Monetising disruptive technologies in the telecommunications industry

Faaez Ahsan Burney
1238975

A research report submitted to the Faculty of Commerce, Law and Management, University of Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2018
ABSTRACT

The telecommunications industry has been plagued by low and declining revenue growth for the past few years. They have been disrupted by Over-The-Top (OTT) service providers who have taken a huge chunk off their revenues and offered unique services on top of that.

This research aims to make the case of digital transformation not just within the Communication Service Providers (CSPs), but also make them enablers of the transformation of the entire eco-system.

CSPs have to leverage their own strengths and acquire more if they are to succeed and function as Digital Service Providers of DSP.
DECLARATION

I, Faaez Ahsan Burney, declare that this Research Report is my work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Faaez Ahsan Burney

Signed at the Wits Business School

On the 30th Day of March 2018
# Student details

<table>
<thead>
<tr>
<th>Student Number: 1238975</th>
<th>Student Name: Faaez Ahsan Burney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email Address: <a href="mailto:fburney@gmail.com">fburney@gmail.com</a></td>
<td></td>
</tr>
</tbody>
</table>

## Assignment details

<table>
<thead>
<tr>
<th>Course Code: BUSA7306</th>
<th>Course Name: Research Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment No. 2</td>
<td>Due Date: 30th March 2018</td>
</tr>
</tbody>
</table>

Assignment topic (as given in the course pack): Research Proposal

## Student Declaration

I am aware that plagiarism (the use of someone else’s work without their permission and/or without adequately acknowledging the original source) is wrong and is a violation of both the General Rules for Student Conduct and the Plagiarism Policy of the University of the Witwatersrand.

I am aware that it is wrong and is a violation of both the General Rules for Student Conduct and the rules of the Wits Business School for a student to submit for a course, unit, or programme of study, without the written approval of the course instructor or the programme director, all or a substantial portion of any work for which credit has previously been obtained by the student or which has been or is being submitted by the student in another course, unit, or programme of study in the University or elsewhere.

I confirm that this assignment my own unaided work except where I have explicitly indicated otherwise.

I confirm that this assignment has not been nor will be submitted in whole or in substantial part in another course, unit, or programme of study in the University or elsewhere without the written approval of the course or unit instructor or the programme coordinator.

I confirm that I have followed the required conventions in referencing the words and ideas of others in this assignment.

I confirm that I understand that this assignment may at any time be submitted to an electronic plagiarism detection system, and may be stored electronically for that purpose.

I confirm that I have received a copy of the University's Plagiarism Policy S2003/351B and a copy of the General Rules for Student Conduct and Code of Conduct C2010/27.

I confirm that I understand that any and all applicable policies, procedures, and rules of the University and of the School may be applied if there is a belief that this assignment is not my own new and unaided work, or that I have failed to follow the required conventions in referencing the words and ideas of others, and I understand that application of the policies, procedures, and rules may lead to the University taking disciplinary action against me.

Note: The attachment of this statement on any electronically submitted assignments will be deemed to have the same authority as a signed statement.

Student Signature: [Signature]  
Date: 30th March 2018
ACKNOWLEDGEMENTS

I would like to thank my wife, Sana, without whose ultimate support this MBA programme would have impossible to complete. The research has been challenging due to the fast-changing nature of the industry, but my gratitude towards all the respondents who took time to answer my questions numerous times is immeasurable.

Lastly and most importantly, I want to express my deepest appreciation to Professor Anton Roodt, who is not only my Supervisor, but also a mentor. It would not have been possible without his encouragement and guidance.
TABLE OF CONTENTS

ABSTRACT .......................................................................................................................... ii
DECLARATION ................................................................................................................... iii
ACKNOWLEDGEMENTS ..................................................................................................... iv
LIST OF FIGURES ............................................................................................................. vii

CHAPTER 1. INTRODUCTION ......................................................................................... 9

1.1 PURPOSE OF THE STUDY ...................................................................................... 9
1.2 CONTEXT OF THE STUDY .................................................................................... 12
1.3 PROBLEM STATEMENT ......................................................................................... 15
   1.3.1 Sub-Problem 1 ................................................................................................. 15
   1.3.2 Sub-Problem 2 ................................................................................................. 15
1.4 SIGNIFICANCE OF THE STUDY .......................................................................... 16
1.5 DELIMITATIONS OF THE STUDY ........................................................................ 17
1.6 DEFINITION OF TERMS ......................................................................................... 18

CHAPTER 2. LITERATURE REVIEW ............................................................................. 19

2.1 INTRODUCTION ...................................................................................................... 19
2.2 BACKGROUND ....................................................................................................... 19
2.3 THE COMMUNICATION SERVICE PROVIDER ...................................................... 21
2.4 FAILURE TO RECOGNISE NEW ROLES IN THE EVOLVING INDUSTRY
   ECOSYSTEMS ............................................................................................................. 22
   2.4.1 NEW BATTLEGROUNDS ................................................................................... 22
   2.4.2 ORGANISATION OF THE FUTURE ................................................................ 24
2.5 CONNECTIVITY AND DRIVING EFFICIENCY WHILE IMPORTANT IS NOT THE KEY
   TO PROFITABILITY ................................................................................................. 24
   2.5.1 B2B COLLABORATION IS NOT A SALES PITCH ........................................... 24
   2.5.2 ACQUIRING NEW STRENGTHS ..................................................................... 26
2.6 CONCLUSION ......................................................................................................... 28
   2.6.1 PROPOSITION 1: ............................................................................................. 28
   2.6.2 PROPOSITION 2: ............................................................................................. 28

CHAPTER 3. RESEARCH METHODOLOGY .................................................................... 29

3.1 INTRODUCTION ..................................................................................................... 29
3.2 RESEARCH DESIGN .............................................................................................. 30
3.3 RESPONDENT OVERVIEW .................................................................................. 30
3.4 RESEARCH INSTRUMENT ...................................................................................... 32
CHAPTER 4. PRESENTATION OF THE RESULTS .................. 35

4.1 INTRODUCTION ................................................................. 35
4.2 DISTRIBUTION OF EXECUTIVES INTERVIEWED .................. 36
4.3 RESPONSES TO INTERVIEW QUESTIONS .............................. 39
  4.3.1 CHALLENGES FACED BY YOUR ORGANISATION FROM EMERGING PLAYERS .......... 39
  4.3.2 DO THE SAME RULES AND REGULATIONS APPLY TO THE NEW CHALLENGERS? .......... 41
  4.3.3 HOW IS YOUR ORGANISATION DIFFERENTIATING ITSELF FROM COMPETITORS? .......... 43
  4.3.4 ARE ANY NEW AVENUES BEING EXPLORED AS PART OF THE SHORT, MEDIUM AND LONG-TERM STRATEGIES? .............................................................. 45

CHAPTER 5. DISCUSSION OF THE RESULTS ......................... 48

5.1 INTRODUCTION ................................................................. 48
5.2 ANALYSIS OF CHALLENGES FACED BY CSPS ....................... 49
5.3 ANALYSIS OF RULES AND REGULATIONS FOR CHALLENGERS .......... 50
5.4 ANALYSIS OF DIFFERENTIATING FACTORS OF CSPS .................. 52
5.5 ANALYSIS OF SHORT, MEDIUM AND LONG-TERM STRATEGIES .......... 54

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS .......... 57

6.1 INTRODUCTION ................................................................. 57
6.2 CONCLUSION ........................................................................ 58
6.3 RECOMMENDATIONS .......................................................... 58

REFERENCES .............................................................................. 63

APPENDIX A .............................................................................. 68

INTERVIEW TIMELINE ............................................................... 68

APPENDIX B .............................................................................. 69
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Google Loon Project (Courtesy of Google)</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Facebook Internet Drone (Courtesy of Facebook)</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>IoT Value Chain (Consumer) – (Agarwal, 2016)</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Who Leads IoT – (Agarwal, 2016)</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>IoT Industrial Value Chain – (DestinHaus, 2015)</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Defining the IoT Battlegrounds (Courtesy of Bain &amp; Co)</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>SME Challenges (Courtesy of Amdocs)</td>
<td>26</td>
</tr>
<tr>
<td>8</td>
<td>ARM Acquired by Softbank (Courtesy <a href="http://www.telecoms.com">www.telecoms.com</a>)</td>
<td>27</td>
</tr>
<tr>
<td>9</td>
<td>Executives Interviewed by Region</td>
<td>37</td>
</tr>
<tr>
<td>10</td>
<td>Executives Interviewed by Level</td>
<td>37</td>
</tr>
<tr>
<td>11</td>
<td>Executives Interviewed by Domain</td>
<td>38</td>
</tr>
<tr>
<td>12</td>
<td>Perceived Challengers by CSPs</td>
<td>39</td>
</tr>
<tr>
<td>13</td>
<td>SMS Past Its Prime (Statista, 2017)</td>
<td>42</td>
</tr>
<tr>
<td>14</td>
<td>Playing by the same rules?</td>
<td>43</td>
</tr>
<tr>
<td>15</td>
<td>Differentiating Factors</td>
<td>44</td>
</tr>
<tr>
<td>16</td>
<td>Short Term Focus Areas</td>
<td>45</td>
</tr>
<tr>
<td>17</td>
<td>Medium Term Focus Areas</td>
<td>46</td>
</tr>
<tr>
<td>18</td>
<td>Long Term Focus Areas</td>
<td>47</td>
</tr>
<tr>
<td>19</td>
<td>Legendary Start-Ups (Famous Unicorns - CB Insights 2015)</td>
<td>51</td>
</tr>
</tbody>
</table>
Figure 20 – Survival (Darwin's theory of survival of the fittest, 1809) ...............52

Figure 21 - Smart Home Market (CB Insights, 2016).................................53

Figure 22 - 5G Value Chain (Ericsson, 2017)...........................................55

Figure 23 - EDGE Strategy (Lewis & McKone, 2016).................................59

Figure 24 - High Impact & Probability Scenarios .........................................59
CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to explore new revenue streams for telecommunication operators to reduce their reliance on the core businesses of voice and data services. This was done by developing a base framework which a majority of CSPs can rely upon to look into avenues that compliment their current business offering.

Latest strategic approaches were applied to come up with new ideas that can help the CSPs to look beyond their traditional business models.

The industry has been playing catch-up to technology over the past few years, and the introduction of over the top services (OTT) has further added to the mix of complications for the telecommunication operators who rely to a large extent on voice and data revenues. While the emphasis on driving efficiency is more critical than ever, many telecommunication operators are also looking at new opportunities in a rapidly expanding digital eco-system as they look to satisfy new customer demands (Ernest and Young, 2015).

The aim here is to not only enable the telecommunications industry to embrace technology and utilise their vast infrastructure, which serves as the backbone of communication, for adding more diverse services, but to drive the next technological revolution and being able to profit from it. The telecommunications industry is finely poised to capitalise on its position and benefit by being at the forefront of technology, but has been lagging behind in terms of innovation. This lack of innovation has given space to over the top (OTT) services to carve out a niche market for them. Only in 2015, the OTT services gained 10% of global operator voice minutes (Ernest and Young, 2015).

While some telecommunication operators are lobbying the regulators to ban or regulate these OTT services, they are essentially turning a blind eye to their own shortcomings. The government regulations may work for a few years in some
countries but in the long run, this strategy is bound to fail as the companies that are creatively investing in these services will come up with new ways of exploiting this space. For example, the Google Loon project and Facebook's internet.org is looking at providing high-speed internet using balloons and solar drones respectively, from the stratosphere to large stretches of densely populated areas (Figures 1 and 2). Instead of trying to circumvent these methods, the telecommunications operators need to adapt quickly.

Figure 1 - Google Loon Project (Courtesy of Google)
Some of the revenue streams that we explore as a part of this research include the internet of things, more commonly referred to as IoT, big data analytics for targeted marketing, mobile finance, etc.

While these technologies have been around for a while, the industry has not been able to monetise them and offer value added services that generate significant revenues and hence, has not been able to diversify from legacy voice and data services models. The stated reason is that they have not been considered as an integral part of the strategy in these organisations. More often than not, the telecommunications industry and its regulators has been stubborn in the sense that these technologies have been considered as fringe elements not worthy enough to be allocated bigger budget allocations.

It is about time that this mentality is changed and more focus given to new sectors which can lay the foundation of future growth for the telecommunications industry.
1.2 Context of the study

Cisco estimates the IoT market alone to be worth $19 trillion by the year 2020 (Capgemini Consulting, 2015). Ericsson estimates that there will be 50 billion connected devices in the world by 2020 (Cisco & ITU, 2015). Deloitte, in the same study, is quoted as saying that the IoT services market will be worth $70 billion in 2015 alone (Cisco & ITU, 2015). ABI research estimates that IoT apps, analytics and services are growing at a staggering rate of 40-50% annually (Cisco & ITU, 2015).

The figures described above are obtained from a paper published by the ITU (the United Nation’s specialised agency for information and communication technologies) in conjunction with Cisco and presented at the UN Broadband Commission for sustainable development. The applications of these systems can be infinite, ranging from healthcare, agriculture, energy, transportation, industrial, etc.

Every industry in the world can be a playground for the application and deployment of such technologies which has huge potential for the service providers and organisations who offer them.

Telecommunication operators are strategically placed to be the drivers of this technological revolution. They need not only provide the data platform but be involved in the development of the ecosystems and reposition themselves as IoT and data analytics service providers across the world. These services are not always data hungry and hence the traditional models of billing based on the volume of data transferred will not benefit the telecommunications operators. They will need to improvise and compete with companies that are already monetising this connectively by developing innovative solutions to solve everyday problems or adding value to the lives of their customers.
This value chain is not cast in stone, and if the tech industry is anything to go by, it never will be. Looking at this value diagram, one can quickly understand that connectivity is one of the bedrocks of the whole ecosystem, but the following figure (Figure 4) illustrates how far it is lagging behind in terms of actually generating revenue from it.

The telecommunications industry does not need to be antagonistic towards the OTT providers because these are not specific to any particular industry. In a world where platforms are going to reign supreme (Malecki & Moriset, 2007) in a vast array of industries telecommunications was just a start. These platforms have the capability of disrupting many other industries. What will bode well for the telecommunications industry is to come up with a model which also enables it to collaborate while competing on certain aspects. There is no clear distinction between various industries and it provides the opportunity to partner in previously hard to imagine industries.
How can an industry which is so pivotal to the existence of this ecosystem be so far behind in generating value from it as a business?

IoT is considered as the biggest opportunity since the invention of the internet and the very service providers that lay the networks on which the entire ecosystem operates, do not seem to benefit from it. The solution to this dilemma lies in the adaption of the business models. IoT is changing the business models and the service providers seem stuck on the legacy models which were introduced in the late 20th century. Technology and innovation has progressed exponentially since then, maybe even more than it did so in the entire 20th century, and the traditional business models are coming under strain.

Companies like Google, Facebook, Microsoft, etc. have now blurred the lines between different tech industries. They are now offering very different kinds of services, ranging from communication to data analytics and advertisements, etc. AirBnB has caused traditional hotels concern and Uber has all but destroyed the taxi industry in numerous countries where it operates.
The same thing will happen to the telecommunication industry if they do not restructure their strategic priorities. The applications of IoT ecosystems are enormous from both a consumer and industrial point of view and new ways of thinking are required in order to develop and deploy these platforms.

1.3 Problem statement

The main problem statement that forms part of this research is how do we enable the CSPs to profit from this new platform ecosystem.

1.3.1 Sub-Problem 1

Failure to recognise the new roles that are emerging in the evolving industry ecosystems.

1.3.2 Sub-Problem 2

Connectivity and driving efficiency, while important, is not the key to profitability.
The main problem is to shift the mindset and move away from the legacy business of voice and data services. These services have run the course of their monetary lifespan and will not be able to take the industry into the future. New business models need to be formulated and a paradigm shift is required to enable the organisations to capitalise on their coverage and market penetration to offer new and innovative solutions that appeal to customers.

This will entail analysing user and machine data and investing in the ability to process huge amounts of data and generating meaningful results from them. In addition to this, the sole aim of the majority of CSPs is to provide coverage to subscribers.

There are challenges and concerns, just like any other cutting-edge technology that takes us by storm; people were similarly apprehensive about the aviation industry; Thomas J. Watson from IBM once predicted that the world computer market would not be bigger than five computers. But strategists need to create business strategies that make these innovations work and that is what we intend to do here.

1.4 Significance of the study

This study enables the organisations to identify the areas on which they need to focus in order to gear up for the future, instead of catching up with the emerging trends in the world. The telecommunication industry will be able to lead in terms of adapting new technologies.

The study guides the strategy and operations executives to set the direction in order to diversify their revenue by the introduction of innovative revenue streams that will enable them to utilise the penetration and accessibility of their core businesses of voice and data services, and not simply remain dependent on the volume of each service. It enables the organisations to offer value solutions, capitalising on the intellectual expertise of the industry.
In short, simply selling connectivity is not a long-lasting advantage. Alternate ways of connectivity are fast substituting the more traditional ones. For example, Google Loon, Facebook Drone, etc. just to name two.

The target of this report is to have a fully functional business model that encompasses all aspects of a CSP’s lifecycle and predicts a picture of the future which is both financially viable and sustainable.

Different services and products that can be offered in the current scenario are assessed and changes recommended in order to develop a future-centric working model while staying relevant to the existing needs of the customers.

## 1.5 Delimitations of the Study

- This study is limited to the Telecommunications industry and focuses on the utilisation of its resources, market penetration and network coverage to offer innovative solutions.
- IoT (Internet of Things) is analysed as an ecosystem, and an effort is made to provide a holistic view of different aspects of IoT but this topic is large, and certain elements will invariably be left uncovered.
- The aim of this research is to come up with new strategy models for the telecommunication industry, and this the focus. The financial, technical, operational and other aspects are only covered if they are relevant to the strategic models that are being used and proposed.
- The people interviewed generally focused on the challenges faced by the telecommunications industry and articulated the way out and future strategies they are devising for their respective companies, while they have a lot of knowledge and experience on the industry it would require a much bigger set of people from multiple domains within this industry to generalise this study.
1.6 Definition of terms

- OTT – Over the top services e.g. WhatsApp, Viber, Skype, etcetera.
- IoT – Internet of Things.
- IIoT – Industrial Internet of Things.
- CSP – Communication Service Provider.
- DSP – Digital Service Provider.
- MWC – Mobile World Congress.
- ARPU – Average Revenue Per User.
- P2P – Person to Person.
- A2P – Application to Person.
CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This research aims to establish a business model which strengthens the position of the communication service providers (CSPs) in the broader ecosystem of hyper-connectivity that is transforming the tech industry. The report explores some of the latest trends that are taking place in the industry which are morphing it with other industries and also blurring the lines between telecommunications or more broadly speaking, communication services providers and other industries.

An ecosystem is defined in the Merriam-Webster English dictionary as “the whole group of living and nonliving things that make up an environment and affect each other”. In the context of organisations and businesses today, an ecosystem can be described as a complex interdependent system where multiple industries overlap and compete to offer services to the end users. Companies are no longer competing in industries that are specific to their products and services, but more so in broader ecosystems which are providing the disruptive new players a chance to challenge the established order by generating new ideas and models, thus forcing the traditional companies to innovate.

As Charles Dickens famously wrote at the beginning of “A Tale of two cities” “It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us” (Dickens, 1859, p. 1). This describes in abstract terms what the future holds for the technology and communication industries and how particularly the CSPs will operate and adapt in the face of this fast changing environment.

2.2 Background

Technology today is evolving in terms of both software (which concerns the complexity of the information gathered and processed) and hardware (which is
related to the processing power of the devices). This advancement in the computing prowess has enabled humans to interact with technology in ways that were previously unthinkable. The users now not only interact with other people, but also increasingly with "things." These "things" range from wearable technology (like sensors) to everyday household items (like fridges, air conditioners, etc.).

The desire to always stay connected has resulted in exponential growth in the amount of data that is produced in the world. To put the data volumes in context; it is pertinent to consider a recent study carried out in 2014 which estimated that more data was created in the two preceding years of the study than in all previous years combined (Wall, 2014).

Harnessing this unprecedented connectivity among “things” and people can be of great value to organisations and IoT is ready to provide significant business benefits (Titirisca, 2015).

Products that are used every day are now being connected to the internet and this in turn, is providing unprecedented levels of information to companies which then use this data from all the “things” that consumers use to acquire even more personalised information about them. Some of this so-called personalisation can be witnessed in the advertisements that are seen on the web pages that people visit. These web pages do not contain a standard set of adverts for everyone. Each user is beamed advertisements which suit their interests, based on the previous searches that they made or a website that was visited. But imagine if the consumer’s information is collected throughout the day. Even the things that we do subconsciously are analysed and a pattern is formed based on these, which can predict a lot of things in a person’s life. How valuable can this information be for companies? What if the fridge is stocked full before a person gets home each night? Or how often does one get out for a fancy dinner and which types of restaurants are preferred? There are hundreds of such questions which feature through every single day in the life of billions of people on this planet. If companies know the answer to these, they can profit from them.
The applications of this knowledge are not in selling but also in saving and utilising the existing resources much more efficiently. Smart connected devices are transforming the world in which we live.

Most experts believed that IoT alone would support services of US$ 235 billion in 2016 which is up by an astounding 25% from 2015 as per reports from Gartner. By 2020 we will have an estimated 20 billion devices connected to the internet.

2.3 The Communication Service Provider

This research involves exploring new business models for the CSPs, specifically due to the fact that legacy models are coming under increasing strain as they only tend to monetise volume-based consumption of voice and data traffic. Numerous OTT (over the top) services like WhatsApp, Viber, Skype, etcetera, use advanced algorithms which compress data hence enabling minimum possible use and delivering high-quality voice and data services. The services which once formed the basis of revenue are fast being demonetised. This is an interesting trend which is taking place in numerous industries but in the technology industry, it is gaining traction much faster than many organisations would prefer. In addition to the creation of these demonetising services, the entire ecosystem in which the CSPs operate is changing dramatically. New roles are being created which are more tailored to the consumers’ demands in the ever-changing ecosystem.

Mohit Agarwal, who is the Head of Marketing Planning and Channel Marketing and was previously the Senior Manager of Strategy at Nokia (Nokia Siemens Networks / Nokia Solutions), describes IoT Platforms as the “Heart of IoT” and puts them at centre stage from both a hardware and software point of view. The CSPs are critical as they provide the end-to-end connectivity that drives this innovation forward but, according to Agarwal, they find it difficult to think beyond connectivity and ARPU (Average Revenue per User). If they can take the lead in terms of connectivity in this IoT, they will position themselves to garner more downstream revenue from this trillion-dollar market (Agarwal, 2016).
2.4 Failure to recognise new roles in the evolving industry ecosystems

There are some challenges that CSPs and organisations of their kind face and it will require a significant effort on their part to restructure their primary mission to align with the emerging ecosystem requirements.

But before the issue of preparing for and ultimately benefitting from the future technologies, organisations need to recognise the threat posed to the existing business model by the new entrants. This is the first step in solving the bigger problem of monetising a new breed of services.

Person to person (P2P) connectivity has reached its maturity with over 4.7 billion unique subscribers worldwide, which represents over 60% of the total world population (Statista, 2015). New businesses based on connectivity like IoT are still a relatively untapped domain in which the CSPs’ core strength of connectivity will come in handy. But competing with disruption from all sides, CSPs’ bottom lines are coming under increasing pressure, and their strategy has been to drive more efficiency in the business. Only a handful are exploring the new opportunities arising in a rapidly changing digital ecosystem. The CSPs can act as a catalyst but before they do so, they will have to do some introspection and decide whether they really want to play this game where most of the disruptive players are newbies who do not play according to the rules that were for the most part, set in the last century. If, however, the CSPs want to stay relevant in the future ecosystem, they will have to focus rigorously on developing new strategies and technologies that are prerequisites for the desired success (Ernest and Young, 2015).

2.4.1 New battlegrounds

CSPs will have to embrace the start-up culture because the IoT opportunity is changing fast and the internal red-tape that characterises the existing organisational work will leave them behind (Agarwal, 2016).
The lack of regulations is also a challenge for a traditional organisation where it becomes very difficult to take the lead on new technologies because there is very little or few regulatory frameworks available from the government and other regulatory bodies. A recent example was the request from two leading South African operators to the government for blocking OTT services like Whatsapp and Viber. The disruptive players are adept at exploiting the grey areas and benefitting from them.

![Figure 6 - Defining the IoT Battlegrounds (Courtesy of Bain & Co)](image)

The new battlegrounds, because of their recent and innovative nature, are challenging for the regulators to monitor correctly and then come up with rules and policies to govern them. It is in the best interest of CSPs to work closely with
the regulatory bodies and provide them with the necessary capabilities to address this shortcoming.

The legacy *modus operandi* has been to follow the guidelines provided by the regulators and the departments dealing with such policies tend to be very bureaucratic in nature. It will be a good start to align them with the strategic plans of the organisation and take them on board with regard to any rules that will be put in place to govern new products and services which do not fall into the previous product mix.

### 2.4.2 Organisation of the future

The CSPs in order to stay relevant and profit from the future, will have to embrace it wholeheartedly and restructure their organisations akin to a start-up which is agile and can operate in multiple ecosystems and platforms.

CSPs will have to lock the past in a box, analyse the present and retain only the aspects which are relevant for the future and build organisational expertise that is in line with the requirement of the future (Govindarajan, 2016).

### 2.5 Connectivity and driving efficiency while important is not the key to profitability

There is a certain fascination with the idea that unlimited connectivity will somehow revolutionise economies at the base of the pyramid and open floodgates of revenue for the businesses. This view is misplaced. Technology, no matter how brilliant, is useless from a practical point of view unless the product design and communication can convince the end consumer that their lives are somehow better. The litmus test always lies in the consumer’s willingness to pay for services.

#### 2.5.1 B2B Collaboration is not a sales pitch

Providing a platform will involve engaging with other business and possible collaborations and acquisitions. While collaborative innovation has been around
in the B2C space and it has worked out quite well, especially in the technology industry, it does offer some challenges when implemented in the B2B space (Vetter, 2016).

Some of the main challenges that Vetter describes are quite relevant to this research as CSPs that reprioritise will face these experiments.

It is often the case that B2B collaborative workshops take the shape of sales events where each organisation involved exhibits its strengths and tries to mask all the weaknesses. While connectivity is certainly the strength of all CSPs, it is not something they can totally rely on in the future business model as previously discussed. A lot of new technologies are coming up which are bypassing the CSPs in terms of their valuations and setting up their own parallel networks. A recent example is Google’s Project-Fi where Google set up over a million Wi-Fi hotspots and offers a bundled service in partnership with MVNOs that it set-up with existing CSPs.

Amdocs identifies targeting the SME sector as a trillion-dollar opportunity in their report titled “Amdocs – Identifying the Trillion-dollar SME Opportunity.” The report published is a series of articles that aim to provide guidance to CSPs as they emerge into a broader digital ecosystem (Cottam and Lewis, 2015).

Targeting SME’s will require much more than just connectivity. New pricing models and services will have to be created, and CSPs need to build value with vertical offerings (Cottam and Lewis, 2015).
2.5.2 Acquiring new strengths

If the CSPs are to profit from the fourth industrial revolution, new strengths and alliances will have to be forged which deviate from their core competency of connectivity.

Smart connected products are forcing companies to rethink their business strategies. The huge amounts of information that are now available because of multiple sources are changing the way businesses work with their customers which is introducing new forms of cross-functional collaboration and new ecosystems (Porter and Heppelmann, 2014).
A prime example of this is the acquisition of ARM, a mobile chip designer, by Japanese operator group Softbank for US$ 32 billion. “We have long admired ARM as a world renowned and highly respected technology company that is by some distance the market-leader in its field,” said Softbank CEO Son. “ARM will be an excellent strategic fit within the SoftBank group as we invest to capture the very significant opportunities provided by the Internet of Things (Bicheno, 2016).

This acquisition, which took place on 18th July 2016, is a prime example of building for the future, and more and more CSPs need to do this if they want to stay relevant in the future.

Figure 8 - ARM Acquired by Softbank (Courtesy www.telecoms.com)
2.6 Conclusion

This concludes the literature review which lays emphasis on two very important sub-problems which form part of the main problem statement.

The first is recognising the threat posed by the emergence of the platform economy and the entry of new players, often start-ups due to low barriers to entry, as operatives in the platform economy. Many of the OTT services started out of dorm rooms or garages and ended up taking up 10% of voice minutes globally in 2015 (Ernest and Young, 2015). Once this threat is realised the CSPs will have to fight it out in new battlegrounds hitherto unknown to them.

Secondly, the CSPs will have to deviate from their existing business model of volume based monetising of users. They will have to look at demonetising the end user as much as possible while capitalising on the platform service opportunities as B2B collaborators and targeting the SMEs along with big corporations. To start off with this activity certain internal services can also be sold externally by liaising with value-added-resellers (VARs).

2.6.1 Proposition 1:

CSPs have to recognise the changing landscape of the industry and how it is morphing with other industries to become an ecosystem.

CSPs are facing threats from new companies which do not play by the same rules and the constraints faced by CSPs no longer apply to these new players.

2.6.2 Proposition 2:

A shift in mindset is required to take the CSPs into the future.

The legacy strategy model of widest coverage and the highest number of subscribers is no longer the differentiating factor. CSPs need to tap into the emerging trends that are defining the digital ecosystem of the future.
CHAPTER 3. RESEARCH METHODOLOGY

3.1 Introduction

The research methodologies are primarily of two types:

1. Quantitative Research
2. Qualitative Research

The quantitative research methodology is based on statistics while qualitative research explores theories and their impact. Quantitative research is about data or information that can measured as opposed to qualitative which is more exploratory in nature which tries to gives insights in to the underlying factors affecting a particular issue. Qualitative research generally guides to an area or number of factors which can then be used for quantitative research.

Qualitative research gives the participants more freedom in their responses and give more detail about the trends having impact on the area of interest. There are multiple types of qualitative research (Winters, 2016):

- Focus Groups
- Intercept Surveys
- In-Depth Interviews

For this particular study we used “In-Depth Interviews” with industry experts which proved very fruitful for the purpose of gathering key insights in to the challenges faced by the telecommunications industry about the challenges they are facing in current times of disruption from OTT players and at the same time the opportunities that platforms provide to not just a specific industry but to a broad set of industries which previously operated independently.

Quantitative research, or research that focuses on the numbers and it is more statistical in nature. The respondents are provided with a set of parameters which they use to provide the answers and thus is very structured and formal and reinforces already ascertained trends or statements.
The research topic which forms the core of this report is a relatively new field, and companies are devising different strategies to profit from it. Hence, due to the nature of this research, qualitative methods were applied to gather strategic insight into the thinking of some companies that are centre stage in the CSP industry. The outcome was tested using quantitative methods to produce a strategic business model which can be tailored for the benefit of organisations that take part in this research.

3.2 Research Design

The research design is based on a set of informal questions that put before industry professionals who are at C-Level and executive positions in various CSPs and their partner organisations across the globe.

The aim of the interview process was not to gain information on the exact plans of any organisation but to test their preparedness in dealing with digital transformation taking place in the ecosystem of which CSPs are an integral part. The panel were asked about their organisations’ plans and how they prepared to boost profits in the light of decreasing call and data costs, both of which have traditionally formed the basis of revenue in almost all CSPs across the world.

The interviews were not strictly structured because an informal approach would give more insight rather than just answers to the questions. The requirement was to gather as much insight and information as possible into the thinking of some leading and emerging organisations in different parts of the world.

The organisations that were shortlisted for this process are strategically located in various emerging markets of the world, (for example, South Africa, Uganda, Pakistan, Thailand, United Arab Emirates) along with some operating in developed economies (for example, United States, United Kingdom, Norway).

3.3 Respondent Overview

The respondents primarily belonged to the C-Level in the companies that were selected.
### Table 1 - Emerging Market Respondents

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell C</td>
<td>South Africa</td>
<td>CxO &amp; CxO</td>
</tr>
<tr>
<td>MTN</td>
<td>Uganda</td>
<td>CxO</td>
</tr>
<tr>
<td>Telenor</td>
<td>Pakistan</td>
<td>CxO &amp; CxO</td>
</tr>
<tr>
<td>Vodacom</td>
<td>South Africa</td>
<td>CxO</td>
</tr>
<tr>
<td>Etisalat</td>
<td>United Arab Emirates</td>
<td>Network Strategy Executive</td>
</tr>
<tr>
<td>TEOCO</td>
<td>South Africa</td>
<td>VP Sales &amp; VP Delivery</td>
</tr>
</tbody>
</table>

### Table 2 - Developed Markets Respondents

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vodafone</td>
<td>United Kingdom</td>
<td>CxO</td>
</tr>
<tr>
<td>Verizon</td>
<td>United States</td>
<td>CxO</td>
</tr>
<tr>
<td>TEOCO</td>
<td>United States</td>
<td>CxO</td>
</tr>
<tr>
<td>TEOCO</td>
<td>United Kingdom</td>
<td>VP Sales</td>
</tr>
</tbody>
</table>
3.4 Research Instrument

The research instrument was an informal interview. The interview questions were not sent before the meeting, but a general overview detailing the reasons for the meeting was provided to all the respondents.

The interviews questioned the respondents on their strategy models and the reasons behind the selection. Furthermore, they were queried regarding the success or failure of their models and the key performance indicators used to measure that.

All the respondents’ answers were recorded, and a strategy was proposed based on the analysis of the information gathered along with some research on the emerging strategies in the relevant ecosystem.

3.5 Procedure

The researcher will normally have a face to face interview with the respondents. As the researcher's job entails traveling and meeting these people, the respondents were encouraging in their response with regard to their availability for this research.

Most of them were willing to publically be part of this research. The first set of interviews took place in the first week of August 2016. The interviews were conducted during the Quarterly Business Review of TEOCO Corporation’s Africa Hub taking place in Johannesburg when the CEO and VP’s of all global operations were here.

The interview was recorded and the respondents were informed in advance. If they had any concerns, the audio recordings would have been omitted.

After the first round of interviews, a set of recommendations and scenarios were proposed to a few respondents. In addition to the scenarios, certain strategy models were also employed to devise future strategies for the CSPs. These
strategies were based on, but not limited to, emerging strategy theories including the following:

1. EDGE Strategy
2. Three (3) Box Solution
3. Scenario Planning
4. Blue Ocean Strategy
5. Multisided Platforms

3.6 Data Analysis

The respondents were questioned on the success or failure of their organisation's strategic targets. This success and failure was gauged based on the financial and technical performance of the organisations.

The financials included the annual reports that are published, and the technical performance was carried out by independently verified quality indicators. Regulators measure these quality indicators in most countries, and the procedure is standard.

In addition to the short-term success or failure of the organisations, a longer term trend analysis was also carried out. Plausible scenarios were presented, and the organisations’ readiness assessed based on these.

Scenario planning was conducted for the industry, and quantitative methods were used to justify the strategy models that this research proposed.

3.7 Limitations of Research Methodology

The demographics of the respondents were very similar regarding their professional backgrounds. It would have been beneficial for this research if a respondent could have been interviewed who is leading strategy in a disruptive organisation in the telecommunication industry.

While great emphasis has been placed on identifying disruptive organisations of recent times in the relevant ecosystem and their strategy and innovation models
analysed, but getting a first-hand view of the actual thinking behind the decisions is always a valuable learning experience. This lack of a respondent from a disruptive organisation was a limitation at this stage, but an effort was made to mitigate this.

Another limitation was that all the respondents who were approached at this stage were at C-Level and hence in the driving seat of their respective organisations. Cognitive bias could result in their responses being inaccurate. Thus it was even more important that an informal interview be conducted as it is easier to get the real picture in a casual environment rather than in a structured interview when the CEO is required to answer about his or her failures.
CHAPTER 4. PRESENTATION OF THE RESULTS

4.1 Introduction

Speaking to multiple technology executives, it was clear that the paradigm was shifting from the CSP's towards the consumers. The CSPs are lagging and this has resulted in their losing ground to mobile apps and internet giants who have been able to offer the users much more choice and flexibility and at zero or minimal cost. Ten years ago the CSPs were neither prepared for it not were they expecting it, but today it is a brutal reality that they have to face in order to operate across the globe.

This research was done by conducting interviews with executives who are leading telecommunications organisations across the world. The researcher met personally with them at the Mobile World Congress in Barcelona during the 2017 and 2018 events, at the GITEX in Dubai in 2017 and the AfricaCom held in Cape Town in 2017.

Adequate care was taken to consider different perspectives both from a technical and commercial point of view, and also to have a look at various developed and developing markets. Top tier CSPs and those in their infancy were researched to provide a broad-based holistic view of the challenges facing the telecommunications industry and how aware they are of the impending change in their business models. It also served to provide an insight into how different CSPs perceive what their major threats are and whether there is any consensus in the industry regarding technical transformation and business model innovation. The research was carried out based on an informal set of interview questions which were as follows:

1. What are the challenges faced by your organisation from emerging players?
2. Are all of the above mentioned emerging players playing by the same rules as you?
3. How are you differentiating yourself from the competitors?
4. Are there any new avenues that you are exploring as part of your short, medium or long-term strategy?

These interviews also resulted in new insights and ideas that were contrary to the perception held prior to this research. This was an interesting aspect as one would have imagined that the research would cover the future of telecommunications industry and most of the players operating would be geared towards transformation and change, but that was not always the case.

There are CSPs that still believe in the legacy business models and are investing billions of dollars in driving their growth towards that goal. That goal is simply to have the widest network coverage and be the number 1 CSP in the market in which they operate.

There is one thing that all organisations in the telecommunications industry agree on and it is that the industry has become increasingly dynamic. The approach on how to remain competitive in this space differs from one operator to another but broadly, all participants can be divided into two (2) distinct groups:

A. Those who believe that they will achieve more profitability and competitiveness by investing in their existing infrastructure. For this particular group, investing in new ventures is not a priority.

B. The other group is focused on creating pivots in their existing business models and create new revenue streams. They actively pursue new areas which can complement their existing offering.

4.2 Distribution of Executives Interviewed

The respondents with whom the researcher spoke were executives across various CSP groups in different regions of the world. Special care was taken in order to gather views from Strategy, Commercial and Technology executives across the world and to understand their perspective of where the industry is headed and how they are adapting to the scenarios.

The following is a graphical representation of executives across the regions and their respective functions:
**Figure 9 - Executives Interviewed by Region**

**Figure 10 - Executives Interviewed by Level**
Most of the respondents were from Africa, followed by Asia and Europe and capped by views from America and the Middle East. This gave the researcher a good overall view from both developed and developing markets.

The three (3) main functions across a CSP are:

- Commercial
- Strategy
- Technology

Decision makers across all of these three (3) areas were targeted and subsequently engaged with feedback and further insights about the approach of this research report. A lot of the themes discussed in this report are being adopted by the organisations targeted for this research, albeit most are still in their infancy.

Nevertheless, there is promise that the face of CSPs will change as we know it and in the not very distant future, most of the industry will transition towards becoming an ecosystem of multi-sided platforms (Huckle, Bhattacharya, White, & Beloff, 2016).
4.3 Responses to Interview Questions

4.3.1 Challenges faced by your organisation from emerging players

This was the most interesting question from the researcher’s point of view as it laid the ground-work for the other aspects of the interview / discussion process. There was a sharp contrast in the responses of Executives leading CSPs in developed markets compared to those in the developing markets.

Even though the ARPU (Average Revenue Per User) was generally higher in developed markets as compared to developing markets, the revenue growth has been declining in recent years. The developing markets make 45 – 65% of their revenue from low ARPU users who spend less than $5 per month on connectivity as compared to $30 per month in developed markets (Global, Services, & Report, 2015).

For an organisation which makes 60% of its revenue from low spending customers who are the first “connected” generation, this provides an interesting
dilemma. Whether to transform them to spend more and more importantly, how? The risk of alienation is real as the low-spending customers can easily dump the service provider and adopt a competitor. In the developing Asian markets, the executives highlighted the fact that most consumers have multiple SIM cards and use the one which is offering the best bundle packages. This is a typical issue faced by many organisations not just in the telecommunications space, but also in other industries where the revenues are satisfactory but the future is unpredictable.

On the contrary, the CSPs operating in developed markets have already developed an impressive arsenal of investments and acquisitions which they believe will result in more future revenue streams. This was highlighted by the executives in Europe and North America who also cited the examples of Japan and South Korea who are leading the way globally. But with the deep partnerships across the world among various CSPs, it is only a matter of time before these innovations start to deliver results in developing markets as well, once they have the financial backing of players who can afford to lose customers in order to focus on the future.

The developed market responders were open to admit that their main challengers are not necessarily competing telecom operators but OTT providers who have been able to undercut the CSPs while getting a free ride on their networks. Some regulators have even taken steps to implement outright bans on the OTT providers. For example, in most of the Middle Eastern countries WhatsApp, Viber and Skype calling is banned. This is possible due to the high government stakes in most CSPs and close relations with the regulators, but from a free market perspective it is not something that is sustainable in the long run. Also, it results in stifling the innovation process and is akin to using a Band-Aid to treat a bullet wound.

Telecommunication innovation is a global game and it is represented by the private market telco deals that took place during the 2015 – 2018 period. This was something that was highlighted by executives during the interviews where they pointed to partnerships that they are undertaking with start-ups in different fields in order to gear themselves better for the future.
Summarising the challenges faced by CSPs, most of the respondents in the developing markets were still focusing on heavy investments in infrastructure and the main theme outside of this investment was Mobile Finance. This is also evident by the fact that Mobile Finance has a much higher penetration and uptake in Asia and Africa as compared to Europe, North America and Japan.

The investments being done by CSPs in developed markets mirror what they forecast as the future of the telecommunications industry and it is abundantly clear that they perceive the big technology companies as their biggest threat and not traditional telecommunications operators. They think their future competitors are digital platforms and technology companies who a few years ago were piggy backing on the huge networks that were deployed by the CSPs. The unique advantage this new breed of competitors has is that they did not have to invest billions of dollars in infrastructure like the CSPs.

4.3.2  *Do the same rules and regulations apply to the new challengers?*

Building on the discussion from the previous section, when the researcher asked this question, the responses from almost all the executives were very animated. This touches a raw nerve among the CSPs and they feel short-changed by regulators and governments whereby huge investments were made in licence costs, spectrum purchase and infrastructure development, but the ground rules were not the same for the “disruptors” like the OTT players, for example WhatsApp, Viber, Skype, Facebook, Google just to name a few big ones.

The OTT players were given a free pass to come and operate in markets with little or no investment at all. WhatsApp and Viber practically multiplied by zero the revenue CSPs generated by person-to-person (P2P) messaging. WhatsApp, the biggest OTT messaging platform, now delivers 30 billion messages per day – which is 50% more than traditional SMS. Traditional SMS includes application-to-person (A2P) messages as well, which are messages that are sent to a customer from an appliance or service provider. It can be an SMS from an ATM informing about a transaction or credit card company doing the same thing. It can be from a car company intimating about an impending service, etc. But P2P
communication has declined significantly on SMS (Telegraph - WhatsApp Takes Over SMS, 2015).

The trend is similar across all major telecommunications markets like China, India, Europe, etc. Figure 13 shows a statistic which was quoted in numerous interviews. Every respondent was critical of the way OTTs have been allowed to operate in markets where they have resulted in huge losses for the CSPs even though the investment was undertaken by these very CSPs which provided the platform for the OTTs to run on.

![Figure 13 - SMS Past Its Prime](https://www.statista.com/chart/11498/)

**Figure 13 - SMS Past Its Prime** (Statista, 2017)

Even in markets where the CSPs feel that the OTTs are not their biggest threat, the regulations for new entrants are of concern for the legacy players. Although legacy is a word akin to taboo in the broader technology industry of which the CSPs or the telecommunications industry is a part, they feel that the amount of investments that were put down by them should provide them some sort of a cushion against new entrants.
The new entrants on the other side, were critical of the fact that for a good part of two (2) decades, the “so called” legacy CSPs operated with no competition whatsoever. It was more like a monopoly where the consumers only had the choice of a couple of CSPs to choose from. While regulators are trying to ease certain restrictions in order to provide impetus to more investment in this sector, it is a tricky situation whereby everyone feels entitled to what they do not have.

![Rules Same or Not](image)

**Figure 14 - Playing by the same rules?**

### 4.3.3 How is your organisation differentiating itself from competitors?

Currently out of the CSPs interviewed, only one operator group based out of Scandinavia differentiated itself, that too in a few markets only, based on something other than the existing business model i.e. “Volume based consumption of voice and data”. Telenor differentiated itself in Pakistan and Thailand from its competitors by its Fintech offering while in Norway a Telenor
subsidiary called Telenor Connexion differentiated itself on the back of its IoT offering.

Apart from Telenor, all other CSPs irrespective of where they were based, cited the following three (3) differentiators:

1. Quality
2. Coverage
3. Price

This depicts a telling picture of the industry that in 2017, most CSPs are still focused on the same KPIs as they were when they launched, some almost two (2) decades ago.

![Differentiating Factors](image)

**Figure 15 - Differentiating Factors**

In all fairness, the CSPs today have revamped their priorities and strategies for the future and are geared up to transform not only themselves, but also the customer experience, resulting in a fair fight that is anticipated in the near future.
4.3.4 Are any new avenues being explored as part of the short, medium and long-term strategies?

This question provided an overview of where telecommunications is headed in the short, medium and long term.

Short term was defined as less than 6 months, medium term 6 to 12 months and long term was greater than 12 months.

![Short Term Focus Areas](image)

**Figure 16 - Short Term Focus Areas**

The short-term focus on Network Quality and Coverage was held primarily in Asian and African operators.

The other CSPs were more focused on Fintech, Cyber Security, Content and Analytics, even in the short-term.

The medium-term focus for almost all the CSPs interviewed was found to be that of consolidation of what their short-term targets were.
In the medium-term focus, we start to see disruptive technologies come into the picture with Blockchain becoming a focus area (Appendix B). An interesting aspect here is that Blockchain is gaining ground in Africa and promises significant traction.

The long-term focus areas provide a view of the future the CSPs are looking to achieve; it is clear that different CSPs are focusing on different strategies for their respective organisations. They are branching out into Analytics, Content, Cyber Security, Fintech, etc.

Some are even looking to become incubators for new ideas. This has been successfully launched by Telenor in Pakistan. In the future, the CSPs believe that they will not be increasingly competing with one another, instead they might even be working together in various aspects of the industry. The focus will be more on value and less on achieving a foothold in every aspect of the consumer lifecycle.
A person can, in all probability, have a provider for cyber-security and another for entertainment content unlike most business models in CSPs today where everything from voice and data to cell phone is provided by the same supplier.

Some CSPs have already invested time and money into launching future-fit programmes to offer services that were once considered alien to them.

In short, the answer to this question is yes, many avenues are being explored and the CSP of tomorrow will not be a CSP. It will be a Digital Service Provider (DSP) or a huge platform where anything from healthcare and connected homes to sustainable cities and manufacturing will be offered. The industry is moving towards democratisation of voice and data and consumers will no longer pay for these services like they do today. The value-added services on top will generate more revenue streams for the CSPs, rather DSPs and data and voice will simply be a medium by which to reach their potential customers.
CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter discusses and analyses the data the researcher collected when interviewing the executives leading their respective CSPs towards the future.

The main focus is on the areas that the CSPs are focusing on in the medium and long term and aligning them with the disruption taking place in the technology space. CSPs have long acted as a “pipe” on which multiple platforms have been built and transformed into multi-billion dollar businesses and the CSPs are staking their claim on this platform eco-system and derive value from offering innovative services to their customers.

The likes of Facebook, Uber, AirBnB, Google, etc. generate billions in revenue (Standards Institutions, 2016) by mobile and internet advertising and today if (hypothetically) the CSPs are taken out of the equation, a huge proverbial spanner would be thrown in the works. This is purely a hypothetical assumption as it is not possible to do this, but this goes a long way in demonstrating the value CSPs have added in the technology industry. But unfortunately, they have not been able to reap the dividends from it.

This statement is in no way meant to take away the credit from organisations that have a valuation of hundreds of billions of dollars and revenues also in similar figures (Simonite, 2016) but to enable the CSPs to take a leaf from the book of such impressive organisations.

The long-term strategic goals set out by various CSPs portray a very positive picture and indicate that they are indeed geared up and ready to fight for their turf and also to challenge other businesses by leveraging their strengths and capitalising on their huge customer bases.
5.2 Analysis of Challenges faced by CSPs

If we look at the challenges faced by CSPs, the threat of OTTs stands out. Although some emerging CSPs also identify incumbent CSPs and regulations as a threat but by and large, the emergence of OTTs has significantly dented the revenues of CSPs in the view of executives.

The emerging market CSPs also share the view that if they do not align their business models to suit the needs of the future customers, they will also have to face the challenge from OTTs.

The more established players have already started defining their strategies to focus more on new revenue streams and to slowly wean the customers off from their dependence on OTTs. The smaller players are also predicted to follow suit in the not too distant future.

The CSPs have accustomed their users to unlimited voice and data plans, while this was a reasonable strategy to encourage the early adoption of smart phones but today, due to the high data consumption which has no bounds and no signs of slowing down, this strategy has backfired with the CSPs unable to manage the high data volumes as they are best efforts and the performance of the networks degrade as the volume increases (Varma, Sinha, Saha, & Trigunait, n.d.).

To make things worse, there is hardly any lack of differentiation in CSPs and there is no offer of special deals to customers, based on their spend patterns. The rise of OTTs has reduced the CSPs to mere connectivity providers and it is impossible to retract the unlimited data plans.

The subscribers are now also demanding new communication channels and at the moment there is a gap which CSPs can fill if they adapt and develop mechanisms to fulfil this demand.

Omni-channel communication platforms are a new interesting area of development whereby the CSPs can leverage a 3-sided business model and bring brands on board and offer them a new way of communicating with their customers (Varma et al., n.d.).
5.3 Analysis of Rules and Regulations for Challengers

This has always been a contentious issue and a few countries have imposed outright bans on OTT service providers. It can be argued that this is actually detrimental for innovation, there is credence in the argument of CSPs that this has given an undue advantage to the OTT players. There has been minimal or zero investment in most countries where the OTTs operate while CSPs did not have this flexibility.

It can be argued that this is the nature of the technology industry and they have been able to upend many industries like hoteling, transport and advertisement due to their sheer disruptive nature. And this is the key to their success across the globe.

Silicon valley has a GDP which would have ranked 44th in the world if it was a country and the GDP per capita is 3rd highest in the world (The Silicon Valley Economy Surpasses the GDP of Many Nations | City Scene, 2016).

One needs to question how they managed to achieve such phenomenal success in terms of globalising the start-ups and disrupting the long entrenched players, not just in one industry, but in multiple industries and they keep on doing this time and again.

The researcher held meetings at the Mayor’s Office in San Francisco during a business elective in 2016 and the startling discovery was the admission by members of the local government, when asked how they managed to cultivate a culture of enterpreneurship, the officials were frank to admit that they were very careful not to interfere with the start-up culture, even when they were facing troubles. The numerous companies visited also shed light on this aspect and disclosed that they prefer to address consumer problems instead of trying to rope in customers to their business model. This is evident from the examples of WhatsApp, Viber, AirBnB and Uber, to name a few. What they did was tackle a global problem for millions, if not billions of users, and in turn, saw their valuations sky rocket.
In spite of all the regulatory challenges facing the CSPs, in their view, this is not an excuse in this cut-throat industry. Someone somewhere will always be disrupting the industry and if the CSPs do not reorganise internally to cope with this by disrupting themselves, they will become redundant. This is the law of the land where “it is not the strongest of the species that will survive, nor the most intelligent but the one most responsive to change” – Charles Darwin (Darwin 1809). This is as true today as it was in 1809 and not just in the biological world but also in the businesses of today.
5.4 Analysis of Differentiating Factors of CSPs

The responses to this question were disappointing in the sense that they depict the friction within the CSPs to transform. Most of the respondents still identify traditional KPIs from the legacy business models as their differentiating factors. Very few respondents identified innovative offerings as their differentiators. This will need to change if the CSPs are to make the transition from CSP to DSP. The entire business model will need to be toppled. Coverage, Quality and Price will no longer be good enough differentiators but rather ubiquitous offerings. Different services will require different kinds of performance indicators. Some will run on minimal data while others will consume a lot of data and each service will require a unique offering. The CSPs need to have a plan of action for such offerings, for offerings such as connected homes, the data rates are extremely low, but offer a
lot of potential for intelligent business models. At the moment there is traction in this space but it is being led by companies aligned with the same disruptors who have been traditionally responsible for upending the revenue models of CSPs.

Intelligent or connected home companies are being acquired by technology firms like Google, Amazon and Microsoft, etc. McKinsey predicts that every home in the United States will be connected in the next five to ten years (Nicolaus et al., 2016).

“You need to move now to where you want to play in future. Ten years ago, they all did the same things. But now carriers have suddenly got a lot of options — some will go into TV and media, others into cloud services, others the connected car and home. Some will do them all.” Hans Vestberg CTO Verizon, November 2016.
5.5 Analysis of Short, Medium and Long-Term Strategies

These strategies are promising as they provide an insight into the direction of where the CSPs are headed. The most apt response to this can be “better late than never”. This should have been earlier, but nevertheless there is hope that it will result in transformation.

The three (3) biggest OEMs - Nokia, Ericsson and Huawei - after multiple acquisitions and consolidation are already pivoting away from traditional network equipment and are more geared towards the software side of the business now.

Ericsson is investing heavily in the 5G value chain whereby they are enabling other industries to leverage on the digitisation. Ericsson estimates that by 2026 the 5G value chain can leverage 1.3 trillion dollars across the following industries:

1. Agriculture
2. Retail
3. Financial Services
4. Automotive
5. Media and Entertainment
6. Energy and Utilities
7. Manufacturing
8. Public Safety
9. Healthcare
10. Public Transport
The model Ericsson proposes is very similar to the 3-sided business model discussed in section 6.2, Ericsson calls it the B2B2X (Ericsson, 2017) where the CSPs will not only provide connectivity and infrastructure provisioning, but also take care of service enablement and application provisioning.

Based on the interviews conducted by the researcher, the respondents identified the following key areas of focus:

1. Fintech
2. Cyber Security
3. Content
4. Analytics

These areas as identified by the CSPs for the transformation strategies, fit in very well with the ten areas as identified by Ericsson, especially Fintech, Cyber Security and Analytics offer unique opportunities for CSPs to leverage their existing machinery to pivot away from the existing business models.

Fintech has applications across the entire portfolio of the ten industries.

Analytics can be leveraged to provide intelligence and the most underrated and seemingly innocuous one is Cyber Security. This is due to the fact that people often do not pay attention to things not in the limelight.
Over 50 billion dollars were wiped off the valuation of Facebook due the recent scandal involving Cambridge Analytica (CNN Money 2018). Encrypting techniques can offer a unique value proposition to the CSPs and they can guarantee the anonymity of the data so that it cannot be used by any third party as they are ones collecting it.

As we are gearing up towards a more connected world, connectivity on one hand is making things easier and more efficient, but it also has a dark side and that is everything is online and it can be hacked.

People carry all of their information in the palm of their hands and the awareness around security measures is still pretty basic. Every day, we get to hear about more and more security breaches, but the general perception among us that “it can never happen to me” or “what if XYZ is using my information?”.

Hacking is becoming weaponised now and no longer just restricted to privacy issues but has a significantly larger impact. Numerous industries are already seeing the impacts of connectivity and with it, its risks.

IoT and IIoT are the bedrocks of this digital and connectivity transformation taking place. Be it smart home or retail, automotive or healthcare, manufacturing or public safety, nothing can become digital until it is first connected. Therefore, all of these new value chains and propositions are formed on the basis of IoT and IIoT.

There will be zero trust in these offerings unless they are first secured.
CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter focuses on the conclusions drawn after the discussions held with CSPs and propose future eco-system where they can transform into DSPs and play a key role in the technology world order.

What looked like science fiction just a few years and decades ago is a reality today. Similarly, the world of tomorrow is still unseen but what we do today will form the basis of it.

As Peter Drucker says “the best way to predict the future is to create it” and that is what any organisation needs to do. They have to address the issues of not just today but also of tomorrow. CSPs need to create a virtual reality for the world to see what a technology-enabled future would look like and how it will solve the problems that are plaguing the world today.

Connectivity, of which the CSPs are already kings, will form the basis of all analytics. Millions of sensors will connect everything from a razor blade to the automobile and between those, collect zetabytes of data. This will give the now transformed DSPs a treasure trove to build an analytics platform on.

With this amount of data about subscribers, the DSPs (as they will now be transformed) will offer a hugely attractive value proposition to enterprises and can leverage from sources of information that are no longer dependent on the smartphone.

The DSPs will lead the new eco-system with their secure connectivity offering with the added advantage of analytics capabilities.
6.2 Conclusion

The conclusion is simple, things have to change and fast. The telecommunications industry is a lumbering giant and though slow to change, the researcher believes and agrees with the executives that once there is momentum in the right direction, the industry will be revolutionised.

In the recommendations, the researcher discusses the scenarios put forward to CSPs to make them DSPs.

6.3 Recommendations

The CSPs share the observations of the researcher when presented again with these new scenarios:

1. Connectivity
2. Security
3. Trust
4. Analytics
5. Enterprise Engagement
6. Omni-Channel Platforms
7. Fintech

These scenarios were mapped, based on the highest possible probability and impact analysis. We have to create a future where connectivity with everything is provided by the DSPs and services created and aligned with the enterprises offering those services.

Based on the strategy techniques discussed in section 3.5 the above-mentioned list of recommendations was enforced. For e.g. take the case of EDGE Strategies where authors Alan Lewis & Dan McKone argue that an organisation’s foundational assets play a key role in defining the EDGE Strategies. The organisation’s which leverage their core foundational assets can achieve high profit margins with less risks and lower investments. EDGE Strategies are in simple terms a new framework of mapping the boundaries of existing products and services with those to the customers’ views (Lewis & McKone, 2016).
This can be a great start for organisations which do not prefer a drastic transformation of their entire culture and is a cost effective and risk averse way of transforming for the future.

Figure 23 - EDGE Strategy (Lewis & McKone, 2016)

Another similar solution is the three (3) solution (Govindarajan, 2016) which prepares an organisation’s strategic thinkers to slowly shift focus from the legacy offerings while capitalising on products which are still making money but might not do so in medium to long term future.

Figure 24 - High Impact & Probability Scenarios
A brand-new Ecosystem is envisaged where smartphones are not the only medium of communication between a DSP and its customers. Blue Ocean strategic techniques are also being adopted by leading organisations to create new avenues where the competition will be made irrelevant. Nowhere are these techniques more relevant than in the telecommunications sector of today. The current antagonistic energy between CSPs should be replaced by an era of collaboration and partnerships across industries with DSPs serving as the glue.

Numerous CSPs are either in the process of transformation or are planning to devise transformation strategies and these techniques provide them cost effective and risk averse opportunities to do so.

Networks that remain as they are and consolidate the existing business models, will result in negative impact on their business and ultimately, become obsolete. If they are willing to transform the CSPs are very well placed to leverage their existing customer base(s) of tens of millions of subscribers and use innovative strategic techniques to offer them new services that do not cost a lot of money to implement. It requires the will to innovate and dedication for transformation.

From home automation to connected cars, the DSP will know what its subscribers expect and demand and link them up with those enterprises and enable communication linked with Fintech.

There are multiple ways of acquiring these strengths, the most transformative CSPs today are each following a different strategy. Some are acquiring companies with the specific focus that they require, others are building techniques in-house. Whatever they are doing, as long as they are on a path of digital transformation not just for themselves, but for their consumers and the ecosystem at large, it is commendable.

Developing any scenario requires taking in to consideration the following forces:

1. Driving forces
2. Variables both certain and uncertain
3. Tipping points for every scenario
4. Prospects after the scenarios are implemented.
Many of the scenarios can be engineered by the CSPs starting today, with the explosion of connectivity analytics for the millions of sensors has given rise to new industries that are resulting in better utilization of resources and at the same time reducing wastage. While the 20th century saw a clear distinction between the digital and physical worlds the connectivity provided by CSPs has chipped away at this distinction and it is now difficult to differentiate between the two (Bates, 2015). The future will result in even more blurry lines between what is real and physical and what is virtual and digital. With the advances in augmented and virtual reality techniques the applications for the implementation of these technologies are infinite.

Combining these strategic techniques with a “Multi-sided Platform” approach gives another competitive dimension to the CSPs in their transition to DSPs. Multi-sided platforms are products or services that create value by enabling direct interactions between two or more participant groups. Platforms like Facebook, Uber, AirBnB are all examples of multi-sided platforms (Haigu and Wright, 2015).

![Figure 25 - Multi-Sided Platforms (Haigu and Wright, 2015)](image)

Based on the interviews conducted and subsequent discussions held with executives across a broad spectrum of telecommunication service providers in different regions of the world, it is clear that things have to change and cannot
proceed in the existing fashion for too long. The strategic techniques identified in section 3.5 provide a perfect roadmap for transformation and reinvention for CSPs.

1. EDGE Strategy & Three (3) Box Solution – Use these techniques to identify potential new avenues without deviating too far away from core foundational assets and capitalize on businesses still making good money i.e. “Cash Cows”.

2. Scenario Planning – Focus on scenarios with the greatest potential impact and highest probability.

3. Blue Ocean Strategy – Invest in avenues which make the existing competition irrelevant.

4. Multisided Platforms – Lastly, leverage the existing customer base of millions of subscribers to create platforms which promote interactions between enterprises and the CSP customer base.

The recommendations provided in section 6.3 followed the same pattern described above and built on the discussions previously held with the executives as part of this research. Subsequent engagement focused on the strengths and roadmaps identified during the interviews to devise strategic focus areas for the future.

For a CSP point of view, the trigger for transformation was reached a long time ago, but most of them failed to react. But even if they start now, they are well positioned due to their critical position in any technological future.

This is a brief description of the network of the future and it not far. If it is not the existing CSPs, it will be someone else.
REFERENCES


Cisco & ITU. (2015). Harnessing the Internet of Things for Global Development. ITU.


Darwins theory of survival of the fittest. (1809). Retrieved March 30, 2018, from https://www.google.co.za/search?q=darwins+theory+of+survival+of+the+fittest&newwindow=1&rlz=1C1CHFX_enZA726ZA726&tbm=isch&source=Int&tbs=isz:l&sa=X&ved=0ahUKEwjHssT465TaAhXOxqQKHZnFB1wQpwUIHw&biw=1368&bih=743&dpr=2#imgdii=aUcPyHPqtLeg0M:&imgrc=aVnCNsWDb4c


## APPENDIX A

### Interview Timeline

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>Respondent</th>
<th>Interview Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell C</td>
<td>South Africa</td>
<td>CxO &amp; CxO</td>
<td>September 2017</td>
</tr>
<tr>
<td>MTN</td>
<td>Uganda</td>
<td>CxO</td>
<td>October 2017</td>
</tr>
<tr>
<td>Telenor</td>
<td>Pakistan</td>
<td>CxO &amp; CxO</td>
<td>November 2017</td>
</tr>
<tr>
<td>DTAC</td>
<td>Thailand</td>
<td>CxO</td>
<td>November 2017</td>
</tr>
<tr>
<td>Etisalat</td>
<td>United Arab Emirates</td>
<td>Network Strategy Executive</td>
<td>November 2017</td>
</tr>
<tr>
<td>TEOCO</td>
<td>South Africa</td>
<td>VP Sales &amp; VP Delivery</td>
<td>August 2017</td>
</tr>
<tr>
<td>Telenor</td>
<td>Norway</td>
<td>CxO</td>
<td>September 2017</td>
</tr>
<tr>
<td>Telenor Connexion</td>
<td>Norway</td>
<td>CxO</td>
<td>September 2017</td>
</tr>
<tr>
<td>TEOCO</td>
<td>United States</td>
<td>CxO</td>
<td>August 2017</td>
</tr>
<tr>
<td>TEOCO</td>
<td>United Kingdom</td>
<td>VP Sales</td>
<td>August 2017</td>
</tr>
</tbody>
</table>
### Respondents Summary

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Region</th>
<th>Country</th>
<th>Level</th>
<th>Domain</th>
<th>Respondent</th>
<th>Challengers</th>
<th>Differentiating Factors</th>
<th>Short Term Avenue</th>
<th>Medium Term Avenue</th>
<th>Long Term Avenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell C</td>
<td>Africa</td>
<td>South Africa</td>
<td>C-Level</td>
<td>Strategy</td>
<td>CxO</td>
<td>OTT Players</td>
<td>No</td>
<td>Price</td>
<td>Contract Customers</td>
<td>Broadband</td>
</tr>
<tr>
<td>Cell C</td>
<td>Africa</td>
<td>South Africa</td>
<td>C-Level</td>
<td>Commercial</td>
<td>CxO</td>
<td>Incumbent Operators</td>
<td>No</td>
<td>Price</td>
<td>Quality</td>
<td>Contract Customers</td>
</tr>
<tr>
<td>MTN</td>
<td>Africa</td>
<td>Uganda</td>
<td>C-Level</td>
<td>Technology</td>
<td>CxO</td>
<td>Emerging Operators</td>
<td>No</td>
<td>Coverage</td>
<td>Coverage</td>
<td>Broadband</td>
</tr>
<tr>
<td>Telenor</td>
<td>Asia</td>
<td>Pakistan</td>
<td>C-Level</td>
<td>Strategy</td>
<td>CxO</td>
<td>Regulation &amp; Commoditisation of Telcos</td>
<td>Yes</td>
<td>Fintech</td>
<td>Fintech</td>
<td>Content</td>
</tr>
<tr>
<td>Telenor</td>
<td>Asia</td>
<td>Pakistan</td>
<td>C-Level</td>
<td>Technology</td>
<td>CxO</td>
<td>Incumbent Operators</td>
<td>Yes</td>
<td>Coverage</td>
<td>Quality</td>
<td>Coverag</td>
</tr>
<tr>
<td>DTAC</td>
<td>Asia</td>
<td>Thailand</td>
<td>C-Level</td>
<td>Commercial</td>
<td>CxO</td>
<td>OTT Players</td>
<td>Yes</td>
<td>Fintech</td>
<td>Fintech</td>
<td>Broadband</td>
</tr>
<tr>
<td>Company</td>
<td>Region</td>
<td>Country</td>
<td>Tier</td>
<td>Strategy</td>
<td>Executive Title</td>
<td>Network Strategy</td>
<td>Emerging Operators</td>
<td>Quality</td>
<td>Quality</td>
<td>Quality</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>-----------------</td>
<td>-----------</td>
<td>---------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>--------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Etisalat</td>
<td>Middle East</td>
<td>United Arab Emirates</td>
<td>Director</td>
<td>Strategy</td>
<td>VP Sales &amp; VP Delivery</td>
<td>OTT Players</td>
<td>Yes</td>
<td>Quality</td>
<td>Analytic</td>
<td>Block Chain</td>
</tr>
<tr>
<td>TEOCO Africa</td>
<td>Africa</td>
<td>South Africa</td>
<td>Director</td>
<td>Strategy</td>
<td>VP Sales &amp; VP Delivery</td>
<td>OTT Players</td>
<td>No</td>
<td>Quality</td>
<td>Analytic</td>
<td>Quality</td>
</tr>
<tr>
<td>Telenor Europe</td>
<td>Norway</td>
<td>C-Level</td>
<td>C-Level</td>
<td>Strategy</td>
<td>CxO</td>
<td>OTT Players</td>
<td>No</td>
<td>Quality</td>
<td>Cyber Security</td>
<td>Content</td>
</tr>
<tr>
<td>Telenor Connexion</td>
<td>Norway</td>
<td>C-Level</td>
<td>C-Level</td>
<td>Strategy</td>
<td>CxO</td>
<td>OTT Players</td>
<td>Yes</td>
<td>IoT</td>
<td>Analytic</td>
<td>Block Chain</td>
</tr>
<tr>
<td>TEOCO America</td>
<td>United States</td>
<td>C-Level</td>
<td>C-Level</td>
<td>Strategy</td>
<td>CxO</td>
<td>OTT Players</td>
<td>No</td>
<td>Coverage</td>
<td>Content</td>
<td>Quality</td>
</tr>
<tr>
<td>TEOCO Europe</td>
<td>United Kingdom</td>
<td>Director</td>
<td>Commercial</td>
<td>VP Sales</td>
<td>OTT Players</td>
<td>No</td>
<td>Quality</td>
<td>Content</td>
<td>Quality</td>
<td>Analytic</td>
</tr>
</tbody>
</table>