

**White paper**  
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## Digital India – The Underwater Connection National Success on a Regional Scale

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The demonstrable success of India over the recent period in developing and providing outsourced customer service facilities to major corporations outside its borders has been nothing short of remarkable. In short, India's ability to provide highly educated, technically aware representatives to a broad range of product and service providing companies has shown that with the right educational system and a commitment to development at both a national and regional level, developing nations can enter the international market place in areas where little or no experience previously existed.

When it comes to measuring the success of India's venture into the outsourced services market, the numbers speak for themselves. With an estimated value of (US) \$70-80 billion by 2008 IT software and services will contribute 30% of all foreign exchange inflows, showing an increase from 8% in 2002. By 2008, this sector alone will provide around 2 million jobs in the services market with an additional 2 million jobs being provided in the parallel support services sectors.

<b>Potential for Indian Software and Service Industry by 2008</b>	
<b>Category</b>	<b>\$ billion</b>
IT Services Exports	28-30
ITES Exports	21-24
Product and Technology Services	8-11
Domestic Market	13-15
<b>Total</b>	<b>70-80</b>

Source NASSCOM-McKinsey Study 2002

The additional growth opportunities for this services based sector are as impressive as the performance to date in the IT products and services market. Considering the abilities of India's established service providing industry, the future challenges of growth can be seen as follows:

- **Tap new service lines**  
As the off shoring model becomes more accepted in the mainstream IT markets, Indian IT companies are expected to penetrate new service lines such as Packaged Software Support and Installation; IT consulting; Network infrastructure

management; Systems integration; IS outsourcing; IT Training and Education; Hardware support and Installation; and Network consulting.

- **Focus on under penetrated geographies**

While established markets such as the US and UK have been tapped to a marginal extent, large non-English speaking markets in Japan and Western Europe remain under penetrated by Indian IT companies. These two markets alone offer the Indian Industry over \$5-6 billion in export potential. Indian companies have also great opportunities in English-speaking geographies like Canada, Netherlands, Sweden and Australia. Together these markets account for 6.7 percent of the world's IT spend and represent an opportunity of US\$ 1.2 billion by 2008

- **Target high potential verticals**

Indian companies have focused primarily on three key verticals (Financial Services, Telecom and Manufacturing) that account for nearly 45% of the industry's revenues today. Indian companies need to aggressively target under penetrated verticals for the next wave of growth. Verticals like Retail, Telecom Service Providers and Healthcare are likely to offer the next wave of opportunities for the industry.

- **Tapping Product Centric Opportunities**

While India has been able to establish its strong credentials in the IT services arena, India has yet to make a dent in the software products market. To date, India has only been able to capture 0.2% of the US\$ 180 billion market. A broader spectrum of opportunities is however becoming available to Indian players in areas such as embedded Software; development and delivery of specialized components; tapping offshore product development opportunities; product acquisition and enhancement and developing shrink wrapped products.

Socially, the development of India's economy is having a massive impact. The level of Indian's population now considered to be middle class has risen in the past 10 years from around 150 million to around 300 million. With an upper class in excess of 10 million, the overall hunger for hi-tech personal commodities such as personal computers, internet access, international TV channels and a basic desire for information and entertainment has made national and international telecommunications access a basic requirement for the country.

Core to the success of India is the vast investment in education within the country. Based upon a census carried out within India in 2003, the following statistics substantiate a major success story in modern education:

- 9.2 million Educational students in 2002-03 compared to 7.26 million in 1997-98
- 1,265 Engineering colleges providing degrees
- 1,034 Additional colleges providing Master of Computer Applications
- 958 Additional Management colleges providing MBA's

Even with the investment in people, colleges and industry, advances such as have been seen in India in the hi-tech products and services market are only possible with a solid underlying telecommunications infrastructure. Include the peoples' need for additional information and entertainment and the scope and scale of the telecommunications industry within and outside of India become crucial to both the commercial and social development of the country.

## Removing the Gap between the International 'have' and 'have nots'

In providing the telecommunications enabling services for an ever increasing giant such as India, historical options would have been around the provision of satellite services or submarine cable infrastructure. Traditionally, the cost prohibitive nature of submarine cable technology would have removed it as an option for a country trying to insert itself into the international market place. Until the mid 1990's, international submarine cable systems were normally built between a consortium of national telecom operators sharing the entire cost of the system between themselves and restricting direct access to the system to those same operators, the result of which was high cost of international access for countries or operators not involved in such systems. These cost prohibitive factors would have meant resorting to cheaper satellite technology for developing countries. Whilst proving to be a valuable asset in the rapid deployment of internal network and services infrastructure for large countries such as India, the inability to meet the massive information, entertainment and transaction based capacity needs of India and other similar countries or regions makes satellite technology restrictive in providing sufficient high capacity on an international basis.

Historically, the result of the high cost of submarine systems and capacity restrictions of satellite technology have restricted regional and national development as has been demanded by India and similar countries and regions in the past. In contrast, the ability of developed countries and carriers to bring huge capacity submarine cable systems into service has resulted in the construction of a number of high capacity 'highways' connecting major established economic locations throughout the world such as the USA, Europe and Asia. What was missed throughout the entire period of international submarine cable construction of the 1990's was the ability to provide the smaller, regional 'slip roads' onto the 'highways' that would enable smaller regional areas of development to enjoy the much reduced cost of these huge systems. The impact of this omission was that whilst the established economies thrived, the developing ones were restricted from doing so and the information gap and utilisation of technology differentiator widened.

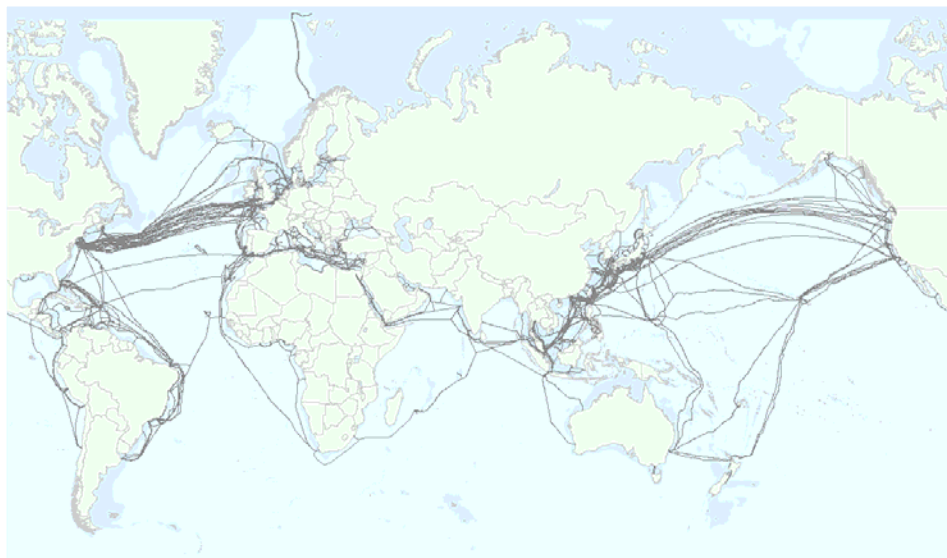


Figure 1: Total Installed submarine cable systems globally

During the mid 1990's, one exception to the rule in the international submarine cable industry was the Fibre optic Link Around the Globe (FLAG). FLAG was one of the first regionally based cable systems in the world, and India was able to take advantage of the booming international telecommunications market and gain entry into FLAG as the first private submarine cable system. Although not vast in its ability to deliver the capacity needs of India today, the original FLAG system provided the kick start in international access that India needed to recognise its development needs. Recognition of the increase in India's and the surrounding region's telecommunications needs has resulted in the start of construction of a second submarine system by FLAG to further increase the international connectivity for the region.




Figure 2: Providing the final link in a Regional submarine Network

The importance of such a regional submarine project cannot be understated in enabling the development of those countries involved in the program. Removing the cost of third party access to high capacity has enabled the Indian region and other similar regions to drive the benefits of such international telecommunications access into the region from both a commercial and social perspective. Aside from the enabling commerce and industry to compete on a level playing field with international competitors, the ability to provide the following products and services to the country as a whole encourages the country to strive to become more prosperous through raising the general awareness level of what can be achieved.

- International news and entertainment in the form of digital television
- Provision of high capacity broadband internet access
- High quality remote learning facilities in conjunction with international partners

Until very recently, the construction techniques and bespoke telecommunications technology available still made submarine cable systems extremely expensive to implement and operate. Recent developments and innovation in laying cables on and under the ocean bed and more importantly the technology utilised in carrying the huge amounts of capacity required for these systems, has resulted in the cost of ownership of a regional submarine network reducing vastly. The ability of existing smaller operators, new entrants and even regional development agencies to contemplate building and operating their own regional submarine network is now a reality.

As such, the ever growing success story that is India should not be seen as a one off. It is not outside the realms of reality to see India not just exporting their high quality products and services in the technology sector but also their expertise in regional development to



other parts of the globe such as Africa, areas of the Middle East, South America and the Caribbean over the coming years as the web of regional submarine 'slip roads' spreads ever wider.