indian mobile market by 2018 (TelecomTiger, 2009).

To enter India, Telenor joined forces with the Unitech group, a real estate company that had already launched a firm named Unitech Wireless in 2007. India was divided into 22 "circles" or service areas for telecommunications services, which roughly followed India's state lines. Unitech Wireless had 2G spectrum licenses for all those circles across the country (Merchant, 2010). Telenor bought into Unitech Wireless because it did not want to enter the Indian market independently. Telenor agreed to obtain a controlling stake in Unitech Wireless subject to regulatory approval. With the licenses, Telenor could use its telecom experience and expertise to capture market share. Telenor planned to combine its successful experience in mobile operations in Asia with Unitech's presence as a trusted corporation in the Indian market. Telenor was to inject equity into Unitech Wireless in four installments by early 2009. Telenor expected to break even on the earnings before interest, tax, depreciation, and amortization (EBITDA) in three years and produce positive operational cash flow in five years (TelecomTiger, 2009). The partnership was a symbiotic one since Unitech Wireless now had Telenor, a global leader in telecom services, handling its operations.

Unitech Wireless also entered into tower-sharing agreements with Quippo Telecom Infrastructure and Wireless TT Info Service, which allowed Unitech Wireless to mount its mobile antennas on these companies' existing towers. It opted for this strategy to swiftly rollout its mobile services with a low overhead. When the agreement closed, Telenor held four out of the seven seats on the Unitech Wireless Board of Directors. Stein-Erik Vellan was nominated as the first managing director of Unitech Wireless. Vellan was previously CEO of Telenor Serbia. Telenor announced that its mobile operations in India would be called Uninor. With the Indian telecom authority's approving Unitech Wireless's application to increase the number of shares foreign companies could own in Indian companies to 74 percent, Telenor began increasing its stake.

Analysts had been cool towards the company. India was a market of fast growth but offered very small margins that made it difficult to allow a new company such as Telenor to turn to profit quickly. Telenor focused on reaching out to the low-income segment of the Indian population with its low pricing-based model. Uninor launched mobile services in India on 3 December, 2009, and became the 12th operator in the Indian market. On the first day of services, Uninor covered a footprint of almost 600 million people in seven telecom circles: Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Uttar Pradesh East, Uttar Pradesh West, and Bihar (Telenor, 2009). The 2G network was sufficient to host basic telephony operations such as voice calls, SMS, and basic 2G Internet browsing. Uninor offered mobile telephony data services based on the GSM technology on a 4.4 MHz spectrum.

With the tagline "Ab mera number hai" (i.e., "My time is now"), Uninor targeted the younger and costconscious segment of the country. From the launch day, Uninor was available at over 210,000 points of sale through almost 1000 exclusive distributors (Telenor, 2009). Figure 2 shows the growth in the number of subscribers and market share for Uninor.





Uninor next launched services in five more circles in India: Mumbai, Maharashtra and Goa, Gujarat, Kolkata, and West Bengal. Table 3 shows Uninor's market share in 2011 and its rank among telecom service providers in different operating circles.

Circle (in alphabetical order)	Market Share (%)	Rank
Andhra Pradesh	4.0	7
Bihar	5.2	8
Gujarat	4.2	7
Karnataka	2.3	9
Kerala	2.0	9
Kolkata	5.8	7
Maharashtra	3.5	7
Mumbai	3.1	9
Orissa	4.5	8
Tamil Nadu	1.8	9
UP East	6.2	7
UP West	6.4	7
West Bengal	5.7	7

Table 3. Market Share and Rank of Uninor in its Operating Circles (Adapted from				
Wikimedia, 2011a)				

3 The 2G Spectrum Scam

In 2007, the Indian telecom sector had a huge customer base for mobile telephony that a handful of operators captured. There were nearly 234 million users and only seven mobile operators to serve them. Telecom Minister A. Raja planned to bring in new players. Since he planned to distribute new licenses in 2008, it was expected that the cost of procurement of these licenses would also increase. However, Raja did not introduce a revised price for the license to avoid new telecom companies from having to pay more money to procure them. Also, Raja arbitrarily changed the cutoff dates under the first-come, first-served policy for allocating spectrum to allegedly favor some firms. In 2008, nine new players entered the Indian

telecom market on the old first-come, first-served basis and also on the old price of licenses. The Government of India gave out 122 licenses to these nine new players along with 38 dual technology licenses bundled with the 4.4 MHz spectrum at an undervalued price. The licenses' arbitrarily low price and the manipulation of the cutoff dates came to be known as the "2G spectrum scam".

The scam and, thereafter, the losses that the national treasury faced came to the spotlight. The CAG estimated the loss to the national treasury to be more than US\$40 billion. This amount totaled the 1999 canceled spectrum payments, spectrum giveaways from 2001-08, and spectrum underselling in 2008. The CAG estimated that the losses due to irregularities in handling spectrum payments from the 2001-2008 period totaled around US\$0.25 billion, and so, although "the current undervaluation and misallocation of spectrum is part of an earlier series of scandals, the sheer size, scale and scope of the scam is unprecedented" (Thakurta & Kaushal, 2010). However, other controversies related to the calculation of the amount of money that the national treasury lost arose, and some estimated the DoT for not doing proper due diligence in examining and scrutinizing the applicants. The CAG claimed that this lack of due diligence led to ineligible applicants' procuring licenses.

3.1 Uninor and the 2G Spectrum Scam

The auditor reported that the DoT allocated spectrum to Unitech, which had no prior experience in the sector at the time, at a throwaway price. The auditor based this allegation on the fact that the company had procured the licenses before Telenor came into the picture and could not boast of relevant telecom experience. Telenor investigated the way the DoT awarded the licenses and denied that Uninor had procured the mobile phone licenses in an irregular manner.

On 4 February, 2011, the CBI took Telecom Minister Raja into judicial custody. The CBI informed the court that Raja had favorites among the new players: Swan Telecom and Unitech Wireless. The media reported that Unitech had paid US\$365 million as a license fee but had sold a 60 percent stake to Telenor for US\$ 1.36 billion, which took its valuation to US\$2.27 billion without a single subscriber on board (Thakurta, 2011). The CBI claimed that Swam Telecom and Unitech Wireless together caused a loss of nearly US\$1.6 billion to the national treasury because they had offloaded shares of their companies for huge amounts to foreign investors.

3.2 Telenor's Reaction

A major tussle began between Telenor and Unitech. Telenor wanted to launch a rights issue (i.e., an issue of shares offered at a special price by a company to its existing shareholders in proportion to their holding of old shares) to meet Uninor's funding requirements and to support future investments. On the other hand, Unitech procured a stay order that prevented Telenor's actions because it believed they were not in the best interests of Uninor. With the scam having hit the country, banks were not ready to offer loans to the telecom companies and prevented them from paying the vendors for the infrastructure they used. With clearance from court, Telenor initiated a US\$1.65 billion rights issue on 26 September, 2011, despite opposition from Unitech on the grounds that the rights issue would violate the cap on FDI (Dasgupta, 2012). Telenor had not planned to change Uninor's ownership structure, and so both owners needed to subscribe to the rights issue. Unitech filed a petition before the Company Law Board in India and blamed Telenor and its executives for mismanaging the joint venture Uninor. In the middle of the ongoing chaos, Telenor asked Sanjay Chandra, Group Managing Director of the Unitech Group and in judicial custody for being linked to the 2G scam, to step down from the Board of Unitech until the 2G spectrum scam trial finished. However, Unitech backed Sanjay Chandra.

The hostility between Telenor and Unitech further heightened when Unitech offered to buy Telenor's stake in Uninor. After Telenor's investment in 2009, the value of Uninor had reached nearly US\$2.27 billion. Yet, Telenor valued the company at US\$1 billion, excluding debt, on 4 October, 2011. Unitech blamed the alleged depreciation from US\$2.27 billion to US\$1 billion on Telenor (Economic Times Bureau, 2011).

4 The Aftermath and the Dilemma

On 2 February, 2012, the Supreme Court of India delivered a judgment on a public interest petition that sought to cancel 122 cellular phone licenses that the Indian Government granted in 2008, which included the 22 licenses that Uninor held. Table 4 shows the details related to the 122 canceled licenses. This quashing was effective from four months after the date of issue. The order crippled Uninor's licenses and,

hence, its ability to offer telecom services from 2 June, 2012. The move hurt all the new entrants to the Indian market and allowed the established players who had licenses prior to 2008 to raise telephony prices.

Company/operator	Region	Subscriber base (in millions)		
Uninor (Unitech-Telenor)	22	36.31		
MTS (Sistema-Shyam)	21	15		
Loop Telecom (formerly BPL Mobile)	21	3.24		
Videocon Mobile	21	5.44		
Etisalat DB (formerly Swan)	15	1.67		
S-Tel (Bahrain Telecom)	6	3.55		
Idea Cellular	9	6		
Spice Communications (Merged with Idea)	4	Non-operational		
Tata Teleservices	3	3.1		
*The 122 canceled licenses involved nine operators and 22 telecom circles.				

Table 4. Details of the Canceled 122 Licenses (Adapted from Rajandran, 2012)

Telenor's Indian operations took the worst hit from the canceled licenses. Telenor was one of the most aggressive among the new entrants. Telenor had executed a lawful investment and was looking for an outcome that would not jeopardize its investment. With the fluid situation, the permanent solution seemed to be either to leave the market or re-bid for spectrum. However, with the cancellation order for the licenses, the Indian Government had not specified the timing or the terms of the re-auction. The Supreme Court's cancellation of the licenses sparked a diplomatic drive to secure the state-owned Telenor's investment in India. The Norwegian Government intervened with Indian authorities to try and save Telenor. Rigmor Aasrud, the Norwegian IT Minister, said: "Telenor has done nothing wrong in India. That is, as I understand, that the court has made a decision about how the government handled the licenses." (India Today, 2012a).

On 15 February, 2012, the Telenor Group issued a notice to Unitech that it would seek indemnity and also compensation following the Supreme Court order, which canceled all of Uninor's 22 licenses. Telenor's stand was that it lacked guilt and had adhered to all the agreements and rules of the government. Telenor held Unitech liable for the breach of warranties and sought compensation for all the investment, guarantees, and damages that the court's decision caused. As a precaution, Telenor planned to write down its remaining fixed and intangible assets in India, which it would include in its Q1, 2012 results (Sidartha, 2012).

Meanwhile, Telenor considered the possibility of quitting its India operations if things did not improve (Firstpost, 2012). Telenor's CEO Jon Fredrik Baksaas remarked:

The ruling is a very serious attack on our investments, based on the license framework that was spelt out in 2008. We met every inch of that regulation of that license. We have brought competition to the Indian market...just to see a ruling that has significant retroactive consequences. It is an action that we have never seen in any country before. (India Today, 2012b)

At the same time, there were rumors that Telenor might form a new company altogether and strengthen its presence in India. Analysts speculated that the partnership with Unitech did not have a future. Therefore, Telenor should look for a new Indian partner and separate its Indian mobile venture Uninor from its previous partner Unitech. The new company would then serve as a platform to approach the new revised auctions for the fresh licenses as the Supreme Court decided. Sigve Brekke mentioned in a press briefing: We did not come to India to give up, but to win. And, that's what we are going to do. Looking at the way our employees, our trade partners and our customers have responded over the past few days, I am confident we will succeed. (PTI, 2012)

By that time, Unitech announced that it would quit the telecom business and focus on its core business area (i.e., real estate) and made it clear that the company would not bid for new licenses when the auction occurred. It made this decision despite the fact that Uninor saw the second highest net new subscriber additions after Idea Cellular. In fact, Uninor saw an almost 27 percent increase in new customers in February, 2012 (Rediff.com, 2012).

Some believed that the licenses' cancellation had put Telenor face-to-face with a major decision point. Naysayers reasoned that the time was the best one for Telenor to find its way out of the country and its investment and, thereby, prevent further losses. But others pointed out the upside of the mobile business in India and the fact that Uninor had done reasonably well with its bottom-of-the-pyramid pricing strategy. Perhaps it was time for Telenor to seek out a new partner or go alone. However, the new auctioning process was unclear, and it was widely speculated that the companies would have to spend a fortune to procure the licenses they had lost. Some said that the prices could be ten times the price of the previously acquired licenses (CIOL Bureau, 2012). Finally, it was not clear when the auctioning was going to occur. In case of a major delay, a large number of existing Uninor customers could very easily migrate to a different service provider that used mobile number portability. What should Telenor have done at this critical juncture of its life in India?

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References

- CIOL Bureau. (2012). *Telenor feels 2G scam heat, net dips*. Retrieved from http://www.ciol.com/ciol/news/105077/telenor-feels-2g-scam-heat-net-dips
- Dasgupta, S. (2012). Unitech opposes Telenor's rights issue proposal. *Business Standard*. Retrieved from http://www.business-standard.com/article/companies/unitech-opposes-telenor-s-rights-issueproposal-112072600043_1.html
- Economic Times Bureau. (2011). Real estate major Unitech offers to buy out Telenor. Retrieved from http://economictimes.indiatimes.com/industry/telecom/real-estate-major-unitech-offers-to-buy-outtelenor/articleshow/10319184.cms
- Firstpost. (2012). 2G scam verdict: How it hits companies, banks, IT vendors and you. Retrieved from http://www.firstpost.com/business/2g-scam-verdict-how-it-hits-companies-banks-it-vendors-andyou-202463.html
- GSMA Intelligence. (2011). Indian mobile market reduced by 30% to remove "redundant" subscribers. Retrieved from http://www.wirelessintelligence.com/analysis/2011/08/indian-mobile-market-reduced-by-30-to-remove-redundant-subscribers/
- Holton, K., & Abboud, L. (2012). 2G scam rattles telecom nirvana. *Livemint*. Retrieved from http://www.livemint.com/2012/03/01120954/2G-scam-rattles-telecom-nirvan.html
- India Today. (2012a). 2G scam: Norwegian minister meets Kapil Sibal, discusses Telenor. Retrieved from http://indiatoday.intoday.in/story/2g-scam-norwegian-minister-meets-kapil-sibal-discussestelenor/1/172489.html
- India Today. (2012b). 2G scam: Telenor may quit India following SC verdict. Retrieved from http://indiatoday.intoday.in/story/2g-scam-supreme-court-verdict-telenor-may-quitindia/1/171815.html
- Merchant, J. (2010). Uninor hopes to capture a formidable 8 percent market share by 2018. *Telecomtalk.info.* Retrieved from http://telecomtalk.info/uninor-hopes-to-capture-formidable-percentmarket-share/31607/
- Nairita. (2011). Loss over 2G scam: Not Rs 1.76 lakh cr but Rs 2,645 cr? Retrieved from http://www.oneindia.com/2011/09/28/loss-over-2g-scam-not-rs-1-76-lakh-cr-but-rs-2-645-cr.html
- Prabhu, N., Soni, A., & Tirley, A. (2014). Issues in cellular services in India: A consumer perspective. *tejas*@iimb. Retrieved from http://tejas.iimb.ac.in/articles/43.php
- PTI. (2012). 2G scam: Uninor not quitting India. *Gadgets Now.* Retrieved from http://www.gadgetsnow.com/tech-news/2G-scam-Uninor-not-quitting-India/articleshow/11901290.cms
- Rajandran. (2012). 2G spectrum scam and 2G verdict infographic. *MarketCalls*. Retrieved from http://www.marketcalls.in/infographic/2g-specturm-scam-and-2g-verdict-infographic.html
- Rediff.com. (2012). 2G scam: Why customers have not dumped Unitech. Retrieved from http://www.rediff.com/business/slide-show/slide-show-1-tech-why-customers-have-not-dumpedunitech/20120403.htm#1
- Sidartha. (2012). Telenor writes down remaining India assets. *The Times of India.* Retrieved from http://timesofindia.indiatimes.com/business/india-business/Telenor-writes-down-remaining-Indiaassets/articleshow/12933985.cms
- Telecom Regulatory Authority of India. (2011). *Annual report 2010-11.* Retrieved from http://www.trai.gov.in/WriteReadData/UserFiles/Documents/AnuualReports/ar_10_11.pdf
- TelecomTiger. (2009). Uninor confident of break-even within three years; eyes 8% market share by 2018. Retrieved from http://www.telecomtiger.com/fullstory.aspx?storyid=7902
- Telenor. (2009). Uninor services launched in India. Retrieved from https://www.telenor.com/media/press-releases/2009/uninor-services-launched-in-india/

- Telenor. (2012). Telenor group seeks indemnities from Unitech Limited as it gets ready for a new future in India. Retrieved from http://www.telenor.com/news-and-media/press-releases/2012/telenor-groupseeks-indemnities-from-unitech-limited-as-it-gets-ready-for-a-new-future-in-india/
- Thakurta, P. G. (2011). The ABC of the 2G scam. *Tehelka Magazine*. Retrieved from http://archive.tehelka.com/story_main48.asp?filename=Ne010111THEABCOF.asp
- Thakurta, P. G., & Kaushal, A. (2010). Underbelly of the great Indian telecom revolution. *Economic and Political Weekly, 45*(49), 51-55.
- Wikimedia. (2011a). Uninor subscriber market share and circle-wise rank. Retrieved from https://commons.wikimedia.org/wiki/File:Uninor_subscriber_market_share_and_circlewise_rank.png
- Wikimedia. (2011b). Uninor subscriber numbers and market share. Retrieved from https://commons.wikimedia.org/wiki/File:Uninor_Subscriber_numbers_and_market_share.png

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