

PROGRESS REPORT

Annual Progress Report for the CSIR DSI-Interbursary Support (IBS) Programme

October 2020

All Masters and Doctoral students who are currently holders of the CSIR DSI-Interbursary Support (IBS) bursary should complete this Progress Report Template.

Please complete and submit this report by email to HCD-INTERBURSARY@csir.co.za by **20 October 2020**

NB: Incomplete reports will not be favourably considered.

1. Research Focus Area.

Select the focus area of your research from the list below - Remember this is already on your bursary allocation letter):

- Aerospace
- Composites
- Modelling and Digital Sciences
- Microsystems Technology
- Titanium (Manufacturing Elements)
- Photonics
- Biopharming
- Bioprocessing
- Biocatalysis
- **Information and Communications Technology**
- Indigenous Knowledge Systems (IKS)
- Health

2. Student Details.

Student Name:	Mawande
Student Surname:	Sikibi
Student Number:	201203976
Student ID/Passport Number:	9105156085084
Student date of birth	15 May 1991

Student's Email address	mawandesikibi@gmail.com		
Student's contact numbers	0785351969		
Name of University:	University of Johannesburg		
Academic department:	Mechanical and Industrial Engineering Technology		
Degree registered for:	Masters		
Year when funding started	2020	Expected Year of Completion:	2020
How many years have you been receiving this bursary support for your current degree?	1		
Do you require extension funding for 2021?	Yes	No	
	X		
If yes, please provide reason why you require extension funding for 2021?	PHD study funding		
Name of Supervisor:	Rita Steenkamp		
Supervisor's Email address:	rsteenkamp@uj.ac.za		
Supervisor's contact numbers:	011 559 6278		

3. Project Information.

Research Title: Use big data analytics for management of production

Summary: Nowadays, data is indispensable in the production industry sector. Big data analytics and initiatives are used to gain insights that could assist to make strategic decisions to evaluate this data. The concept connects to Industry 4.0, which emerged at the commerce of the 21st century. Technology giants can use big data analytics technologies to forecast future outcomes. For the large volume of data and voluminous databases that can be structured, semi-structured, or unstructured, the term big data is widely used for a plethora of advanced digital techniques designed to reveal trends. This study aims to use big data analytics for management to predict future outcomes. However, these analytics examines the large data sets of production processes to underline insights and patterns. The study uses an intrinsic case study to better understand the methods used to extract the database's data to achieve superior results. The researcher participated in the process in an active participatory manner and demonstrated to the company the use of predictive analytics to predict and analyse big data from various big data sets to gain insights and patterns. These methods managed to use historical data and turn it into actionable information about what may happen. The
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results obtained from historical data assisted production management in making strategic decisions in the selected data sets. This study proposes predictive analytic as the method for big data to predict the future conditions that drive the production industry.

Progress on work done for each objective:

This study conceives to address the fundamental questions: Does the company understand how to manage big data analytics?

The involvement of researchers in the sector has changed the mindset around data storage. This skill set has altered how management handles multiple generated data. It appears that the organization has adopted a new climate. The participation of the researcher in the company has changed the mentality regarding storing data. However, this skill set has changed how the management manages various data generated. The company appears that has brought a new environment. The knowledge of how to use this technique has changed the management perception towards managing big data. This was important to the company.

What is the analytical technique that would be suitable for managing big data?

This technique has leveraged the production data to the extent that the management can predict company data. Therefore, this has created many opportunities in the company for job opportunities that are related to data.

How would the company govern the data and change the future data outcome?

The company has deployed data scientists to govern the data predicted for patterns and future occurrences.

Research outputs (Report if there are any outputs to date including publications, manuscripts etc.). For all publications write in full using the Harvard Reference style guide.

Use green initiatives for management of logistics industry

SAIIE31 Proceedings,
5th – 7th October 2020,
Muldersdrift, South Africa
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* SAIIE31 Award for best Panel Session

<https://conferences.sun.ac.za/index.php/saiie31/saiie31/author/submissionReview/4487>

Signature by student: M. Sikibi

Date: 19 October 2020

Supervisor recommendations:

Has the student's progress been satisfactory? Please comment and report any other issues that you would like to bring to the attention of CSIR DSI Inter-bursary management.

As lecturer for Industrial Engineering at the University of Johannesburg. Mr. Sikibi has been a dedicated student who has worked hard consistently he has completed his master's degree in industrial engineering at UJ and he is currently busy with his Masters. The topic of his masters in "Use big data analytics for management of production". This is a very relevant topic in line with fourth industrial revolution. He is a friendly and confident student. He attended his classes diligently and completed assignments on time. He makes the extra effort to ensure that he understands and provides lecturers with good quality work. He is a self-motivated student.

In the case of extension funding request please provide your comments on this section.

Please assist him with funding for PhD studies

Signature by supervisor: Rita (H.) Steenkamp

Date: 18 October 2020