



Developing System Dynamic Model for Mobile Analytics in SMEs

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Abstract: *Given the new ecosystem movement that has begun to move towards new digital technology developments. This research begins by highlighting the importance of the subject and examining the documents of leading countries in implementing emerging technologies such as IoT, artificial intelligence, mobile analytics, and so on. This research uses forward-looking, scenario-based and simulation approaches to create simulation models for mobile analysts in large and small organizations. these technologies are ,or will soon be profitable on average,had higher revenue,and achived a bigger market valuation than competitors.we use system dynamic simulation for survey impact of mobile analytics in small and medium size organization.*

Keywords: *Mobile, Social Technologies, Big Data, Analytics.*

INTRODUCTION

Recently, digital transformation has been the subject of much debate in IT organization meetings. But what does digital transformation really mean? Digital transformation is the transformation in which digital technology is incorporated into all aspects of society and human life

Digital transformation is the third and last step in a long process that takes place after the acquisition of digital skills and then digital knowledge. It's relatively straightforward to explain, but the key question is, what are the implications for businesses

Digital transformation (DX) means that organizations need to be prepared to run their businesses in an environment where everything has an online component, sooner or later everything is connected and always connected to the internet They will interact with consumers, customers, and even competitors at any given moment, and these interactions are in almost every way possible and will take place far more than ever before. Digital transformation will take place quickly, with far-reaching implications for IT-based organizations, and add to the complexity of operations. The only person who can best manage this transition is the IT manager or CIO. This person already holds the position of IT Manager, possesses an in-depth knowledge of the business, and has a thorough understanding of the potential of the IT infrastructure to evolve and support digital transformation.

For year 2018, just having a digital strategy is not enough. Today, organizations need to succeed to completely separate their business from physical assets and transform into a new, data-centric digital world. To stay competitive, digital transformation should not be an acquisition but a part of the organization's structure and DNA. For this reason, for businesses that want to get behind it, this transformation may be productive or

destructive. Digital transformation is just as dangerous as it is, and it is the job of the IT manager to define a digital transformation strategy that will slowly pass through the risks and at the same time take advantage of the opportunities.

Many technologies, business processes, and even superior experiences that were in the past contextual and contextual, are continually discarded. This opens the way for IT executives who are aware of digital technologies so that they can take advantage of this transformation to lay the foundation for next century businesses. In order to succeed on this path, IT managers need to understand the pillars of innovation and apply them. The pillars of innovation are cloud, analytics, social media and mobile (CASM) and are used to build an agile organization designed to move and move into the new digital world. But it will create new and more vulnerabilities that require advanced risk reduction plans.

Lithreature Review:

In 2018, Yan GUO, Chengin YAIN, Mingfu Li, Xiaoting Ren³ and Ping Liu, improved Recommendation system based sustainable e-Business for mobile ecommerce provides a method which makes use of multi-source information to analyze consumers' requirements. (Yan Guo, 2018). In 2015, Lutz Kolbe, in automotive organizations, show the challenge of emergent technology such as mobile analytics and they use innovative approach for this challenge. (Piccinini et al., 2015)

Michael Minelli, Michele Chambers, Ambiga Dhiraj in big data, big analytics, in 2013 explain the emerging business intelligence and analytic trends and influence of BI on entire organization. (Minelli et al., 2013)

In 2016, Bettina Horlach in the paper of Bimodal IT: BUSINESS –IT alignment in the age of digital transformation deliver flexible and faster IT-model based on mobile analytics for new market. (Horlach, 2016)

Saul j. Berman, in 2011, describe new mobile analytics model for customer services for emergent technologies for reaching greater customer services in SMEs (Berman, 2011).

Fitzgerald, Michael, in 2014, Embracing Digital Technology: A New Strategic Imperative, describe digital analytics strategy in business models. Companies routinely invest in technology, and too often feel they get routine results. (Fitzgerald et al., 2014)

Simulation Result:

In this study we use system dynamic models by Vensim software for measuring the improvement of business by social media, mobile analytics. The period of this model is 30 months.

The model was run under variety of conditions to understand the impact of different mobile analytics technology in SME, this was done to help managers make effective decisions concerning about analytics platform simulation result.

(Figure 1) (Figure 2)

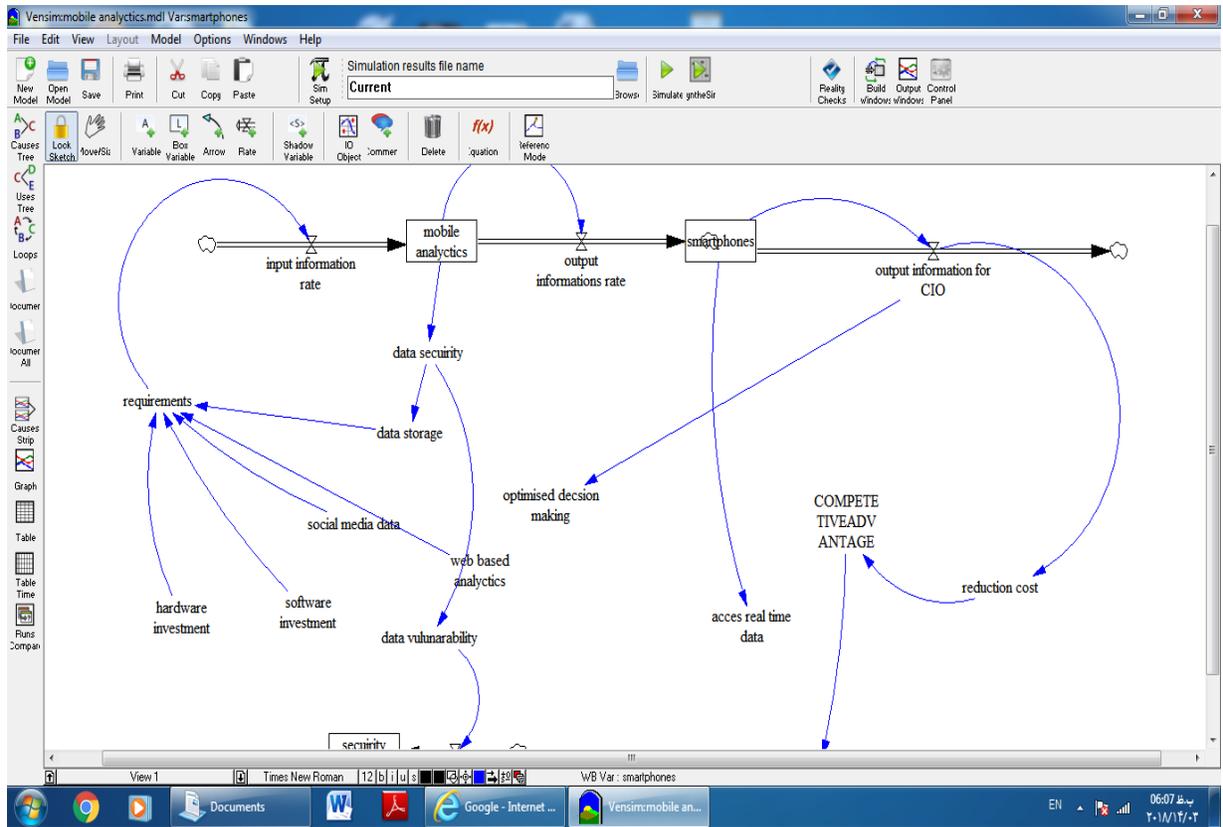


Figure 1-simulation result

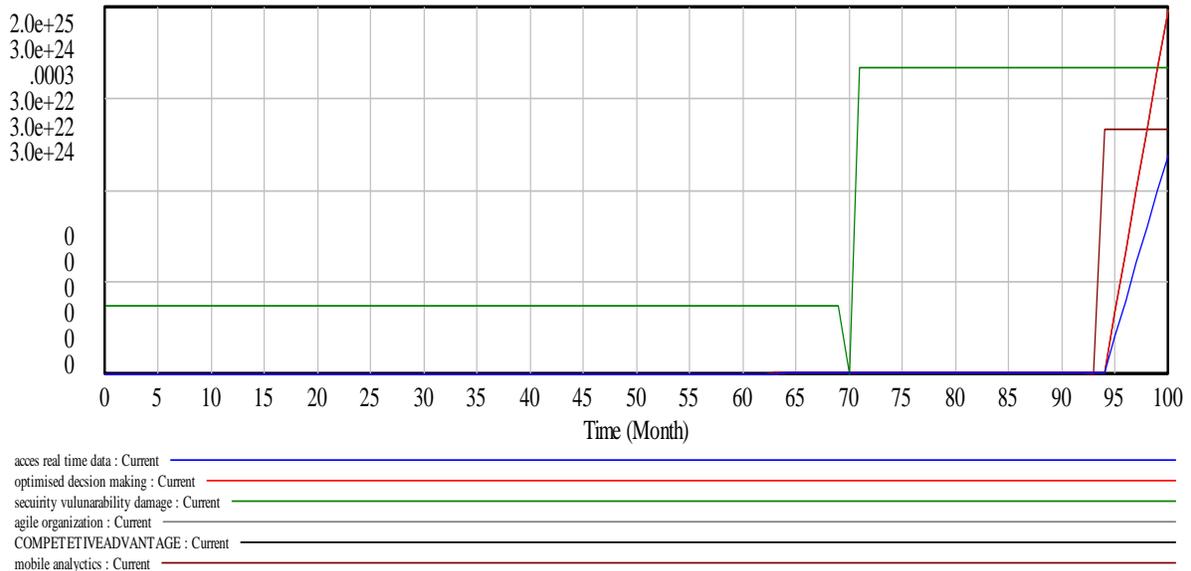


Figure 2-vensimsimulation result

As a result of this model we saw that optimized decision making, agile organization, competitive advantage, access real time data & reduction cost variable growing and damage vulnarabilty decreased.

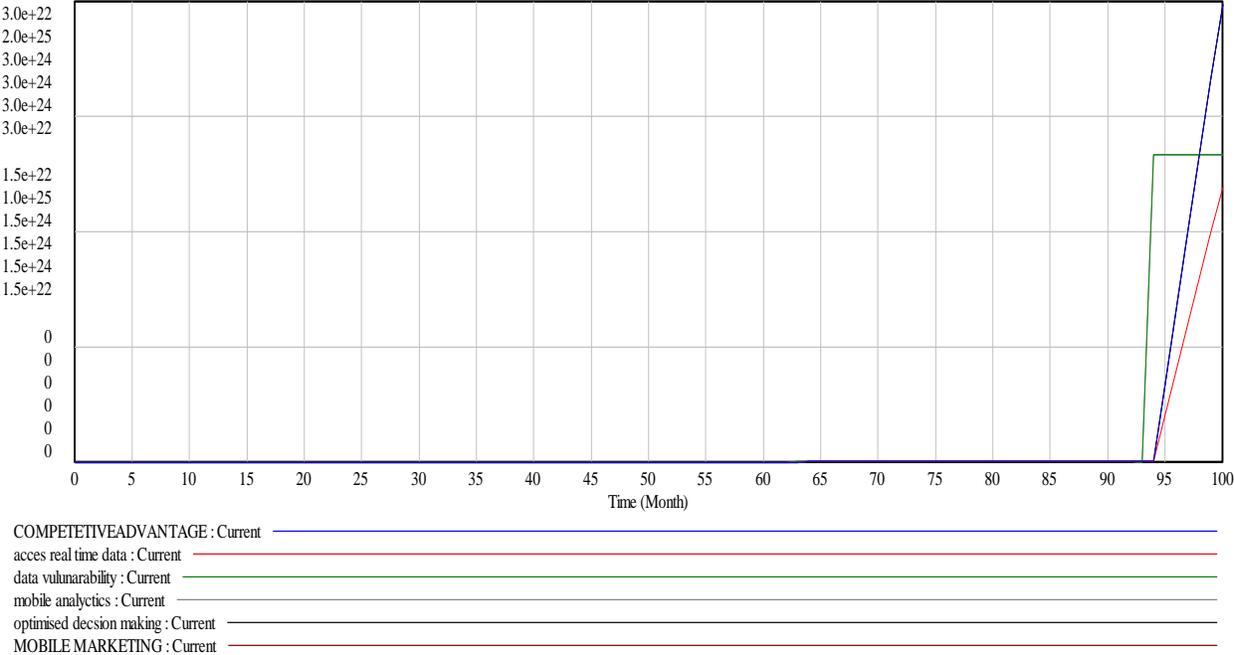
Table 1: the scenario and results

scenarios	SOFTWARE INVESTMENT (\$)	HARDWARE investment (\$)	Competitive advantage	Agile organization	Optimize descision making	Acces real data	Security vulunarity damage
Without investment in mobile analytics solutions	0	0	0	0	0	0	0
Very low investment in mobile analytics solutions	1000000	750	15%	20%	15%	5.78	0
Low investment in mobile analytics solutions	3000000	750	20%	25%	30%	5.8	1.89
BASE SCENARIO	4500000	750	25%	40%	50%	5.5	1.53
High investment in mobile analytics solutions	6000000	750	50%	60%	58.9%	5.8	2.9e
Very high investment in mobile analytics solutions	8000000	750	69%	70%	78.5%	6.0e+16	3.2 e

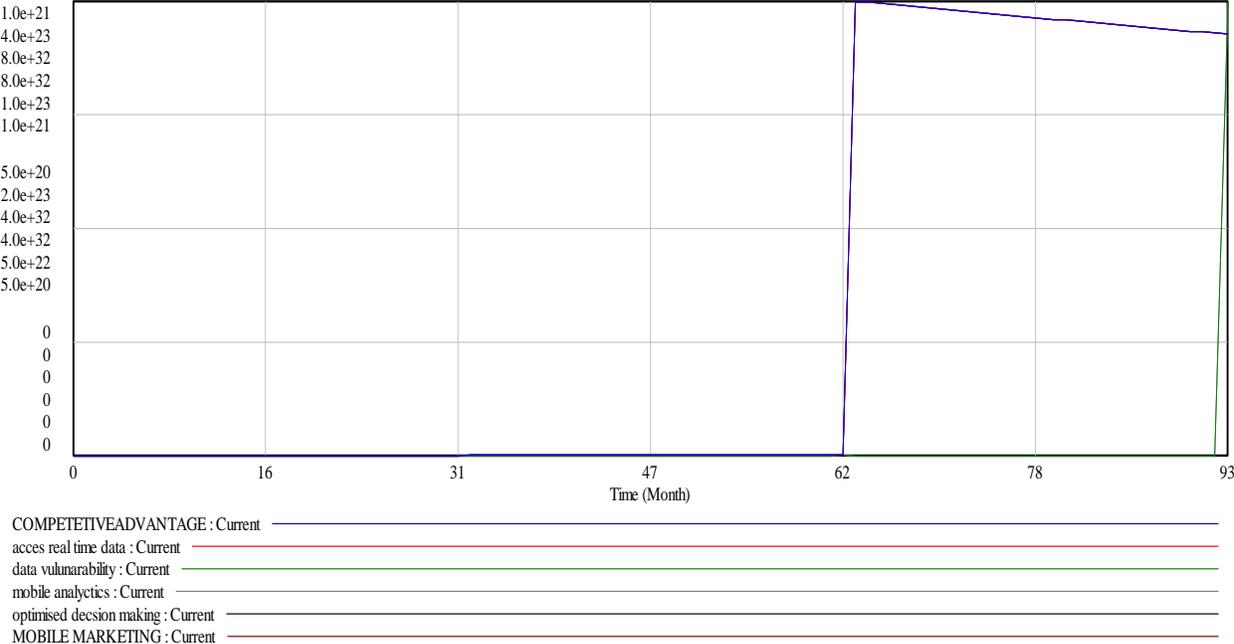
Base scenario was calibrated for small organization,using medioum values for dimonless constructs and a set of plausible values for other constructs.this involved an assist base of 4500000\$ investment every six months in mobile analytics model . in addition the hardware investment was set at 100000\$ at the start of first year,with software investment expenses of 750000\$ every six months. after running the model ,the numbers of vulunarity,competitive advantage ,optimize descision making,agile organization,were tracked these result appear in feagure).

Alternative MOBILE ANALYTICS INVESTMENT

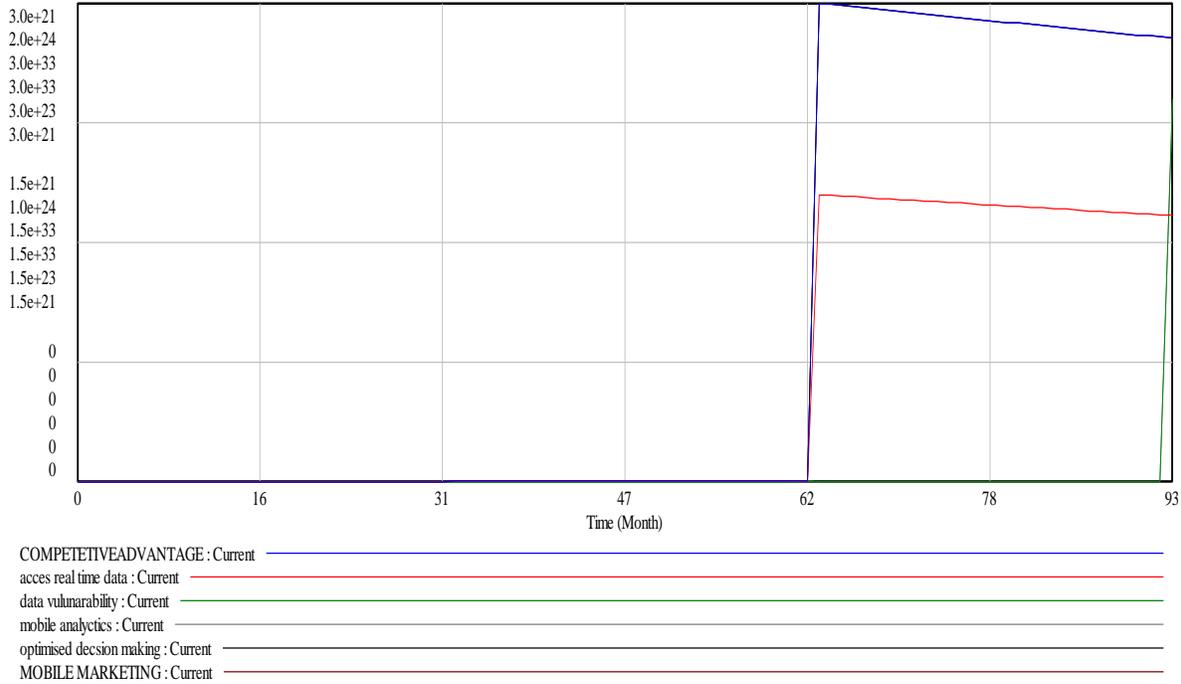
After establishing that the model was structrully sound and that its behavior was consistent with expections,the model was used to investigate the impact of different mobile analytics investment decisions. The mobile analytics technology investment was varied from 100000\$ to 8000000 ,security damages and infrastructure cost were compiled for these scenarios and are presented in table 1.all these scenarios based on expert comments.



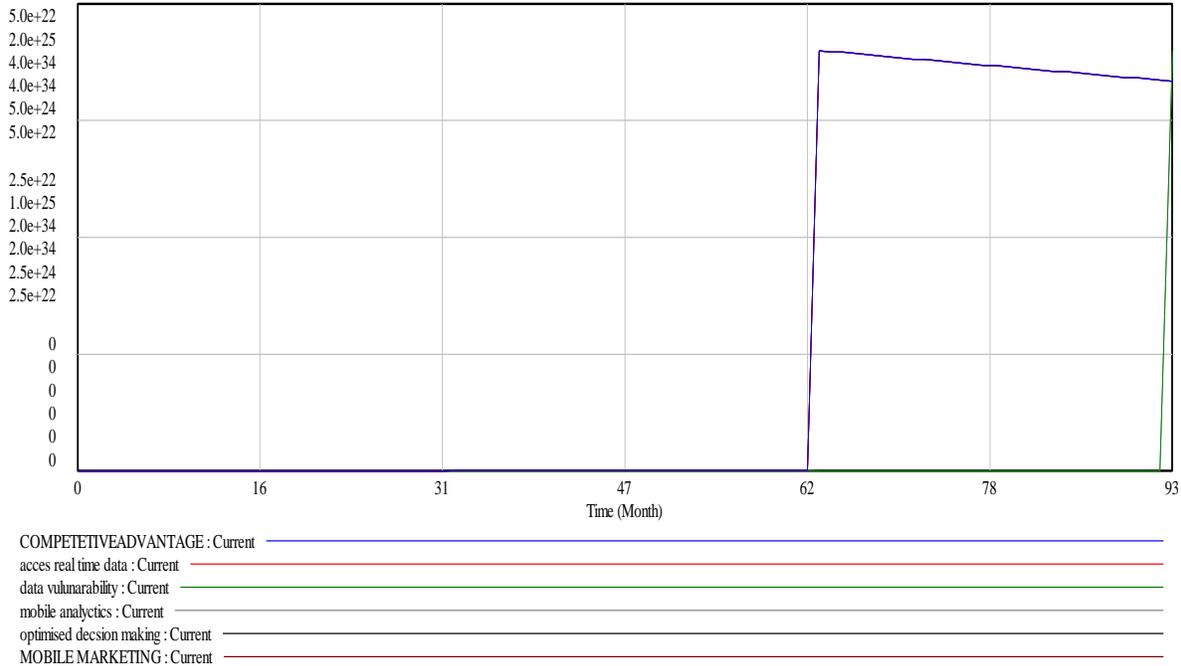
Scenario 1



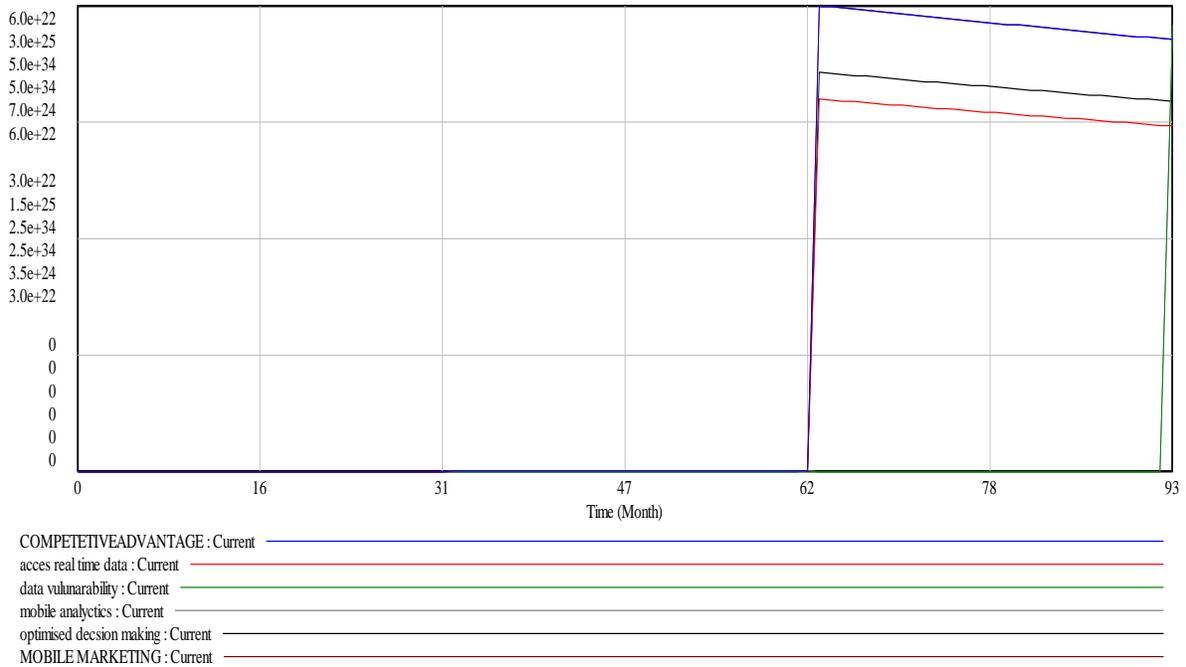
Scenario 2



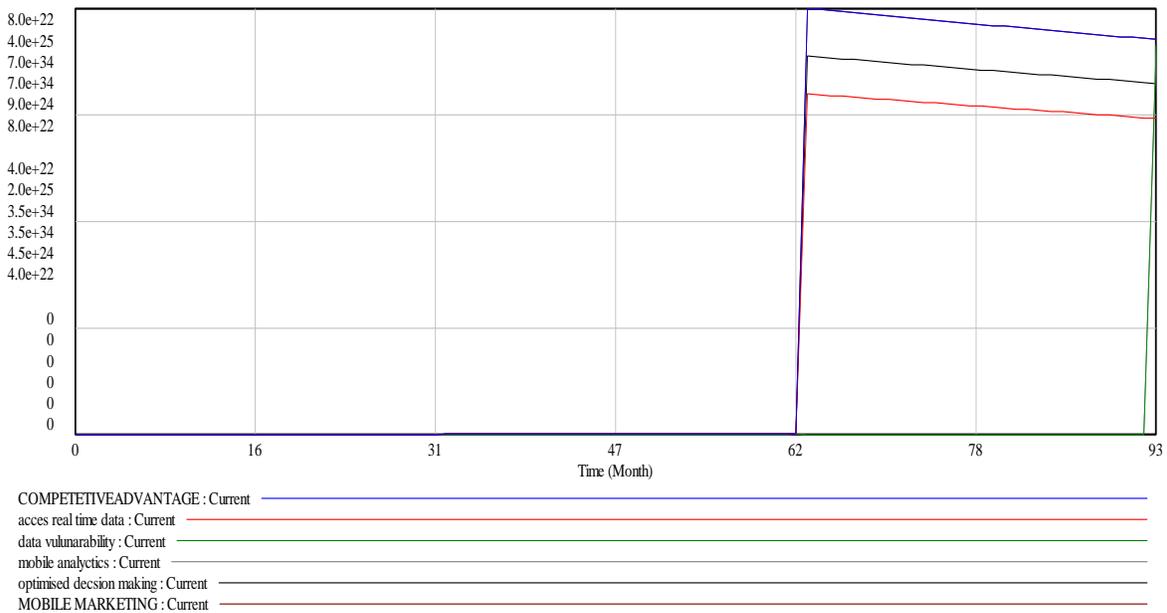
Scenario 3



Scenario 4



Scenario 5



Conclusion:

In this study we approved that mobile analytics is key basis for competetive adnatage in SME.with this analytics organization can defend against security vulunarability.they can access real data and best organization decision making.

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