

AN EMPIRICAL STUDY TO ANALYZE THE IMPACT OF DISRUPTIVE
TECHNOLOGY-AI ON THE ROI OF SELECT INDIAN ICT-NI-SP

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TITLE

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Abstract

Artificial Intelligence (AI) is a new buzzword for Communication Service Provider(CSP) and Over-the-top (OTT) Application Provider. This paper analyzes the impact of Adopting disruptive technology – AI on Return on Investment (ROI) of ICT Network Infrastructure Service Provider.

Two steps diagnostic method is used for the formulation and verification of new business models.

In the First Step, the Business Model is developed based on Literature Review analysis in the field of Business Strategic Management, ICT Business and Technology Ecosystem, and Disruptive Innovation. The findings and Recommendation are derived based on Judgmental Analysis.

In the Second steps, the hypothesis is verified based on secondary data. The data is collected from various Webinars, Interviews of Strategic leaders, Corporate's Press release notes. These collected data are used to quantify on Likert Scale for statistical correlation and regression analysis.

The result suggests that Disruptive Business Innovation directly impacts various components of ROI. Indian ICT-NI Service provider needs to formulate strategies to continuously adopt Disruptive Innovation for maintaining quarterly ROI targets and spinoff new Business Unit for Disruptive Product Portfolios to complete the new or existing competitors.

Keywords:

STRATEGIC MANAGEMENT – DISRUPTIVE INNOVATION

Distributive Innovation, Disruptive Technology, Disruptive Business Model Innovation, Niche
Market and ROI

IJSER

INTRODUCTION

Indian ICT industries is one of the fastest growing industries in the world. The backbone of this sector is network infrastructure. Today's Indian ICT is struggling with unreliable and slow networks due to legacy Mobile and Fixed Broadband. The key characteristics of the Indian market are cost sensitive. Reliance Jio announces low cost 4G network solution for retails and enterprise customers. The low-cost services create a lot of radical and unexpected changes in consumer's behaviour and competitor's strategies. The impact of this new entrant affects equilibrium in the mobile industry and makes rivals vulnerable to their ROI and existence. The incumbent operators were forced to devise new business strategies to adopt disruptive innovation.

Today's hyper connected and digital world, the adoption of disruptive innovation in the field of technology and business, play a critical role in sustaining existing business and spinoff new business models.

Disruptive innovation is a term in the field of business administration which refers to an innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market leading firms, products, and alliances. One of the best ways to innovate is to disrupt the existing market and capture the market share from the existing players, products and partnerships with your own unique product, technology or business model.

Disruptive innovations tend to be produced by outsiders and entrepreneurs, rather than existing market-leading companies. The business environment of market leaders does not allow them to pursue disruptive innovations when they first arise, because they are not profitable

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enough at first and because their development can take scarce resources away from sustaining innovations (which are needed to compete against current competition). A disruptive process can take longer to develop than by the conventional approach and the risk associated to it is higher than the other more incremental or evolutionary forms of innovations, but once it is deployed in the market, it achieves a much faster penetration and higher degree of impact on the established markets.

The proposed disruptive business model is divided into six major components and their high-level relationships in business models is also depicted in Figure 1.

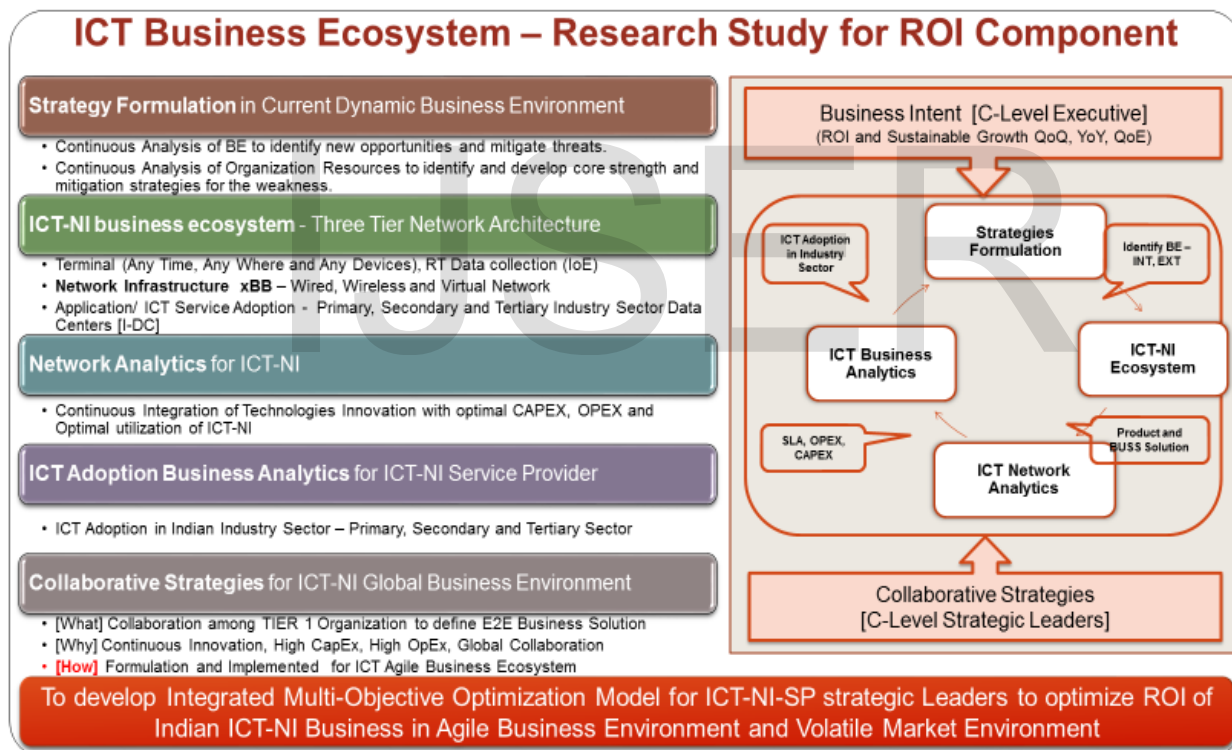


Figure 1 – Business Model for Adopting Disruptive Innovation in ICT Business

1. Determining Business Intent

- Sustainable Revenue and ROI
- Visionary opportunity identification

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- c. Tradeoff between short gain Vs Long Term
2. Strategic Formation in Current Dynamic Business Environment
 - a. Continuous Analysis of Business Environment to identify new opportunities and mitigate threats.
 - b. Continuous Analysis of Organization Resources to identify and develop core strengths and define mitigation strategies for weaknesses.
 - c. Collaborative Strategies for ICT-NI Global Business Environment
3. ICT Network Infrastructure - Three Tier Network Architecture
 - a. Terminal (Any Time, Anywhere and Any Devices), RT Data collection (IoE)
 - b. Network Infrastructure xBB – Wired, Wireless and Virtual Network
 - c. Application/ ICT Service Adoption - Primary, Secondary and Tertiary Industry Sector Data Centers [I-DC]
4. Network Analytics for ICT-NI
 - a. Continuous Integration of Technologies Innovation with optimal CAPEX, OPEX and new business opportunities
5. Business Analytics for ICT-NI Service Provider
 - a. Optimal utilization ICT-NI
 - b. New Service Adoption for ICT Industry Sector

In summary, the proposed study evaluates the above defined business model in two stages – First steps to find the relationship of various components in the business model from the literature reviews. In the second's steps, the statistical method is for finding and analyzing relationships between identified research variables. This defined business model is planned to be used to find

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the current strategic approach being practiced for managing ICT network infrastructure, analyze their impact on optimizing ROI and improving QoE in Indian context.

REVIEW OF LITERATURE

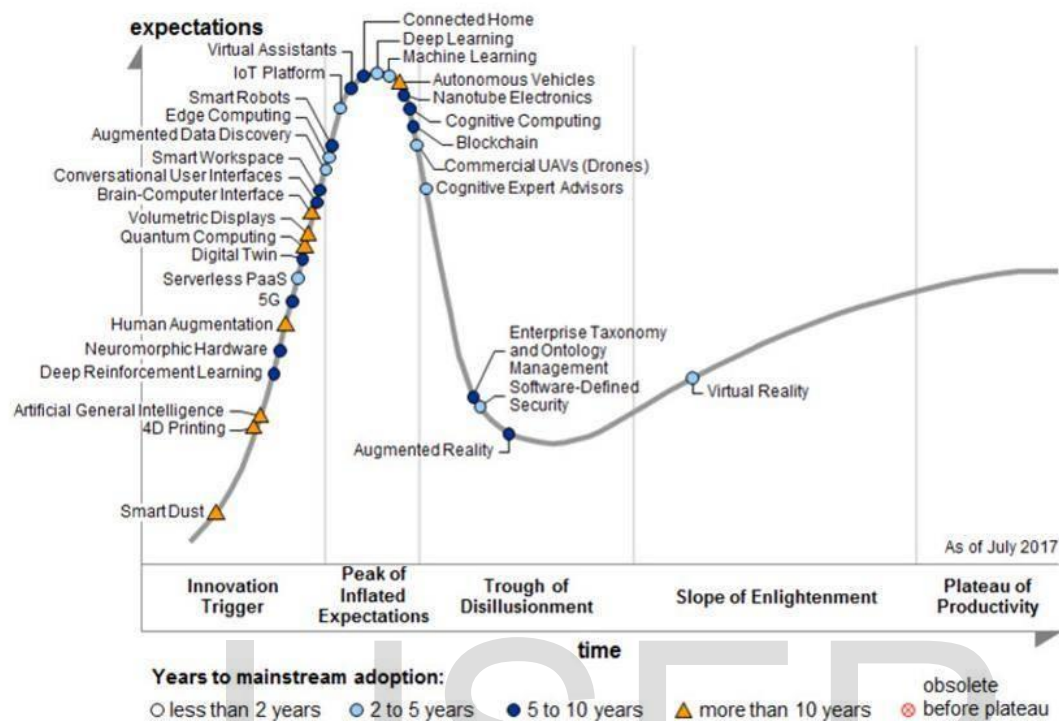
In the current Hyper Connected and digital era, there is rapid and disruptive innovation in technologies. The ICT business sector is one the most impacted due to disruptive innovation. The network infrastructures are transforming rapidly from 3G to 4G and in near future 5G with adoption of IOT in the digital platform.

Three megatrends to drive digital business into the next decade: Gartner's Hype Cycle

1. Artificial Intelligence (AI) everywhere,
2. Transparently immersive experiences and
3. Digital platforms

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Hype Cycle for Emerging Technologies, 2017



Note: PaaS = platform as a service; UAVs = unmanned aerial vehicles

Source: Gartner (July 2017)

The backbone of adopting these innovation needs reliable and high bandwidth network infrastructure.

Disruptive Business Model Innovation

Outdated infrastructure characteristics such as manual configuration and management processes, overlay security geared mainly toward external threats, and siloed network domains hinder the network's ability to further the goals of digital business. For IT staff, valuable time is spent “keeping the lights on” instead of aligning network capabilities with strategic initiatives that improve operational efficiency and enhance customer experience. A network that is truly digital ready is a network that can dynamically align with the ever-changing needs of the enterprise.

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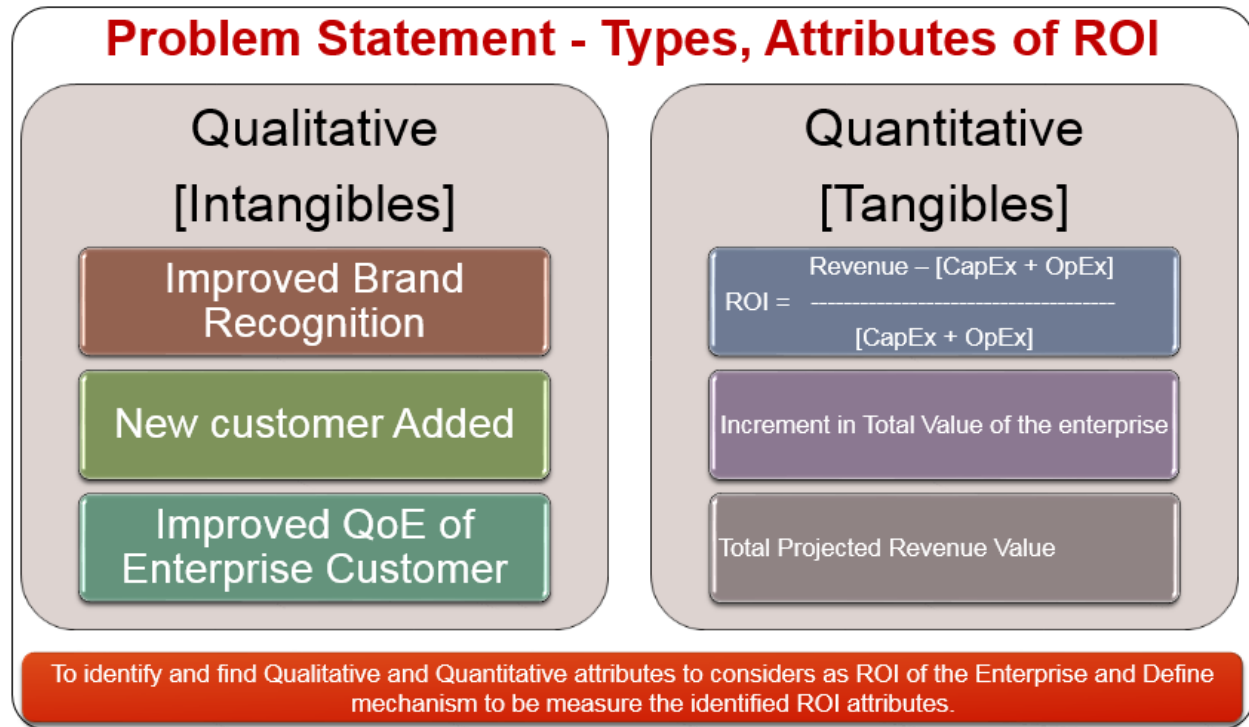
That means a network that allows more agility and faster time to innovation, better security, and greater operational efficiency and simplicity

Reliance Jio adoption of disruptive innovation

The Reliance Company commercially launched its services on 5 September 2016. Jio crossed 100 million subscribers at the end of February 2017. This is the fastest ramp-up by any mobile network operator anywhere in the world. Jio owns spectrum in 800 MHz and 1,800 MHz bands in 10 and 6 circles, respectively, of the total 22 circles in the country, and owns pan-India licensed 2,300 MHz spectrum. The spectrum is valid till 2035. The company has a network of more than 250,000 km of fiber optic cables in the country, over which it will be partnering with local cable operators to get broader connectivity for its broadband services. With its multi-service operator (MSO) licence. Jio offers its not only 4G broadband services but also provides data, network, instant messaging, live TV, movies on demand, news, streaming music, digital payments platform and free Wi-Fi hotspot services etc

Summary of Research Variables

ROI can be broadly classified as Qualitative and Quantitative attributes. Collaborative strategies play a critical role in improving both qualitative and Quantitative attributes.



SIGNIFICANCE OF THE STUDY

Disruptive Business Model Innovation is derived from adoption of disruptive technology. The adoption of Technologies Innovations is one the critical elements of Micro Business environment. This is a non-negotiable element and the corporate needs to define the strategies to adopt it.

1. In today's Digital and Hyperconnected world, the global economy is drastically impacted due to disruptive technology. Disruptive technology leads to Distributive Innovation and needs for disruptive business model innovation.
2. Operators are charging value added service to customers without their formal approval. This leads to poor QoE for customers and opting for other operators.

3. Strategic Leader needs integrated model to define their business strategies in current digital and hyper-connected world
4. The research study provides statistically and mathematically proven business model to formulate, execute and control their strategies for sustainable growth of ROI
5. Research Study provides various attributes of Collaboration and its impact on ROI optimization
6. Research Study promotes the strategies to “Collaborate” rather than “Compete” with all stakeholder
7. Research study provides the mechanism to classify the ICT-NI into various logical entities and identifies the bottleneck for adopting new ICT business scenario and maintains the customer QoE
8. Research study provides various approaches to optimize ROI of ICT-NI-CSP
9. Use Network Analytics tools for network capacity planning, integration of innovative equipment and optimized troubleshooting mechanisms.
10. Building the E2E ICT ecosystem and enabling ICT technology for common people to improve their health, education and protection from natural calamities.
11. Research study provides the benefits of maintaining Business Ethics, Compliance to Regularities and green environment on the ROI of Indian ICT-NI-CSP

STATEMENT OF THE PROBLEM

This paper analyzes the impact of disruptive technology on the ROI of select Indian ICT-NI-SP

1. In the current digital and hyper-connected world, the strategic leaders of ICT-NI providers are finding difficulties in improving YoY and QoQ growth of the ROI. The

continuous innovation of ICT-NI technologies requires high CAPEX and OPEX to upgrade and maintain their network infrastructure, consequently, strategic leaders need to define new strategies to maintain the continuous growth of ROI.

2. Various ICT analysts have projected only linear growth in ROI and exponential need of CAPEX and OPEX to maintain the highly reliable network infrastructure. Consequently, ICT-NI Strategic leader's need to find new market segments and build a complete ecosystem for viable business.
3. ICT technologies are still not common people technologies due lack of complete ICT ecosystem and adoption in improving living standard of rural areas.
4. There is a need for collaboration among various ICT business ecosystem stakeholders to reduce the economy of adopting ICT without impacting reliabilities and Quality of Experience of the common people.
5. 70-80% of the Indian economy depends on the primary and secondary industry sector. Consequently, Indian ICT-NI-CSP needs to collaborate to
 - a. Build content and terminal device for mass adoption of ICT and
 - b. Gets integrated into the next generation of digital and hyper-connected world economy.

OBJECTIVES

Following are the key objectives

1. To identifying key characteristics of digital businesses and expectations around agility, innovation, effectiveness, and data and customer centricity
2. To ascertain the potential benefits of using disruptive technologies
3. To identify the risk of integrating disruptive innovative in the Business Strategies
4. To identify risk migration strategies for inception on disruptive innovation
5. To identify the impact of Disruptive Innovation on E2E Business Ecosystem

RESEARCH METHODOLOGY

Two steps diagnostic method is used for the formulation and verification of new business model. In the First Step, Developing the Business Model based on Literatures Review analysis in the field of Business Strategies Management, ICT Business and Technology Ecosystem, and Destructive Innovation. The findings and Recommendation are derived based on Judgmental Analysis.

In the Second steps, the hypothesis is verified based on secondary data. The data is collected from various Webinars, Interviews of Strategic leaders, Corporate's Press release notes. These collected data are used to quantify on Linkert Scale for statistical correlation and regression analysis.

RESULTS & DISCUSSION

The business goal of any enterprise is to achieve higher ROI. The ROI is broadly classified in two factors – Short Term ROI and Long Term ROI. Short Term ROI targeted to Quarterly and Yearly ROI and Long Term ROI needs to be planned for two to five years based on Gartner's Technology Hype Cycle.

Adoption of disruptive technology in the disruptive business model innovation is mandatory for maintaining sustainable ROI.

The backbone of disruptive technology is Network Infrastructure. Legacy Mobile and Fixed Broadband Network does not meet end customer expectations and hence customers are reluctant to use digital platforms. Reliance Jio's, as a new business unit of Reliance Group adopted disruptive technology – 4G and provides new Mobile Broadband Infrastructure in the cost-effective business model.

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Reliance Jio Enterprise strategies evaluated based on proposed disruptive business model innovation. Following are key observation in defined component of business model

1. The business Intent – Generate Long Term ROI for providing Digital Platform based on 4G Mobile broadband network
2. Strategies Formulation - In addition to current business strategies formulation, Reliance Jio focuses on adopting Enterprise disruptive technologies - Social Network, Mobility, Analytics, Cloud and Cyber Security.
3. ICT Network Infrastructure Component
4. Network Analytics Component - The Reliance Jio network is running entirely on 4G - not "mostly 2G, sometimes 3G, and once-in-a-while 4G,". To access the network, we need a 4G compatible phone with VoLTE support. Reliance Retail's lineup of Lyf phones offer a low-cost option, starting from Rs. 2,999, though you can buy any phone that supports VoLTE and use it.
5. Business Analytics Component - Reliance Jio's provided current available services like data and voice at very low price and added new potential services which require reliable and high data rates.

FINDINGS

The key findings are

1. Disruptive innovation as a function of conflict between the entrant's and incumbent's business models within the organization. This leads to new business model innovation and entrepreneurship.

2. Disruptive Technology adoption in Business Strategies
3. While all the existing network providers are using a modified 2G/3G infrastructure to provide 4G in India, Jio has set up a Greenfield network (created from scratch) that offers higher bandwidth and faster speeds. The Jio network is also future-proof and capable of offering 5G and 6G connectivity as and when the technology materializes.
4. Affordability and quality are the only things that make a person want to switch their mobile network
5. Immediate revenue is of no concern - The Reliance Jio endeavour is a big bet on the future, and the company's present aim is to establish the ideal eco-system for when that future arrives.
6. Reliance Jio's free introducing offer creates a lot of radical and unexpected changes in consumer's behaviour and competitor's strategies.

RECOMMENDATIONS/SUGGESTIONS

Strategic Business leaders

Disruption Innovation requires high CapEx and expect High ROI on the Long-Term basis. The strategic leader needs to tradeoff between sustainable innovation and disruptive innovation for maintaining the current market segment.

Policy Makers

Governments have played a significant role in bringing many disruptive technologies to life. They not only provide incentives for technology development but also act as early buyers to speed adoption.

Consumer

Consumers accept the current services at a reduced price. Consumers are general reluctant to accept new services and are ready to send extra for proven services.

CONCLUSIONS

The result suggests that Disruptive Business Innovation directly impacts various components of ROI. Indian ICT-NI Service provider needs to formulate strategies to continuously adopt Disruptive Innovation for maintaining quarterly ROI targets and spinoff new Business Unit for Disruptive Product Portfolios to compete with the new or existing competitors.

LIMITATIONS

This paper analyzes disruptive innovation of Reliance Jio in the Network Infrastructure based on 4G and planned adoption of 5G based mobile broadband.

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