

# Model for Assessing Mobile Business Intelligence Readiness within South African Telecommunications Industry

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**ABSTRACT:** To determine what needs to be done, organisations throughout the world need the capability to find out quickly, what is happening and why it happened. Therefore, having the intelligence to make informed decisions at the right time and place is the key to success in today's dynamic environment. As mobile systems become increasingly available, more accessible, and better performing, data gathering and analysis can be performed off-site and on-site with greater flexibility, in turn extending Business Intelligence (BI) to mobile devices, commonly known as Mobile Business Intelligence (MBI). However, the MBI implementations remain unexplored and unsupported even with the sturdy increase in mobile technology adoption, especially in developing world like South Africa where it is the most viable option. The study aims to establish the MBI readiness factors and developed a model for these organisations to assess their MBI readiness, using South African telecommunications industry as a case. The study employed quantitative research approach, where a closed-ended questionnaires were used as the primary data collection method. Finding suggest a number of key factors significant to MBI readiness in context including Culture, Enterprise Mobility, Organisational Capability, Infrastructure, Security, Skills, Support, etc. The MBI readiness model and its validated elements provide a new way of identifying and verifying critical factors for MBI.

**KEYWORDS:** Mobile Business Intelligence, Business Intelligence, Mobility, Technology Readiness, Organisational Readiness, Core Readiness

## 1. Introduction

Rapid changes have been witnessed in organisations' decision making due to the increasingly widespread use of the internet and automation of business activities. Information has become one of the most valuable and important assets for organisations [1]. The need for data integration across organisations has increased due to the desire for global competitiveness and bigger market share.

With advancements in technology and wireless network accessibility, mobile devices such as smartphones and tablets are swiftly gaining popularity due to their wide range of functionality and portability [2]. Employers and employees can access real-time business insights anywhere and at any time through these new generations of mobile devices [3].

Making the right decision at the right time and place is the key to success in today's dynamic environment [4]. As mobile systems become increasingly available, more

accessible, and better performing, data gathering and analysis can be performed off-site and on-site with greater flexibility, in turn extending Business Intelligence (BI) to mobile devices, commonly known as Mobile Business Intelligence (MBI) [5].

Mobile workers require immediate access to critical information at any time and from anywhere [6]. In [7], [8], the authors explain that using applications which are optimised for mobile devices, MBI can provide insights for the mobile workforce through its use of information analytics; it provides users with necessary information and content needed, regardless of time and location through mobile devices such as smartphones, tablets, etc. The implementation of MBI initiatives provides organisations with the ability to retrieve vital information at almost any location, drastically changing how information workers collect, analyse and visualize information for decision making purposes [7].

In [9]–[12], the authors explain that although there are organisations adopting mobile technology in South Africa and globally, MBI implementations remain unsupported and unexplored and usually face a significant rate of failure leading to unrealised benefits, huge waste of resources and time. This can be attributed to lack of MBI readiness within these organisations as well as limited frameworks and / or models to guide the MBI implementations.

In [13], [14], the authors assert that readiness is the most critical factor to ensure that any technological innovation is acknowledged, adopted, and accepted. In order to determine if organisations are ready to invest in MBI initiatives and identify gaps that need to be filled, the assessment of technology readiness is vital. The assessment helps to save organisations much resources and time by identifying gaps that need to be addressed [9].

In [3], [15]–[17], the authors assert that in terms of BI readiness implementation factors, various researchers have put forward various ideas and frameworks, however, few studies have been consummated on MBI services. The study aims to develop an assessment model for MBI readiness with the focus on telecommunications industry within South African context.

## 2. Literature review

### 2.1. Business Intelligence

In [18], [19], the authors describe that business intelligence encompasses a wide range of applications and technologies that gather, store, analyse, and then provide access to data so that informed decisions can be made utilising the information necessary to aid in decision making. South African organisations that are able to harness the large volume of information will benefit from being able to identify trends earlier, become more competitive, have increased knowledge and understanding of their customers' needs, and achieve organisational goals and objectives. On the other hand, organisations which fail to harness large volume of information might find it difficult to remain competitive and in business.

As organisations mature and grow, there is an overwhelming need to analyse historical business data in order to improve business forecasting and predict future trends [20]. BI systems allow massive varied data collected from various data sources to be transformed into useful information, thus enabling efficient and effective decision making. MBI extends and amplifies BI capabilities by providing a platform wherein critical information is accessible immediately at anytime and anywhere [6].

This extension enables South African organisations to be more agile and competitive thus breaking traditional approach of accessing information. South African organisations in the telecommunication industry today

are often relying on mobile technologies and Internet for their daily operations. In the wake of coronavirus, most of the South African organisation had to quickly adapt to new ways of working as employees were expected to operate remotely, while other organisations are still battling to deal with challenges that are brought about with remote working. Where BI systems are not in place, these organisations struggle to respond to their customer needs, hence some of the organisations were forced to shut down during Covid-19.

Over the past years, BI has evolved aggressively in order to meet and exceed the changing business needs. The evolution of BI can be categorized into six stages which are critical in the business environment [21]. Figure 1 below outlines the stages of BI evolution:

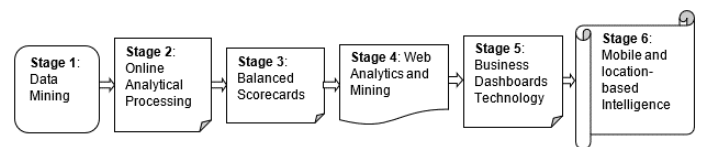


Figure 1: Evolution of BI

MBI is the latest evolution contained in the last stage (i.e. Stage 6) which enables mobile workforce to perform their day to day operations at anytime and anywhere.

### 2.2. Mobile Business Intelligence

A significant increase in mobility has been attributed to the development of mobile technologies, resulting in changes at the physical, communications infrastructure level as well as geo-localational level. In addition to gaining competitive advantages in the Information and Communications Technology (ICT) industry and ensuring an efficient correlation of the organisational strategy to new trends, MBI solutions or systems also support real-time decision-making within an organisation [22].

Using optimised applications for mobile devices, MBI enables the mobile workforce to gain business insights through information analytics [11]. It enables mobile workers to access real-time data and analytics anywhere and anytime using mobile devices [3]. MBI includes capabilities and features not commonly found on laptops and desktops.

MBI is capable of providing instant event-driven response, proactive alerts to the user, and real-time tracking of data [23]. It empowers employees to gain real-time access to back-end systems at any time regardless of the location. Additionally, MBI helps organisations save costs; for instance, enrolling mobile devices instead of expensive workstations to employees can save organisations a lot of cost and time. It eliminates manual processes thus increasing accuracy, validity and reliability of data enabling direct input to the system instead of through paper or manually.

One of the major drawback or limitations of using the smartphones for BI was that their limited screen size prevented delivery of functionality such as interactive reports and full-featured dashboards. In spite of these limitations, smartphone-based BI allowed mobile workers to experience real-time BI [24].

However, mobility though it brings about greater benefits, it can also serve as greater threat to organisations and the mobile workforce if not well managed. For instance, mobile workers might feel tracked and their privacy violated or compromised. The mistrust in mobile technology might be a barrier for organisations that seeks to improve operations and gain competitive advantage through mobile solutions.

### 2.3. Mobile Business Intelligence Adoption

It is without a doubt that the adoption of MBI presents several advantages to various organisations, similarly it presents various challenges. In [16], the author asserts that MBI adoption often involves significant financial expenditure and organisational changes. In [25], the author emphasizes on key aspects or considerations that requires undivided attention when dealing with mobility. Mobile security features, secure authentication, information display and interaction, context awareness, offline mode exploration, how applications are deployed, information discovery, and rich application functionality are all included in these aspects.

In [26], the author describes that MBI by its nature presents various challenges. These challenges include amongst others; surveillance and spying of mobile workforce beyond normal working hours (Privacy), theft or loss of mobile devices with confidential and classified information (Security), tracing and tracking of mobile devices to determine their location (Safety), and data gathering about topics that are not work related (Ethics).

South African organisations are faced with various risks and challenges relating to the adoption of MBI, these includes lack of sufficient skills and knowledge, lack of support, lack of conducive infrastructure, etc. Furthermore, high cost of mobile devices and data within South Africa requires that organisations make significant investments to enable their employees to access MBI solutions.

Given this conundrum, a readiness model guiding South African organisation looking at implementing MBI solutions is critical. The readiness model assists in ensuring that all critical elements are considered on time thus saving organisational resources as well as ensuring that the anticipated benefits are realised. Although the developed readiness model is focused on the telecommunication industry, other organisations can adapt components relevant to their specific environment.

### 2.4. Mobile Security and Privacy

There is often a risk of theft, security breaches, and loss of mobile devices. As with laptops and other mobile devices, personal digital assistants (PDAs), and smartphones have posed security concerns. When a mobile device is lost, a vast amount of data may be at risk [27].

Data security and lack of knowledge or skills about mobile systems amongst others, continues to haunt mobile users [15]. Employees within organisations can knowingly or unknowingly be a major security weakness, thus educating and training these employees on security awareness, policies and practices becomes critical to bridge the digital divide and protect organisations against vulnerabilities and security threats.

It is fundamental that security policies and practices are clearly defined and documented, integrated into the overall enterprise ICT security plan, made widely accessible and workshopped to all employees, and strictly enforced.

### 2.5. Cyber Security

Cyber security refers to the protection of devices, data, systems, devices, and information from malicious attacks or unauthorised access [28]. Malicious cyber activities, such as cyber threats and cyber exploitation, have become increasingly sophisticated, targeted, and serious. There has been an increased volume and variety of attacks as a result of criminally and financially motivated hackers to get confidential as well as personal information [29].

The development of ubiquitous computing has provided the platform and the possibility to utilize technology and mobile devices in an unusual way. There has been continuous demands and developments for seamless interconnectivity of mobile or smart devices (smartphones, tablets, wearable devices, etc.) to deliver various abilities and functionalities to users, however, these brings about various vulnerabilities which are usually considered for larger infrastructures.

The growing adoption of cloud and mobile computing as well as increasing IoT devices rapidly increases cyber security threats and risks levels. Organisations and individuals are increasingly becoming more susceptible to attacks with the rise of IoT extending to interconnected devices such as driver-less cars, smart devices, drones, smart buildings, home appliances, etc. Thus, as security attacks threatens these organisations, proactive detection and response to such threats and the capability to timeously discover and resolve any potential breach by employing effective information security management systems becomes critical [30].

## 2.6. Mobile Device Management

In [31], the author asserts that security measures such as remote wipe-off all data on a lost device and anti-malware has a very low use rate while the Personal Identification Numbers (PIN) and passwords are the highest used security measures, followed by automatic locks. This was attributed to ignorance in security awareness and practices amongst employees and inappropriate monitoring and control of “bring your own Device” to effectively and successfully mitigate against the risky impacts.

Organisations are faced with various security risks due to increasing use of mobile or smart devices while attackers are presented with the opportunity to explore various cyber-attacks. Cyber criminals can install malicious applications on mobile devices disguised as legitimate applications, malwares may be spread onto mobile devices and compromise information stored therein. Through mobile devices, Distributed Denial of Service attacks can be launched against corporate networks. Thus, management of mobile devices becomes critical for MBI readiness thus mitigating these risks.

## 3. Methods

### 3.1. Design of the Study

The study extensively reviewed literature relating to MBI readiness following the problem identification, definition and planning. The information obtained was instrumental in developing and designing the questionnaire measuring items which were subsequently distributed to participants. The data were collected using the close-ended questionnaires. Statistical Package for Social Scientists (SPSS) version 20 was then utilised to code, transcribe and analyse the data. Validation of constructs was performed as well as quantitative analysis. The research process followed is outlined in figure 2 below.

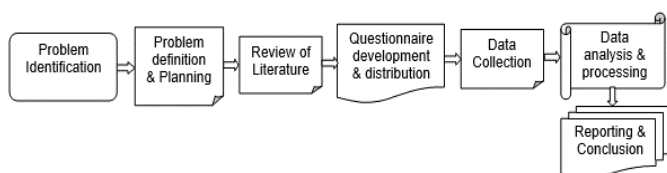


Figure 2: MBI Research Process

### 3.2. Approach of the Study

For this study, quantitative approach was employed as it offers greater objectivity and accuracy of results. Furthermore, quantitative analysis was used to validate the identified factors in the research model.

Before the main survey was carried out, selected organisations in the telecommunications industry were approached to understand the environment with the focus on MBI, locate potential participants, strategize and to

garner support for the collection of data using the developed data collection instruments. Informal interviews were conducted with relevant Executives, Experts, BI Managers, Business Owners, Management, Heads of IT and / or Chief Information Officers amongst others.

The close-ended questionnaires based on five-point ordinal scale were distributed to participants using different platforms and methods such as survey monkey, electronic mail, hand delivery and social media. One hundred and twenty-eight (128) responses were received from participants and were tested. The validity, convergence and confirmatory of constructs were tested using structured equation modelling. Furthermore, regression analysis, correlation between constructs, and relationship patterns between factors were identified.

## 4. Data Analysis

### 4.1. Participants Demographics

The participants were believed to be directly or indirectly involved with MBI and BI within the South African telecommunication industry. To validate this, the information gathered included the demographics, knowledge and experience on Computers / Mobile devices, Internet and BI, overall experience, occupation and BI involvement, and their perceptions about BI concepts and effects on readiness. Furthermore, to ensure relevancy and accuracy of collected data, the participants were requested to specify if they are familiar with MBI.

The highest percentage of BI involvement at 18.75% was attributed to management. Thus, BI is used mostly at a strategic level for decision making amongst others by management. This was followed by the analysts involvement at 16.41% and support at 15.63%. This was followed by both the staff and specialists at 12.50%. The BI developers contributed 9.38% followed by BI users at 7.03%. The architects and testers contributed 3.91% respectively.

The participants with over four years of relevant work experience were 88.28% and only 11.72% with up to three years of relevant experience. Furthermore, 90.6% of participants use their mobile device to access enterprise systems or applications for work purposes. The use of laptop devices to access BI systems remains high at 89.1%. The use of smart phones was at 78.9% and tablets at 50%. The use of wearable computers as well as PDAs to access BI systems remains relatively low at 34.4% and 35.2% respectively

BI is utilized for various reasons within the telecommunication industry in South Africa, such as reporting (91.4%), operations and support (89.8%), decision making (88.3%), analytics (87.5%), forecasting (78.9%), data mining (75.8%) and marketing (68%).



#### 4.2. Reliability and validity of constructs

The reliability of the questionnaires was tested using Cronbach's Alpha and were found to be reliable and usable as the overall  $\alpha$ -coefficient was 0.960 which is greater than the required minimum value of 0.7. The reliability and validity per construct were also tested and 95% of the constructs were above the required minimum  $\alpha$ -coefficient value of 0.7. The constructs that were found to be below the expected  $\alpha$ -coefficient were abandoned.

Furthermore, items that investigate participants' knowledge and experience on Computers / Mobile devices, Internet and BI were also tested for reliability and were found to be reliable.

#### 4.3. Kaiser-Meyer-Olkin value and Bartlett's test of Sphericity

In [32], the author explains that the range for Kaiser-Meyer-Olkin (KMO) index is from 0 to 1, and the minimum value for an acceptable or good factor analysis is 0.6, thus the KMO value of 0.744 ( $KMO > 0.6$ ) was significant enough for conducting factor analysis. Bartlett's test p-value was below the 0.05 threshold and was found to be significant ( $p = 0.000$ ). The results denote that the correlation structure was significantly strong enough to perform a factor analysis of the items.

There were twenty-one (21) components which recorded eigenvalues above 1 (25.164, 6.646, 4.887, 4.198, 3.606, 2.974, 2.390, 2.028, 1.972, 1.816, 1.631, 1.622, 1.526, 1.454, 1.394, 1.290, 1.271, 1.212, 1.060, 1.042, 1.019). These components represent a total variance of 78.879 %.

#### 4.4. Data Screening

To detect possible errors, missing data, miscoding, and normality, data screening was conducted. Data screening was also conducted to ensure that the statistical analysis procedures would be precise and that the estimates had a solid basis. A normality check was done to determine how to deal with cases of nonnormality. The data was checked for univariate and multivariate outliers to eliminate biased results. Furthermore, all items were checked for accuracy. The missing data in the questionnaires were checked using Microsoft Excel 2013 and SPSS Version 20.

### 5. Findings and Conclusion

#### 5.1. Discussions of Mobile Business Intelligence Readiness Model Components

The components of MBI readiness model were categorised into three main sections, namely; Organisational readiness (i.e., culture, policies, people), Technology readiness (infrastructure, security, skills, training), and Core readiness (Need for change, motivators, inhibitors). Furthermore, the following mediating factors were formed, namely; Organisational

Capability, Enterprise mobility, Support, and Change Enablers.

Close-ended questionnaires were used to collect data from participants using five-point ordinal scale. The questionnaires were then coded and transcribed using SPSS and validated through quantitative analysis. Different set of questionnaires relating to MBI were put forward to the participants. The questionnaires focussed on the three main categories stated above as well as the mediating factors.

##### 5.1.1. Organisational Readiness

The study revealed that to enable organisational readiness for MBI, the culture must be conducive. A supportive culture where mobility, new changes and innovations are valued, embraced, and encouraged should be created. Thus, South African organisations within the telecommunication industry should create cultural understanding and awareness to assess its readiness for MBI and to achieve organisational goal and objectives.

These organisations must encourage the culture of knowledge creation and sharing as well as encourage employees to strive for continuous performance improvement. In [33], the author argues that organisations with strong culture cause every member of the organisation or employee to agree and follow the agreed pattern of behaviour that has been proven to be beneficial to the entire organisation.

Furthermore, the study revealed that it is critical for organisations to have updated regulations and policies that enable and support mobility. In [34], the author highlights the importance of having a mobile devices security policy within the organisation. The security policy should define amongst others the types of the mobile devices permitted to access organisational resources, the types of resources to be accessed through mobile devices, the degree or level of access required, access monitoring and management, etc.

In [35], the author asserts that in the absence of policies to support enterprise mobility, organisations run a risk of finding themselves overwhelmed with employee-owned mobile devices and mishmash of various multi-vendor services. The study revealed that just having the policies in place is not enough, the policies must be workshopped and enforced in order to gain maximum benefits. Thus, policies that are not enforced, may render organisations ineffective and its employees frustrated.

Furthermore, it was revealed in this study that People are a critical component of each organisation for MBI readiness. Thus, South African organisations must have the right set of people in order to achieve MBI goals and objectives. In [36], the author asserts that people who

holds positions of Leadership throughout the organisation must model professional behaviour, enforce code of conduct equitably and consistently, embrace and understand the doctrines or tenets of professionalism and furthermore commit to holding everyone equally accountable to support the right working environment.

Furthermore, employees should understand and have clear roles and responsibilities in order to ensure MBI readiness. In [37], the author explains that involving employees and keeping them informed throughout the process of selecting and implementing new technological initiatives it is important thus, ensuring that the implemented technology meet the intended objectives and its fully supported.

### 5.1.2. *Technological Readiness*

The revolution of ICT has changed the roots of the nature of business by providing instant access to information which necessitates infrastructural changes and technological developments to adapt to the new wave of business operations [38]. The study revealed that South African organisations within the telecommunications industry must have capable and inclusive infrastructure to support mobile technology initiatives and have mobile platforms that are compatible. In this study, Infrastructure assesses the presence of appropriate hardware (e.g., Servers, connectivity, mobile devices, etc.) and communication infrastructures (i.e., software, systems, applications, etc.) in the organisation to enable or ensure MBI readiness.

The study revealed that mobile devices should be remotely locked and wiped-out in case of theft and other unexpected events. By doing so, the privacy and integrity of information or data, both in transit and in storage will be secured. These devices by nature generally experiences higher exposure to threats than other client devices. Further still, organisations should periodically back-up enterprise application data stored on mobile devices to an ICT controlled backup server.

Various security objectives such as availability, confidentiality, and integrity of data and systems should be supported through mobile devices; thus, these devices should always be secured against a variety of threats and attacks [34]. The study revealed that user authentication, data privacy and security awareness amongst others are essential to enable MBI readiness within South African organisations in the telecommunications industry.

Furthermore, employees should possess the required skills and knowledge for mobile technology. These skills can be acquired through training, experience, observations, associations (e.g., professional bodies, mentorship), self-learning, etc. Skills refers to the abilities and competencies of the employees within the context of

South African organisations. One of the key technological inhibitors towards mobile technology is the lack of necessary skills or expertise [39].

South African organisations in the telecommunications industry needs to provide employees with the resources, opportunities, and knowledge to use the mobile technology to enable them to use the technology with ease. The study revealed that where top management does not encourage its staff or employees to develop necessary skills or expertise in their respective field of work, failure is eminent.

Furthermore, the study revealed that training is critical in order to ensure that employees within organisations are equipped and capacitated with the necessary skills and knowledge for MBI readiness. Training refers to a systematic and organised process of learning by which employees develop knowledge, learn attitudes, skills, and concepts aimed at cultivating personal and organisational performance [40].

Organisation must have a clear and mandatory mobile education and training strategy and training programmes wherein employees are required to attend, aligned to the organisational mobile strategy. Furthermore, the study asserts that the mobile technology vendors must provide training sessions for mobile technology in organisations. This will enable South African organisations in the telecommunication industry to have necessary skills to effectively and efficiently implement MBI technologies.

### 5.1.3. *Core Readiness*

The management and the entire organisational leadership should not see change as something they should fear but rather as something to embrace. Effective communication is important to enable change. Organisational changes must be effectively communicated from the top management or leadership to all employees throughout the organisation regardless of their level.

It is therefore important that any changes be regularly communicated to all employees using different communication methods and platforms available to the organisation. This inclusive approach will in turn allow all employees to feel as an integral part of the organisation and it will be easier for these employees to embrace change, thus ensuring MBI readiness. This means that change should not only be seen as management responsibility but as the responsibility of each employee throughout the organisation.

Mobile technology provides more freedom of mobility and control over daily operations. Keeping up with the latest technological developments greatly assist organisations for MBI readiness, which in turn enable these organisations to dissect and adopt technologies that are fit for purpose instead of adopting technologies

without considering their environment and expected return on technological investments. Furthermore, things that encourages employees to use mobile technology such as security, comfort, increased control, flexibility, efficiency in life due to technology, being the first using a new technology, etc. should be considered.

Similarly, things that discourages employees to adopt or use mobile technology such as lack of trust, fear of technology, discomfort, insecurities, etc. should be considered. Believing that mobile technology makes it easier for organisations to spy on people or its employees is likely to negatively affect organisational wide readiness for MBI.

The study revealed that while other employees believe that human touch is very important when dealing with technology, others believe that whenever something gets automated, they need to check carefully that the machine or computer is not making mistakes. Furthermore, other participants believe that one can never be sure that information which is transmitted over the internet or through a machine reaches its intended recipient or the right place.

Thus, it is critical for South African organisations within the telecommunications industry to determine possible inhibitors and mistrusts when assessing its readiness. Failure to identify and evaluate these elements or inhibitors will negatively affect organisational readiness for MBI implementations.

#### 5.1.4. Mediating Factors

The study revealed that it is important for organisations to have the capability to recruit and retain the required skills necessary to attain its goals and objectives. The success of the organisations characterised by frequent turbulences of fast changes depends on its capability and aptitude to acclimatise to the new needs of the market and environment. These organisations must have competent and adept employees to implement and manage mobile technologies and have mechanisms in place to nurture and maintain high levels of employee morale and motivation.

Furthermore, organisations must have the flexibility and ability to create competitive advantage, align business strategies to directly support organisational goals, provide new products or services, and improve relationships with customers. These organisations must provide faster and easier access to useful, accurate and reliable internal and external information. The study revealed that mobility within organisations improves business efficiency, business processes, new business plans and business models, financial resources, structure, processes skill levels, and expand capabilities.

Top management support as well as support from all levels of management is critical for new technological developments and implementations, MBI readiness, and the achievement of organisational goals and objectives. Furthermore, lack of funding may result in failure or inability to implement and support MBI readiness. It is therefore critical for organisations to have a clear budget and funding strategy to ensure MBI readiness.

The study revealed that top management should consider mobile technology as an important factor for organisational success. For organisations to ensure readiness for mobile technology, there should be budget allocated specifically for mobility. Insufficient or lack of budget for mobility will results in the organisation failing to achieve or implement required solutions.

#### 5.2. Discussions of Findings

The study revealed that MBI adoption within South African Organisations in the telecommunication industry is still at its embryo stage. This is despite the fact that; (1) mobile devices (e.g. tablets, smartphones, etc.) provides a wide range of portability and functionality, (2) there are many ideas and frameworks on the subject of BI readiness implementation factors. Although mobile devices have become extremely popular in recent years, this does not always mean that they are being used for business purposes.

Furthermore, although there are many success stories on BI implementations, the same cannot be said about MBI. This is attributed to the fact that mobility brings about different risks and challenges such as (1) Security and privacy of proprietary information, (2) Lack of standardised mobile offerings, (3) Slow adoption of globally available mobility solutions, (4) non-adherence to policies and standards, (5) Fragmented mobile platforms and diversity issues, (6) Limited processing, graphics, display, etc.

Within the South African organisations, MBI adoption is expected to increase significantly in the coming years. This increase will be attributed to several factors, including the unprecedented shift in culture, the emergence of MBI models, and the devastation caused by rare diseases such as the Covid-19, forcing the majority of businesses locally and across the globe to operate remotely. As human contact gets reduced due to the pandemic, organisations will heavily rely on MBI to improve its business operations and service delivery.

Note should be taken that the readiness factors considered within South African organisations will not necessarily be the same as those in other countries due to different culture, policies, technological and organisational factors amongst others. Furthermore, within the South African context, readiness factors



relevant to other industries such as Education, Mining, SME, etc. will not necessarily be applicable or relevant to those in the telecommunications industry. Thus, it is important to appreciate MBI components or factors within the context and content of various industries and organisations.

Fear of technology, mistrust and insecurities towards technology, complexities and data irregularities, lack of inclusive infrastructure readiness, lack of comprehensive policy that governs mobile devices usage, high costs, and limited top management support remains some of the barriers for MBI. These barriers can also be regarded as disks that needs to me mitigated. On the other hand, some of the key enablers for MBI readiness were found to be freedom of mobility, fit-for-purpose technological developments as well as strong security measures and technology comfort.

The identified factors or components of MBI readiness model were validated using quantitative analysis as outlined on Table 1 below.

Table 1: MBI Readiness validated components

Components / Factors	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items	Significance value (P value)
Culture	0.876	0.876	3	P = 0.000 < 0.05
Policies	0.835	0.834	5	P = 0.001 < 0.05
People	0.807	0.811	2	P = 0.003 < 0.05
Infrastructure	0.866	0.867	2	P = 0.001 < 0.05
Security	0.773	0.803	6	P = 0.000 < 0.05
Skills / Capability	0.852	0.852	2	P = 0.001 < 0.05
Training	0.940	0.940	4	P = 0.000 < 0.05
Need for Change	0.842	0.847	6	P = 0.000 < 0.05
Motivators	0.775	0.798	8	P = 0.033 < 0.05
Inhibitors	0.763	0.767	9	P = 0.013 < 0.05
Organisational Capability	0.830	0.831	3	P = 0.021 < 0.05
Enterprise Mobility	0.851	0.860	4	P = 0.002 < 0.05
Support	0.915	0.916	4	P = 0.001 < 0.05
Change Enablers	0.788	0.789	2	P = 0.000 < 0.05
MBI Readiness	0.707	0.722	2	P = 0.008 < 0.05

The study resulted in the development of a comprehensive model for assessing MBI readiness within South African organisations in the telecommunications industry as shown in Figure 3 below. The model will amongst others enable these organisations to make informed decisions before investing in mobile technologies by assessing their readiness for MBI.

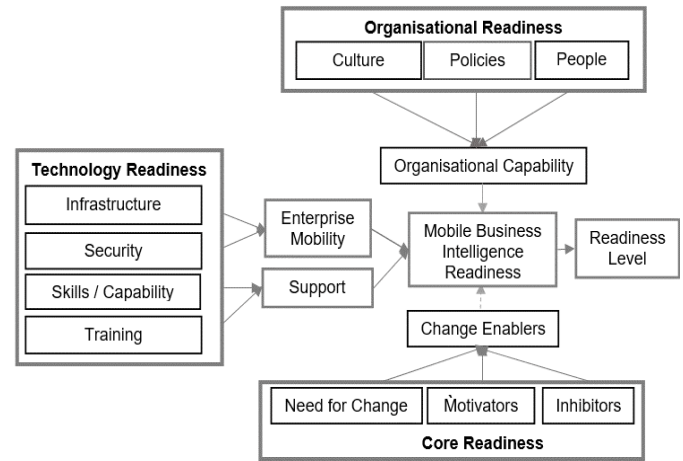


Figure 3: Model for assessing MBI Readiness

5.3. Limitations of the study and future research

The study was conducted within the context of South Africa, so the data was collected specifically from participants in South Africa, and therefore it does not entirely represent global trends. Although the focus of the study was on the telecommunications industry, some readiness factors and components might be similar across other industries, however generalisation of the results should be interpreted with caution. A comparative study across different industries could be conducted.

The study used cross-sectional survey as data were collected at a specific point in time. As the use of the internet continues to grow, technology changes constantly, natural or manmade disasters happen, rare diseases emerge (such as Covid-19), and cultural changes occur, the results of this study may be limited in forecasting future trends, and over time many of the readiness factors established may no longer be relevant. Hence, future research can focus on longitudinal studies.

5.4. Conclusion

An assessment model was developed for assessing MBI readiness in South African Telecommunications industry. The objectives of the study were achieved in developing the said model. These were to determine the state of MBI adoption within South African organisations, to establish readiness factors for BI adoption and their significance in MBI readiness assessment, determine what South African organisations consider to be enablers and barriers to MBI adoption, and establish empirical MBI readiness factors within South African organizations as well as validate the conceptualised MBI readiness model.



Although the model was developed with the focus on telecommunications industry within South African context, it can be tailored or customised to other industries. Researchers could thus use, extend or replicate the model to develop other MBI readiness models in a variety of contexts. The study made a substantial contribution to the literature relating to MBI which can serve as reference to other researchers.

Furthermore, the study provides organisations with practical advice and guidance for assessing their readiness, allowing them to develop an in-depth understanding of pivotal readiness factors, which will greatly assist them in realising anticipated benefits and making informed decisions while saving cost, time, and resources. The information provided by these critical readiness factors and their impact on practice will enable organisations to formulate better strategies and approaches for MBI readiness, resulting in a high success rate on MBI investments.

### Acknowledgement

Our appreciations and acknowledgements are dedicated to Tshwane University of Technology for granting us the opportunity to conduct the study, the Participants as well as the Editors and Reviewers for their contributions.

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