COMING FULL CIRCLE – DIGITAL DISRUPTION IN TELECOM MANAGED SERVICES INDUSTRY AND ITS IMPACT ON OFFSHORE OUTSOURCING BUSINESS MODEL

Abstract:

Technological advances in machine learning and artificial intelligence is disrupting traditional ways of working making way for more efficient and cost effective solutions. Telecom managed service industry is one such area where digital disruption may affect the offshore outsourcing industry and lead to evolution of new business models. This paper, through an exploratory study, discusses how such digital disruption may lead to companies reviewing their offshore managed services strategy and opting to insource network operations in future.

Keywords: B2B, Telecom Managed Services, Interpretive Research, Artificial Intelligence, Automations, Offshoring, Outsourcing

Author Names & Affiliation:

Santosh Kumar Pandey

(Doctoral Student, Marketing Department, Indian Institute of Management Lucknow, India)

Type of paper: Competitive

INTRODUCTION

Outsourcing and its advantages have been widely researched in the past and the advantages in terms of capital expense (CAPEX) as well as operational expense (OPEX) reduction which directly impacts the balance sheet of companies, is one of the prime reasons for its extensive acceptance by companies which are financially challenged (Lacity and Hirschheim, 1993; Loh and Venkatraman, 1992; McFarlan and Nolan, 1995; Willcocks et al., 1996; Earl, 1996; Sengupta and Zviran, 1997; Currie and Willcocks, 1998). Offshore outsourcing arrangements support organizations to make further savings in the operations of their system due to the advantages of cost arbitrage by offshoring the work to low cost countries (Bray, 2009) and has led to innovative business models for offshore outsourcing primarily in the software industry (Lewin and Couto, 2006; Couto et al., 2006; Couto et al. 2008). This concept has gained global acceptance due to its ability to not only address the rising cost in developed countries, but also poor performance due to skill shortage in some of these countries (Currie and Willcocks, 1998; Bailey et. al., 2002; Willcocks & Lacity, 2006). Telecom industry globally has been one sector which has extensively adopted the outsource/ offshore delivery model to reduce its operational cost as well as focus on its core business rather than network operation issues. The operational expense (OPEX) of telecom operators globally was about 1,300 BUSD (IDC, 2018) of which network related expenses constitute about 22% inclusive of 7% (about 91 BUSD) addressable market for manages services (Analysis Mason, 2018). Not all operators follow the managed services concept and the global telecom managed services revenue was about 12 BUSD (which is 13% of the addressable market) in 2018 and projected to reach 25 BUSD by the year 2024 (TechSci Research, 2018).

With new developments in technology, the industry is undergoing a digital transformation involving use of smart technologies, big data, cloud computing, IoT and use of machine learning (ML) and artificial intelligence (AI) to drive the new industrial revolution - Industry 4.0 (Almada-Lobo, 2016) while improving operational efficiency and productivity rates, customizing products, and improving time to market responses (Berman, 2012; Yeo et. al., 2017) along with the firm's knowledge about customer needs (Porter & Heppelmann, 2015). Activities which earlier required manual efforts, can now be automated, thereby reducing the resources required for delivery. Outsource/ offshore vendors, driven by cost and efficient performances, are also trying to automate most of the repetitive and standard tasks, reducing human intervention to a minimum in this process. This has drastically reduced the number of resources required for delivery. It is yet to be seen if the cost-benefit advantage which firms earlier had with the outsource model will still be valid once most of the delivery is automated and resource requirement reduced. If it is still valid due to the complexity of network operations caused by new developments and telecom operators continue to outsource their network operations, the growth forecast for managed services market (from 12 BUSD in 2018 to 25 BUSD in 2024) will make sense. However, if telecom companies decide to start insourcing the network operations, the telecom managed services industry will further lose its share. In this scenario, there is a need to explore how the relationship between telecom vendors and operators will evolve to sustain network operations.

This research attempts to bridge the above gap by discussing digital disruption caused by AI and ML technologies in the telecom managed services industry through an exploratory study conducted with executives from the telecom sector. The study contributes theoretically to the

concept of networked business models where both buyers and sellers are involved in shaping and performance of the business models and interaction with network partners and technologies may not be directly related to business exchange between the buyer and seller of the offering (Hakansson et. al., 2004; Palo & Tahtinen, 2011; Bankvall et.al., 2013).

LITERATURE REVIEW

The outsourcing/ offshoring needs of an organization generally fall into one or more of the four themes – onsite/ offshore staffing, maintenance & support, system design & product development and finally consulting & strategic planning (Weerakkody & Irani, 2010). The trend has been quite prominent in the IT and Telecom sector where prime drivers to offshore have been reduced cost of operations and competence. Though there are advantages to offshore, the inherent risk like security, privacy, data theft and other issues which come along with the outsource/ offshore business models has always been an area of concern (Weerakkody et. al., 2003; Kumar & Wilson, 2009). In most of the cases, a detailed cost-benefit analysis of the proposed business model is carried out by the organization prior to taking a firm decision to outsource/ offshore.

While offshoring is a known strategy by global companies to optimize cost, near shoring is another concept wherein organizations offshore to nearby countries where wages are comparatively lower, as compared to off-shoring in a country which is in a complete different time zone and has a different cultural background (Kvedaraviciene, 2008). However, as economy develops, the wage inequality between nearshore and far-offshoring centers usually rises leading to organizations preferring to move to the far off locations irrespective of the near-shore advantages (Morita, 2010). This highlights the dynamic nature of offshoring strategy. Any such relocation of the offshore center, will lead to rebuilding relationships and processes in the new delivery location hence adding to both tangible and intangible costs of operations. Espana (2013) suggests considering the intangible costs as well while strategizing offshore delivery and stresses on the need to look beyond wage differentials to incorporate a time dimension (short term vs long term gains) while making an offshore business decision. These discussions indicate that cost alone should not be the driving force to off-shore or out source delivery. Technologies and situation change with time and it is necessary to have a long term vision while making such strategic decisions.

The buyer-seller relationship has changed due to new technologies and its fit to meet strategic needs of B2C/ B2B markets has been explored in the past (Obal & Lancioni, 2013). While B2B firms have started adopting digital marketing tools like social media (Wang & Kim, 2017), robotics, big data and cloud technologies also have a high adoption rate in B2B (Bettiol et. al., 2017). The telecom managed services industry is primarily a B2B relationship between the communication service provider (CSP) and the equipment vendors (OEM) who have extended their portfolio to include services related to projects, planning and operations of telecom networks. While this industry has grown globally in the last two decades wherein increasingly CSPs have started outsourcing the network operations to OEMs, the impact of new technologies in these relationships and how it may affect future business relationships and managed services business models is yet to be explored.

Ultimate role of business model for any innovation is to ensure that the technological core of the innovation delivers value to customer (Chesbrough & Rosenbloom, 2002). Since customers continuously look for new solutions which enhance value as their requirements evolve over time, there is a need to develop and refine the existing business model to both internally align as well as adapt to the disruptive changes caused by technical innovations (Demil & Lecocq, 2010; Freytag & Clarke, 2014). In the context of telecom managed services, this would apply to both CSP and OEM once AI and ML technologies start delivering to their full potential.

RESEARCH QUESTION

Building upon the above concepts the primary research questions addressed in this research are (1) What are the prime drivers to outsource/ offshore telecom managed services? (2) Is AI/ ML perceived as a key enabler to improve managed services delivery? (3) Will AI/ ML affect the current managed services business model?

RESEARCH DESIGN & METHODOLOGY

The outsourcing industry has both social and organizational impact as discussed earlier. Interpretive research (Klein & Myers, 1999) has helped researchers to gain insights into organizational processes along with understanding human thought process and actions in a social and organizational context. Interpretive research involves gaining knowledge through social constructions using various artefacts during the research process. Klein & Myers (1999) suggest seven set of principles to help researchers improve the quality of their evaluations. Since the future of managed services with use of automation and artificial intelligence is yet to be explored, using interpretive research while adopting the seven principles was considered to better understand the impact of these factors on both the OEMs and the CSPs.

The research used in-depth interview method with key stakeholders from both communication service provider (CSP) team which has offshored its network operations and telecom OEMs which are the vendors for supply of telecom equipment as well as its operations to the CSP. Purposive sampling technique was used to identify sample respondents who were relevant to the research question (Lee & Lings, 2008). A sample size of ten senior executives was identified – three from the top telecom OEMs involved in managed services and seven CSPs ranging from operators across Asia, Africa, Europe & Australia who have offshored their network operations to OEMs as well as those who are still maintaining on their own. Purposive sampling technique was used to identify executives from marketing, operations, and purchase teams of these organizations to get a holistic perspective on their understanding and expectations from these new technologies. The primary purpose of choosing operators from different regions was to confirm if the drivers to offshore/ outsource telecom operations were the same across different countries and to avoid any country bias in interpretation of the results. A structured questionnaire was prepared to understand the current network operations strategy and future expectations based on the recent developments in machine learning and artificial intelligence

technologies. Each interview lasted for about an hour. The feedback received from participants was then analyzed adopting an interpretive research methodology (Klein & Myers, 1999) to construe CSP & OEM perceptions of the prime drivers of an outsource/ offshore managed services business model vis-à-vis an in-house operations model in the light of recent advances in ML and AI technologies.

SUMMARY OF FINDINGS

Discussions with CSPs who had outsourced/ offshored their operations revealed that the top three reasons for outsourcing their operations were – one, reduced cost of operations (both direct and indirect), two, improved network quality and three, better competence availability with the telecom OEMs. The main reasons for CSPs not to outsource their operations were – one, lack of trust on third party to safeguard CSPs interest, two, security and privacy concerns for their subscribers and three, social aspects as they saw themselves as employment generators for the local market. Irrespective of whether the operations were outsourced or not, all CSPs agreed that the networks were getting complex due to multiple technologies, subscribers have become more demanding in terms of the quality of services and average revenue per user (ARPU) is declining due to competition from other OTT platforms. There is an increased dependence on automations and artificial intelligence to improve customer experience and address these challenges.

Discussions with OEMs around the value proposition they brought while handling operations for CSPs suggested cost as the primary factor, followed by better technical competence and processes. Concern for data security and regulatory issues was one of the main reasons why some of the CSPs were willing to outsource but not offshore their operations. However, the major concern they faced in the current scenario was the need to automate not only due to growing network complexity because of multiple technologies, but also due to the constant pressure from CSPs to reduce price and internal pressure to improve margins on the delivery. To this extent, the OEMs had already automated few operational processes in the past and were now driving automations and predictive analytics, using machine learning and artificial intelligence, to further reduce the cost of operations.

CONCEPTUAL MODEL FOR TELECOM OPERATIONS IN FUTURE

Drawing from the above discussions we infer that both CSPs and OEMs are looking forward to automations in the managed services area to, one, handle the complexity of growing network and two, to reduce the cost of operations. This leads to the first proposition -

Proposition 1 *– Growing complexity of telecom networks and demand to reduce operations cost will lead to managed services solution relying primarily on automations and artificial intelligence for efficient operations*

With automations in place, human intervention for operations is expected to reduce. This implies that the number of resources required to handle operations and the inherent cost of these resources will drastically reduce. It is hence proposed that -

Proposition 2 *– Automations and AI in telecom operations will lead to reduction in human resources required to maintain the telecom network*

Though data security of its subscribers and regulatory compliance has been the highest priority for CSPs, one of the primary reason for outsourcing/ offshoring network operations by them was the cost of operations. Once the number of resources required to maintain telecom networks is minimal, there is a possibility that CSPs might want to re-assess their managed services strategy leading to the next set of proposition as follows -

Proposition 3 *– Automation & AI will lead to CSPs reevaluating their telecom Managed Services outsource/ Offshore strategy*

Proposition 4 *– CSPs may prefer to insource network operations in future due to inherent advantages of digital disruption caused by automation and AI in the telecom industry*

Digital disruption through automations & AI may change the telecom managed services landscape in future due to diminishing value of existing outsource/ offshore business model drivers. It is also expected to offset a new relationship network (Gustafsson et. al., 2005; Gronroos, 1996, 2007 ; Gummesson, 2002) where telecom & IT OEMs, due to their expertise in telecom operations and software solutions, will assume the role of automation & AI enablers for the CSPs. It is hence proposed that -

Proposition 5 *– OEMs will drive automations and AI in telecom operations to meet customer expectations and improve efficiency*

The workforce in OEMs must develop new skills directed towards identifying operational activities which can be automated and then automating them. OEMs which are already struggling with margins in the overall managed services business case may be able to establish a fresh line of revenue generation through new tools deployment while improving the overall margin. It may also be more relevant for OEMs to exit the managed services provider business and focus on evolving themselves as managed services tools vendor. They would still work with the CSPs, primarily as the automation tools supplier along with being responsible for the maintenance of these tools. From data privacy/ telecom regulatory perspective, the risk associated with outsourcing/ offshoring operational tools maintenance is far less as compared to outsourcing/ offshoring core telecom operations. These discussion lead to the next set of propositions as follows -

Proposition 6 *– OEMs may reevaluate their managed services strategy and move from the status of a managed services provider to managed services tools provider*

The life cycle of managed services in telecom industry is represented in figure – 1 wherein Phase - 1 depicts the initial phase when OEMs were pure equipment suppliers and all activities including network & capacity planning, equipment installation and operations were carried out in-house by the CSPs. Over the last decade, as CSPs faced cost pressure, they started adopting the outsource/ offshore managed services model, in line with the IT industry where outsourcing had started much earlier. The extent of outsourcing varied from one CSP to other and also from one region to another. While equipment installation services were universally accepted to be outsourced by CSPs, some CSPs still preferred to retain the network operations. This represents Phase – 2 of the managed services evolution cycle wherein OEMs evolved as the managed services partner of the CSPs.

The current scenario is depicted in Phase – 3 where network complexity has increased along with demand to bring in further efficiencies in operations leading to a dependence on automated operations through machine learning and artificial intelligence. AI and ML technologies are disrupting the way managed services operations were carried out until now and this disruption appears to change the way network operations will be carried out in future. OEMs are undergoing a transformation as they automate most of the operational processes leading to a situation where OEMs may become just automation vendors and network operations will be insourced by the CSPs. This will lead to evolution of a new business model between the CSPs and OEMs, which will focus more on the maintenance of tools to operate CSP network.

Those CSPs which did not adopt managed services model for their operations and continued to run in-house operations through all the phases, will still depend on OEMs to automate their operations, thus opening new business opportunity for the OEMs wherein they become just supplier of the technology. The industry may evolve in such a way that CSPs business model for network operations will come a full circle, starting from Phase 1 where in-house operations were carried out, passing through the outsource/ offshore model wherein the OEMs started managing operations, and then back to in-house operations where CSPs manage network operations while OEMs supply and maintain the enhanced operational tools. The business model in such a scenario for both OEMs & CSPs will evolve gradually to adjust to the market requirement.

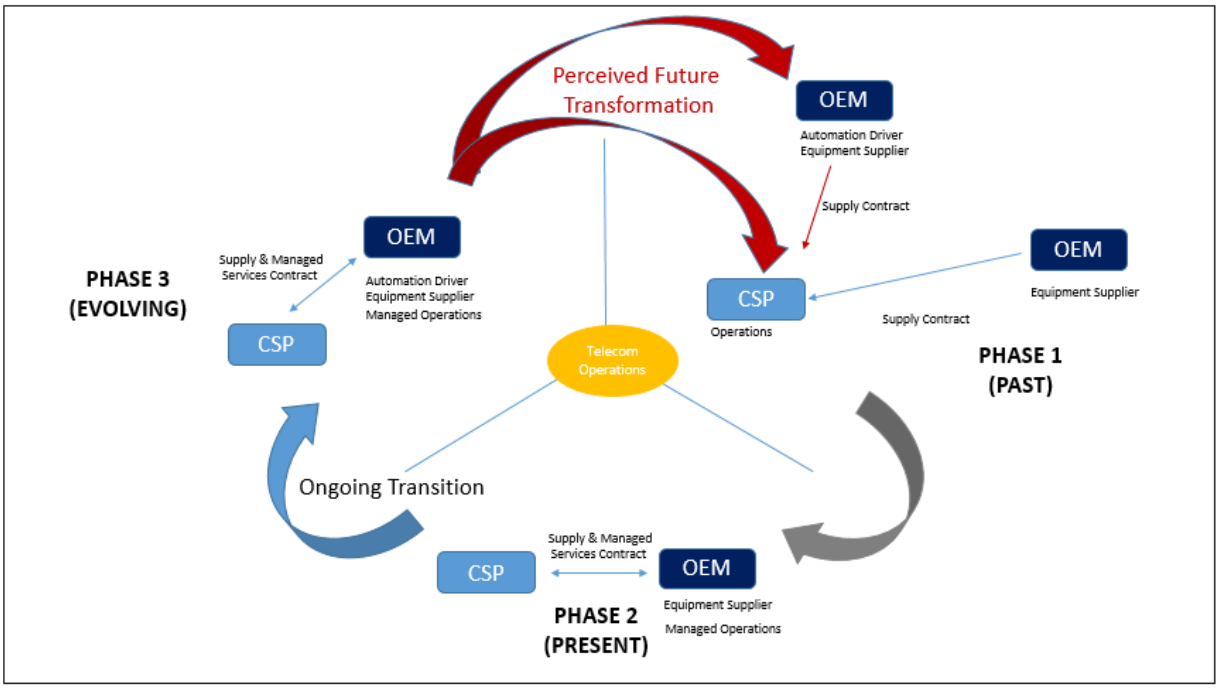

Figure – 1 : Telecom Managed Services Life Cycle

KEY CONTRIBUTION, LIMITATIONS AND FUTURE RESEARCH DIRECTION

The study uses interpretive research methodology (Klein & Myers, 1999) to elicit how digital disruption will lead to telecom managed services concept coming a full circle, from in-house operations to outsource/ offshore model and finally back to in-house operations. It also shows how B2B relationships continuously evolve with changing business needs. Marketers can benefit by drawing insight on the evolving scenario and customer expectations to innovate their business models for future. The research is based on discussions with representatives of both OEMs as well as CSPs and hence may be influenced by individual biases while interpreting the data. Further, automations in telecom operations is still at nascent stage and its effectiveness to reduce human intervention in operations is yet to be ascertained. The research assumes that efforts being done by OEMs to automate operations will bring desired results leading to radical reduction in the number of resources required for operations. An empirical study in future to capture actual efficiencies brought in by automations will help in ascertaining validity of the proposed model. The research focusses on automations in telecom managed services industry. Future research may also focus on studying the impact of automations and AI in similar services industry like IT.

REFERENCES

- Almada-Lobo, F., 2016. The Industry 4.0 revolution and the future of manufacturing execution systems (MES). Journal of innovation management, 3(4), pp.16-21.

- Bailey, W., Masson, R. and Raeside, R., 2002. Outsourcing in Edinburgh and the Lothians. European Journal of Purchasing & Supply Management, 8(2), pp.83-95.

- Bankvall, L., Dubois, A., & Lind, F., 2013. Business models: Change of scope and scope of change. In 29th annual IMP Conference, Georgia State University, Atlanta.

- Berman, S.J., 2012. Digital transformation: opportunities to create new business models. Strategy & Leadership, 40(2), pp.16-24.

- Bettiol, M., Capestro, M. and Di Maria, E., 2017. Industry 4.0: the strategic role of marketing.

- Bray, T.M., 2009. Confronting the shadow education system: What government policies for what private tutoring?. United Nations Educational, Scientific and Cultural Organization; International Institute for Educational Planning.

- Chesbrough, H. and Rosenbloom, R.S., 2002. The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. Industrial and corporate change, 11(3), pp.529-555.

- Couto, Vinay, Mahadeva Mani, Arie Y. Lewin, and Carine Peeters. "The globalization of white-collar work." Duke University and Booz Allen Hamilton (Durham, NC: Duke CIBER) (2006).

- Couto, V., Mani, M., Sehgal, V., Lewin, A.Y., Manning, S. and Russell, J.W., 2008. Offshoring 2.0: contracting knowledge and innovation to expand global capabilities. Duke University CIBER/Booz Allen Hamilton Report), Durham, NC: Duke CIBER.

- Currie, W.L. and Willcocks, L.P., 1998. Analysing four types of IT sourcing decisions in the context of scale, client/supplier interdependency and risk mitigation. Information Systems Journal, 8(2), pp.119-143.

- Demil, B. and Lecocq, X., 2010. Business model evolution: in search of dynamic consistency. Long range planning, 43(2-3), pp.227-246.

- Earl, M.J., 1996. The risks of outsourcing IT. Sloan management review, 37(3), pp.26-33.

- España, J., 2013. The real costs of offshoring. Journal of Business and Behavioral Sciences, 25(2), p.40.

- Freytag, P.V. and Clarke, A.H., 2014. Changing Business Models—What Is Next?. In The 30th Annual Industrial Marketing and Purchasing Conference. Industrial Marketing and Purchasing Group.

- Grönroos, C. (1996). Relationship marketing: strategic and tactical implications. Management decision, 34(3), 5-14.

- Grönroos, C., 2007. Service management and marketing: customer management in service competition. John Wiley & Sons

- Gummesson, E., 2002. Relationship marketing in the new economy. Journal of relationship marketing, 1(1), pp.37-57.

- Gustafsson, A., Johnson, M.D. and Roos, I., 2005. The effects of customer satisfaction, relationship commitment dimensions, and triggers on customer retention. Journal of Marketing, 69(4), pp.210-218.

- Håkansson, H., Harrison, D. and Waluszewski, A., 2004. Rethinking marketing: Developing a New Understanding of Markets, Chichester: John Wiley & Sons.

- Klein, H.K. and Myers, M.D., 1999. A set of principles for conducting and evaluating interpretive field studies in information systems. MIS quarterly, 23(1), pp.67-94.

- Kumar, S. and Wilson, J., 2009. A manufacturing decision framework for minimizing inventory costs of a configurable off-shored product using postponement. International Journal of Production Research, 47(1), pp.143-162.

- Kvedaravičienė, G., 2008. DEVELOPMENT OF NEARSHORING IN GLOBAL OUTSOURCING MARKET. Economics & Management.

- Lacity, M.C. and Hirschheim, R.A., 1993. Information systems outsourcing; myths, metaphors, and realities. John Wiley & Sons, Inc..

- Lee, N. and Lings, I., 2008. Doing business research: a guide to theory and practice. Sage.

- Lewin, A.Y. and Couto, V., 2006. Next generation offshoring: The globalization of innovation. Survey report. Duke Center for International Business Education and Research (CIBER), and Booz, Allen and Hamilton, Durham, NC.

- Loh, L. and Venkatraman, N., 1992. Determinants of information technology outsourcing: a cross-sectional analysis. Journal of management information systems, 9(1), pp.7-24.

- McFarlan, F.W. and Nolan, R.L., 1995. How to manage an IT outsourcing alliance. Sloan management review, 36(2), pp.9-24.

- Morita, T., 2010. Dynamic analysis of outsourcing. Journal of Economics, 100(2), pp.117-140.

- Obal, M. and Lancioni, R.A., 2013. Maximizing buyer–supplier relationships in the Digital Era: Concept and research agenda. Industrial Marketing Management, 42(6), pp.851-854.

- Palo, T. and Tähtinen, J., 2011. A network perspective on business models for emerging technology-based services. Journal of Business & Industrial Marketing, 26(5), pp.377-388.

- Porter, M.E. and Heppelmann, J.E., 2015. How smart, connected products are transforming companies. Harvard Business Review, 93(10), pp.96-114.

- Sengupta, K. and Zviran, M., 1997. Measuring user satisfaction in an outsourcing environment. IEEE transactions on Engineering Management, 44(4), pp.414-421.

- Wang, Z. and Kim, H.G., 2017. Can social media marketing improve customer relationship capabilities and firm performance? Dynamic capability perspective. Journal of Interactive Marketing, 39, pp.15-26.

- Weerakkody, V., Currie, W.L. and Ekanayake, Y., 2003. Re-engineering business processes through application service providers: challenges, issues and complexities. Business Process Management Journal, 9(6), pp.776-794.

- Weerakkody, V. and Irani, Z., 2010. A value and risk analysis of offshore outsourcing business models: an exploratory study. International Journal of Production Research, 48(2), pp.613-634.

- Willcocks, L., Fitzgerald, G. and Lacity, M., 1996. To outsource IT or not?: Recent research on economics and evaluation practice. European Journal of Information Systems, 5(3), pp.143-160.

- Willcocks, L. and Lacity, M., 2006. Global sourcing of business and IT services. Springer.

- Yeo, N.C.Y., Pepin, H. and Yang, S.S., 2017. Revolutionizing technology adoption for the remanufacturing industry. Procedia CIRP, 61, pp.17-21.
