

# **The Role and Benefits of Business Process Simulation In Digital Transformation Process Within Banking Sector- Case of Absa Bank Limited**

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## **Abstract**

Banks play vital role in the economy because they manage investments for both individuals and corporations, operate the payment system, and provide credit. Previously, the banking sector was more focused on face-to-face interactions with customers to conduct business. Business process simulation is an essential Business Process Management technique that analyses business processes and validates process improvement. According to the contingency theory, the banks' new digital focus must be aligned with business processes for them to function effectively. As one of the largest banks in South Africa, Absa Bank has embraced the use of digital platforms for customers and digitized most business processes to offer clients effective services or products. There is a need to align and understand the role that business process simulation plays in business processes to enable digital transformation in the banking sector. The purpose of this study is to investigate and understand the role of business process simulation in enabling the effective digital business transformation in the banking sector - a case study of Absa Bank Limited. An online survey questionnaire method was developed and distributed amongst Absa employees for data collection.

## **Keywords**

Business Process Simulation, Digitization, Digital Transformation, Banking Sector, and Business Process Management

## **1. Introduction**

The financial services sector has a vital role in the contemporary world economy. Therefore, there is a need for the financial sector to digitize most their business process so that the offered products and services can be easily accessible to the customer. This enables everyone within business ecosystem to service customers effectively, conclude sales quicker, and complete work in real time.

Digitalization offers new opportunities for the financial sector, especially the banking industry, which needs to place the customer at the center of the development process. The need for Business Process Re-engineering (or change) activities that support the digital transformation processes is continuously increasing. As a result, a wide range of methodologies, approaches, and strategies are available to support business process re-engineering initiatives for the promotion of digital transformation. To analyze business processes and make decisions about process improvement, business process simulation is a crucial business process re-engineering approach. The success rate of business process re-engineering projects can be increased, and risk can be mitigated by using simulation for business process modeling and analysis. Business process simulation also refers to the activity of taking processes and their artifacts that were previously manual and automating or digitizing them. Business process simulation forms part of the process analysis and data collection tools in pre-development and implementation of the solutions.

In summary, it should be noted that in order to ensure that the offered product and service reaches the customer quicker, business process improvement projects and the implementation of business process re-engineering techniques should be coordinated with the bank's new digital focus or strategy. However, setting and implementing the business process re-engineering or innovation strategies required for a seamless digital transformation process may be challenging for the financial industries. This article discusses the role and advantages of business process simulation in facilitating the business digital transformation in the financial sector. It has selected business process simulation as the method for business process re-engineering or innovation.

The article outlines the following: The first section includes the method which includes the design and distribution of the questionnaire. The section further explores how this method was used to retrieve data, highlighting the role and benefits of business process simulation in facilitating the banking sector's digital transition. The second section includes the analysis and presentation of the survey outcomes and the discussion or conclusion on the results.

### **1.1 Objectives**

OB1: Understanding the role and benefits of business process simulation in enabling the digital transformation.

OB2: Understanding the challenges of applying business process simulation in financial sector

OB3: Understanding the challenges of digital transformation in Absa Bank Limited

## **2. Literature Review**

This section's main goals are to explain the existing state of conditions in the study's focus areas and to identify theoretical viewpoints that are significant to the study.

### **Overview of Digital transformation**

Digital transformation involves the use of the latest digital technologies to improve business models that ensure customer centricity becomes increasingly important for financial service providers. A. Kő, P. Fehér & Z. Szabó (2019) state that the spreading of digital technologies throughout our societies brings along various changes in organisational culture, people, business processes and business models. According to A. Papathomas and G. Konteo (2023), there are three phases to the digital transformation process: adaptive, growth, and revolution. Adaptive is the first phase, during which companies look to align digital technologies with strategic technology and introduce new technology at a lower cost. Growth is the second phase, during which companies begin to digitize and the pace of transformation quickens. Lastly, revolution is the third phase, during which companies innovatively disrupt themselves and enter into a new business model.

According to J. Bumann & M. Peter (2019), for the businesses to plan and execute the digital transformation successfully, the organizations must have a clear strategy and place “digital” at the heart of their business strategies. Business should also make use of the leading technologies that speed up digital transformation when executing their strategies, these include mobile, AI, AR, Internet of Things, Digital twin, Robotics and Robotic Automation, Big data, API-integration, cloud, and 3D printing.

### **Digital transformation in financial sector**

Digital transformation is a strategic priority for most of the financial sectors in South Africa to renew their business and stay competitive in the market. According to V. Tornjanski, S. Marinković, G. Săvoiu & M. Čudanov (2015), digitization of financial model provides opportunities to banks, such as: advancements of interactions among

customers and internal and external stakeholders, provides higher quality of management decision making, enables new business and / or operating models, e.g., peer-to-peer innovation of products or services. Furthermore, the authors states that despite many opportunities digitization provides to the financial sector, many retail banks have struggled to invest into projects to improve front, middle and back-office banking operations.

The recent innovations in digital technology have resulted in increased competition from innovative firms, but it has also sparked a change in consumer preferences and demands that have altered the relationship between the consumers and the retail banks (R. Ortstad & B. Sonono 2017), and result in majority of the customer willing access most of the offered products and service using digital platforms.

### **Overview of business process simulation**

According to N. Melão and M. Pidd (1999), the business process simulation can be viewed as a collection of methodologies, techniques and tools supporting the analysis and improvement of business processes via simulation modelling. Business process simulation can help overcome the inherent complexities of studying and analysing businesses, and therefore contribute to a higher level of understanding and improving these processes (V. Hlupic & G. de Vreede 2005).

While business process simulation can help overcome the inherent complexities of business processes (models) and analysing businesses, several barriers and challenges remain on the implementation part of it. According to the V. Hlupic & G de Vreede (2005), the following are the challenges of introducing the business process simulation: (I) the effective and efficient involvement of stakeholders and subject matter experts in simulation modelling activities, (II) creating and enhancing management awareness about benefits and pitfalls of simulation modelling.

Process simulation model of business processes can determine a potential bottleneck area and ascertain which resources are critical. Business process simulation may also help to keep "brainstorming" sessions on track. During these sessions, new ideas can be tested using simulation models, and decisions can be made based on the outcomes of those results.

### **Business process simulation in financial sector**

The banking sector is a competitive business environment, where business process simulation is constantly needed as part of the business process re-engineering or innovation. The use of simulations within the banking industry can be reviewed as far as 1981, where business process simulation is examined as a tool to evaluate how the addition of an online teller terminal system (OLTTS) will affect customer service in a bank (K.L. Slepicka, and G. A. Spohrer 1981).

Business process simulation is one of the business process management effective tools towards improving the performance of business activities and enabling enterprise-wide monitoring and coordination. Furthermore, business process simulation plays an important role in analysing and predicting performance. An in-house Engineer or Analyst can identify the processes that will have the biggest impact on the business strategy and can systematically evaluate the performance prediction of the proposed future state process.

## **3. Methods**

This section discusses the method used to collect data. The design of the questionnaire method includes the questions that contributed to understand the role and benefits of business process simulation in enabling digital transformation and the target population was also included in the survey. The questionnaire was conducted for a period of one week during the operating hours 8:00-16:30 (Monday to Friday).

### **Questionnaire design**

The questionnaire also gathered demographic information such as the job title of the current position, the number of years of employment in the financial sector and department, and any additional comments regarding how the financial sector can more quickly transition to the digital world and how it can use business process simulation to do so.

### **Target populations**

Target population includes Senior Managers, Design Project Leads, Senior process Engineers, Process Engineers, and Graduate - Process Engineers who are employed or active in the different departments of Absa Bank Limited.

## 4. Data Collection

This section describes the distribution of the survey questionnaire, which included both multiple-choice and open-ended questions, to gather information about the role and advantages of business process simulation in enabling digital transformation in the financial sector, specifically in the case of Absa Bank Limited. The questionnaire was distributed to different roles at Absa Bank Limited via the internet URL. The online mode of data collection offered an effective, quick, and economical way to gather relevant data, but it lacked control and prompt participant response.

## 5. Results and Discussion

The purpose of this section is to discuss the findings from the data collected to establish the extent to which research objective which is to answer the investigative questions to resolve the research problem was addressed. Vital to the discussion in this section is the views expressed by the participants in relation to the questions asked as guided by the study. This section presents the collected data conducted through the methodological study. The results are divided into the two main categories of questionnaires: multiple choice questions and Open-ended question method.

### 5.1 Numerical Results

The survey indicates that twenty-three ABSA responses from the different roles participated. The following are the quantified response from the roles participated on the survey: Design Manager (9%), Design Process Engineering Lead (4%), Senior Process Engineer (13%), Process Engineer (52%), & Other 22% (Process Excellence, Senior Process Design Manager, Test Analyst, Junior Process Engineer & Product Owner).

### 5.2 Graphical Results

This section displays the graphical results on response for the following survey questions: Which of the following describe business process simulation? Have you been exposed to any projects using business process simulation? What is the impact of digital transformation on the financial sector?. What are the main challenges faced during digital transformation? & What are benefits of using business process simulation tool in financial Sector?

#### Which of the following describe business process simulation?

The purpose of the question was to understand how the participant describe the business process simulation; the participants had to choose the from three answers. The below graph depicts that the 79% of the participants describe the business process simulation as the process of using a computer model to replicate the real-world behavior of a business or system, 13 % describe it as the visual display of the steps within a business process showing how it's done from start to finish and 8%.

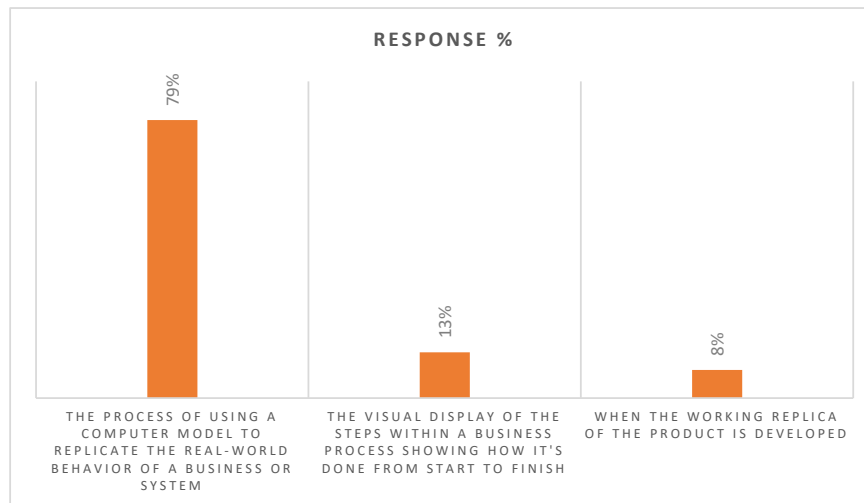


Figure 1. Response on the description of business process simulation

### Have you been exposed to any projects using business process simulation?

The purpose of this question was to understand the exposure on the business process simulation from the participants. The graph below depicts that the 13% of the participants have no exposure in business process simulation, which will give the positive and accurate feedback to the whole study.

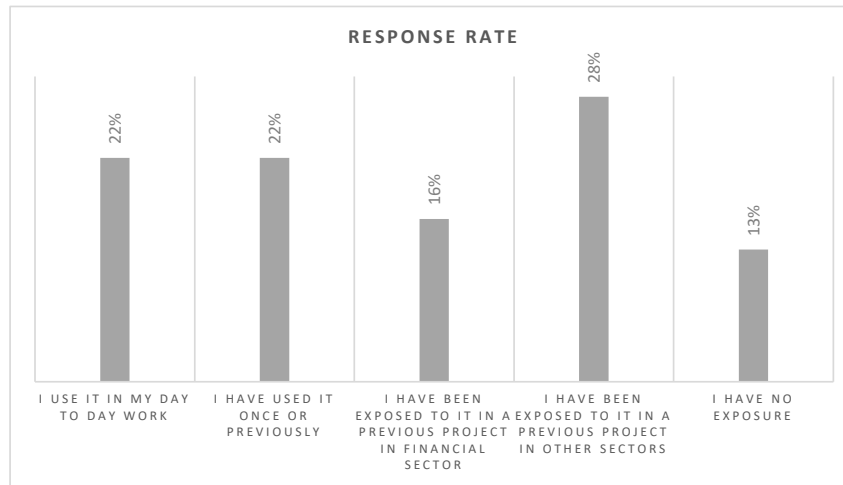


Figure 2. Response on business process simulation exposure

### What is the impact of digital transformation on the financial sector?

The purpose of this question was to understand the views of the participants on the impact of digital transformation in the financial sector, the question had four options, three were straight answers and one was other so that the participant can be able to put their own answers.

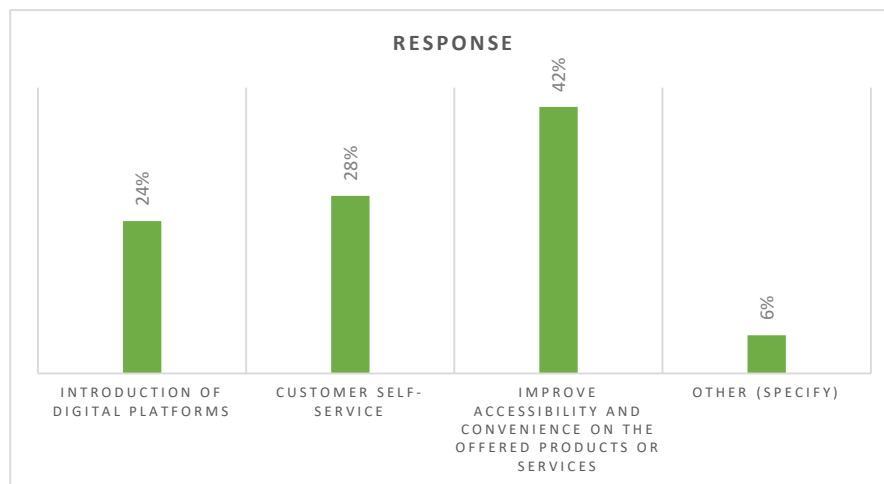


Figure 3. Response on the impact of digital transformation on the financial sector

The graph above depicts that 42 % of the participants believed that the impact of the digital transformation in financial sector is to Improve accessibility and convenience on the offered products or services while the 28 % and 24 % believed that it impacts customer self-service and introduction of digital platforms. The 6 % selected other with the following comments: Improve Turn Around Time of some services required by the customer & Quick turnaround times on product applications.

### What are the main challenges faced during digital transformation?

The purpose of this question was to understand the views of the participants on the main challenges faced during digital transformation in the financial sector, the question had four options namely: Integration with Bank Legacy systems or platforms, Data security and privacy, Risk, and compliance concerns and Resistant to change by the employees

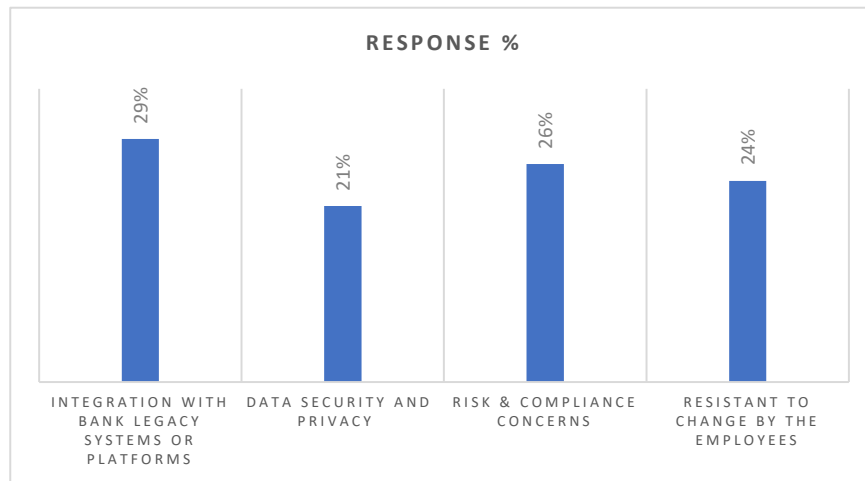


Figure 4. response on the main challenges faced during digital transformation

The graph above depicts that 29 % of the participants believed that the main challenges faced in digital transformation is the Integration with Bank Legacy systems or platforms while the 26 % and 24 % believed that challenges are Risk, and compliance concerns and Resistant to change by the employees platforms. The 6 % selected other with the following comments: Improve Turn Around Time of some services required by the customer & Quick turnaround times on product applications.

### **What are benefits of using business process simulation tool in financial Sector?**

The purpose of this question was to understand the views of the participants on the benefits of using business process simulation tool in financial sector, the question had five options namely: Improved decision making in innovation (Re-engineering) projects, Evaluate the performance prediction of the proposed future state process, improve communication within the stakeholder, Cost avoidance & saving and Enhancing data analytic and insight.

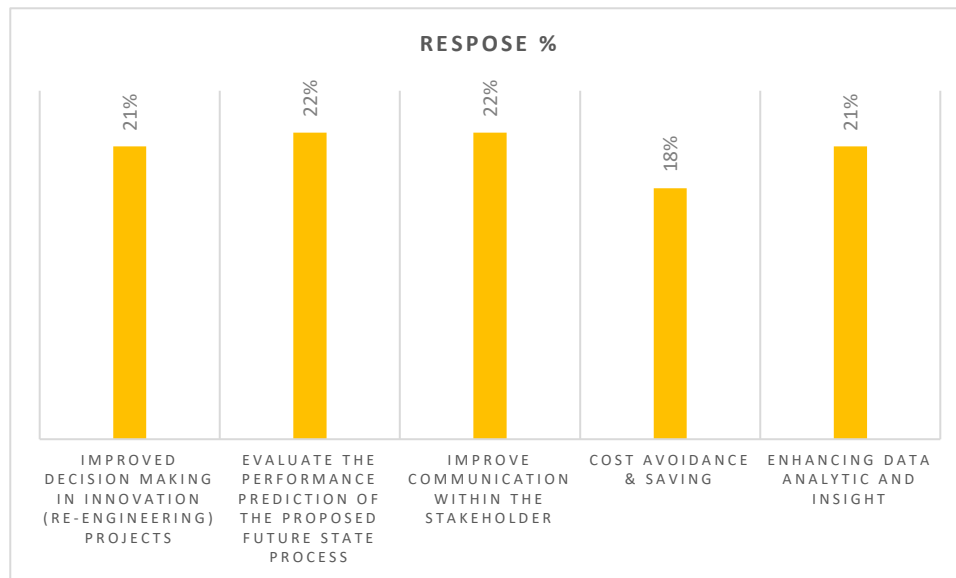


Figure 5. Response on the benefits of using business process simulation tool in financial sector

The graph above depicts that 22 % of the participants believed that the benefits of business process simulation in the financial sector are Evaluate the performance prediction of the proposed future state process and Improve communication with the stakeholder while the 21 % the benefits are to Improved decision making in innovation (Re-engineering) projects and to Enhancing data analytic and insight.

### 5.3 Proposed Improvements

The section provides the proposed actions that need to implement in to ensure the effective use of the business process simulation in the financial sector and to ensure the smooth process of digital transformation in the financial sector. The proposed action forms part of the Open-ended question method on the survey questionnaire, the proposed were grouped as business process simulation and digital transformation.

#### Business process Simulation

- Colleague knowledge (upskilling and development): for the business to have effective use of the business process simulation, there should be proper training on the business process simulation methods and tool to used model to a simulate the process.
- Access to tools: The organization should ensure the business process simulation tools available to the colleagues.
- Change management: The organization should ensure that proper change management process is implemented.
- Stakeholder education: Business stakeholders should be made aware of the use of business process simulation, and it's benefits. The requirements for business process simulation should be articulated to the business stakeholders

#### Digital transformation

Change management: The organization should ensure that proper change management process is implemented and encourage the colleagues to research about the correct technologies and future technologies.

Stakeholder education: Business stakeholders should be made aware of the use of digital platform, and it's benefits. The requirements for the digital platform should be articulated to the business stakeholders

### 6. Limitations and Further Research

This study has several restrictions that offer opportunities for future directions. This study's sample size is smaller, so the findings are applicable only to the ABSA bank. Therefore, in the future, a large sample size should be used to test

this empirical model for the generalization of results in other banks or financial sectors. This study suggests that more research should also be conducted across the financial sector broadly to assess benefits of business process simulation in enabling digital transformation. A comparison of digital transformation profiles in different financial sector would also shed light on how business process simulation can influence the transformation of the digital culture to enhanced organizational performance.

## **7. Conclusion**

Due to digital advancements in the financial business market, financial sectors are currently digitalizing most processes to digitally transform and align in the current business market. This paper investigated the position and objectives of business process simulation in enabling digital transformation in financial sector. This paper highlights the benefits of business process simulation in enabling digital transformation. Cost avoidance is one of these advantages because businesses can simulate the solution for the future state and make financial decisions based on the simulation results.

Business will be able to see the solution in action before it is designed and decide on the best digital platform that will fit the operational process and customer expectations thanks to business process simulation, which improves agility, speed, and data-driven decision-making through digital transformation. Business process simulation can provide the engineers or business with a view of whether their design will be fit for digital transformation strategy or purpose and would also provide a view of how the systems would perform provided different scenarios in real world.

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## **Biography**

**M. Ramogayane** is an experienced Process Engineer, and a Certified Lean Six Sigma Green Belt professional focusing on process improvement and optimization. He is au fait with process optimization in various industries (manufacturing, banking, finance, and insurance) and was part of the team responsible for the process improvement projects for reputable insurance and Banking companies in South Africa. He enjoys working on complex data-based projects involving problem solving, analysis, continuous improvement, and innovation. His skillset allows him to be at ease in busy environments, producing a high standard of work, whether it is team related or in individual capacity.

**Z. Pila** is a talented and accomplished senior process engineer currently working in the banking industry. Her professional journey began in the rail industry, where she started as an Industrial Engineer, honing her skills in process



Optimisation and problem solving. In her current role, she plays a vital role in the bank's operations. She collaborates with cross functional teams to identify pain points, analyse current processes, and implement improvements. She has obtained Honour's degree in Technology management & B-Tech in Industrial Engineering. She likes solving problems, collaborating and mostly she's interested in the new technology which can improve customers satisfaction.

**R. Seanego** works at one of the top 5 traditional banks in South Africa responsible for strategic process projects within the organization. She specializes in lean methodology and design thinking and has fulfilled many roles throughout the course of her career ranging from Demand Planner, Industrial Engineer, Business Analyst and Business process engineer. She is highly interested at how technological advancements and innovations improve people's lives and deliver world class customer experience. She received a degree in Industrial Engineering at the University of Pretoria in 2013. Before Joining the financial sector, she worked as an engineer in the manufacturing space.