

PROPOSAL FOR COLLABORATIVE RESEARCH FUNDING

**THE UTILIZATION OF DATA ANALYTICS TO FORMULATE
POSSIBLE BUSINESS PROCESS IMPROVEMENT FOR FINANCE
SERVICES OF ACADEMIC SECTOR**



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2. Dr. Sunarta, MM.**

**CENTER OF RESEARCH AND DEVELOPMENT
UNIVERSITY OF MUHAMMADIYAH PROF. DR. HAMKA
2020**

VALIDITY SHEET

Title of Research : The Utilization of Data Analytics to Formulate Possible Business Process Improvement for Finance Services of Academic Sector
Research Scheme : International Collaboration
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University : University of Muhammadiyah Prof. DR. HAMKA
Duration of Research : February 2020 – February 2021
Research Cost : USD 5.000

Jakarta, 31 January 2020

Applicant



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CONTENTS

Validity Sheet.....	i
Contents	ii
Research Summary	1
1 Background.....	1
2 Research Objective	1
3 Methodology	2
A Expected Results.....	2
B Publication Output	2
C Schedules	2
D Roles of Researchers.....	3
4 Planned Budget.....	3
5 References.....	3
APPENDIX: Researcher Data	5
Ahmad Diponegoro.....	5
Sunarta	7

RESEARCH SUMMARY

In the rapidly growing competition era nowadays, continuous improvement of business process is imperative for any organization, be it an academic institution, to stay feasibly operational. In this research, the problem of identifying operational inefficiency and potential venue of improvement in a higher education environment will be addressed. This proposed research aims at two main tasks. First, it identifies operational bottlenecking, waste, non-compliance, and other inefficiencies in finance service operations of a higher education institution. The research objects are a private university in Indonesia and a university in Malaysia. In finding the problem, data analytics approach is employed to assist in identifying problems based on facts intelligently. Second, it proposes business process improvement addressing identified operational inefficiency, in which the six sigma and other suitable decision methods will be utilized.

1 BACKGROUND

In a very dynamic competition of the world today, it is important for a company to respond challenges that arise with right business decision making to keep the company's business process continuously improved for more efficient and better in delivering service to customers.. In the reign of higher education institutions, the motivation to improve business processes is usually to reduce the wastages, i.e., achieving a lean organization, and improve the services delivered to their students, industry partners, faculty and researchers (Svensson, Antony, Ba-Essa, Bakhsh, & Albliwi, 2015). Among common wastages in higher education institutions include human resources, processes, information, assets—the improper use of the university's human, infrastructural, and service provision resources (Balzer, Brodke, & Kizhakethalackal, 2015).

With the advance of information technology, the use of data analytics has been adopted by many in assisting managerial decision making in achieving more lean, efficient business operation. Organizations employing data analytics have realized benefit from it. Chen *et al.* (2012) identified business sectors that reaped big benefit from implementing data analytics include e-commerce, government, health, public safety, and science and technology. In higher education sector, big data analytic is an interest priority for most universities in which it can significantly advance an institution in strategic areas, such as resource allocation, student success, and finance (Ong, 2016). Further, Daniel (2017) stated that universities nowadays are constantly searching for insights from data analytic, to generate strategies can be used to meet their increasing demands. Business Process Improvement (BPI) is a systematic modeling to open new venues in doing business to attain continuous improvement. Although it is common in for-profit firms, non-profit organization such as higher education institutions also start to benefit from the BPI aimed at efficiency improvement (Vukššić, Bach, & Tomiččić-Pupek, 2014). This research seeks to obtain a Business Process Improvement for finance service of UHAMKA and UTP.

2 RESEARCH OBJECTIVE

The objective of this research consists of the following points:

1. To identify current problems of business process of UHAMKA focusing on Bureau of Finance of UHAMKA (and Finance Services of UTP) based on data analytics.
2. To formulate suitable improvement of business process in Bureau of Finance of UHAMKA (and Finance Services of UTP) conducted by the approach of decision-

making models. The formulated improvement of business process will be recommended for the respective institutions (UHAMKA and UTP).

3 METHODOLOGY

The methodology of this research will be depicted in the following diagram in Figure 1. The role of

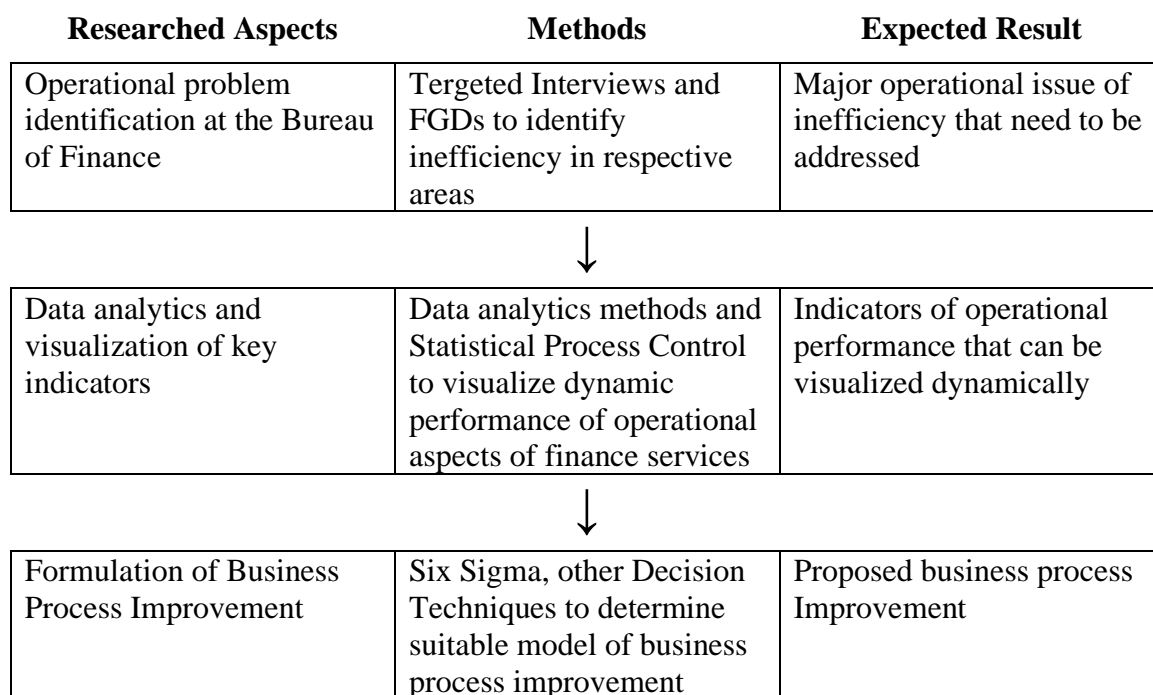


Figure 1. Research Methodology

A *Expected Results*

This research is expected to produce

1. Formulation of business process improvement for operations in bureau of finance using data analytics.
2. Dashboard system for Bureau of Finance in UHAMKA and UTP

B *Publication Output*

Publication(s) in scopus indexed journals.

C *Schedules*

Time	Research Project Activities
Febr – Mar 2020	Interviews for Preliminary Investigation
April 2020	Definition of inefficiency problem in Bureau of Finance
May – June 2020	Data Acquisition
July – Sept 2020	Development of data visualization
Oct – Dec 2020	Formulation of Business Process Improvement

Time	Research Project Activities
Jan 2021	Documentation
Feb 2021	Reporting

D Roles of Researchers

Table 1

Role of UHAMKA's Researcher(s)	Role of UTP's Researcher(s)
1. Focus Group Interviews (Indonesia)	1. Focus Group Interviews (Malaysia)
2. Data Collection (Indonesia)	2. Data Collection (Malaysia)
3. Dashboard Development (Indonesia)	3. Dashboard development (Malaysia)
4. Data analysis using Mix Method	4. Data Analysis using Sig Sigma
5. Formulation of Business Process Improvement (Indonesia)	5. Formulation of Business Process Improvement (Indonesia)
6. Cross-Comparison and Data Synthesis	6. Cross-Comparison and Data Synthesis

4 PLANNED BUDGET

No	Descriptions	Proposed Cost (USD)
1	Services for data collections, and analyzers, programmers and system maker.	2,000
2	Purchases of consumables for stasionary, photocopies, correspondence, preparation of reports, publications, credits, internet, laboratory materials, journal subscription.	700
3	Travel for data survey/sampling cost, seminars/workshops for foreign countries, accommodation-consumption cost, perdiem/lumpsum, transport, hotel	2,200
4	Rent for equipment/machinery/laboratory space, vehicles, experimental space, other research support equipment.	100
Total		5,000

5 REFERENCES

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- Svensson, C., Antony, J., Ba-Essa, M., Bakhsh, M., & Albliwi, S. (2015, 10). A Lean Six Sigma program in higher education. *International Journal of Quality & Reliability Management*. doi:10.1108/IJQRM-09-2014-0141
- Vukšić, V. B., Bach, M. P., & Tomičić-Pupek, K. (2014, 1). Process Performance Management in Higher Education. *International Journal of Engineering Business Management*, 6, 11. doi:10.5772/58680

APPENDIX: RESEARCHER DATA

Ahmad Diponegoro

A.1 Identity

Name (with Degree)	: Ahmad Diponegoro, MSIE., Ph.D.
Functional	: Senior Lecturer
NIP/NIK/Other IDs	: -
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A.2 Education

	Bachelor's	Master's	Doctoral's
Univesity Name	Institut Teknologi Bandung, ID	Louisiaa State University, USA	Louisiana State University, USA
Degree in	Engineering Phyisics	Industrial Engineering	Industrial Engineering
Year Completion	1995	2001	2003

A.3 Research

Title of the Research	Year
Model Triple Helix Sebagai Strategi Pengembangan UKM Menuju Industri Kreatif	2019
Model Triple Helix Sebagai Strategi Pengembangan UKM Menuju Industri Kreatif	2018
Heuristik Efisien untuk Penugasan Staff dalam Organisasi Akademik	2017

A.4 Publications

Articles	Types
“Success Factors in Triple Helix Coordination: Small-Medium Sized Enterprises in Western Java,” <i>ETIKONOMI</i> , 18 (2), 2019, 233–248.	Journal
“Enhancement method for assignments of staff in multiple events,” International Cooperation for Education about Standardization 2018 (ICES 2018) Conference Joint International Conference with 5th	Conf. Proceeding

Articles	Types
ACISE (Annual Conference on Industrial and System Engineering) and World Standard Cooperation Academic Day, 2018, 49 .	
“Modeling of a scheduling method for organizing training assignments,” Proceedings of the 2nd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL), 2017.	Conf. Proceeding
“Optimal production plans and shipment schedules in a supply-chain system with multiple suppliers and multiple buyers,” <i>European Journal of Operational Research</i> , 194 (3), 2009, pp. 753-773.	Journal
“Operations policy for a supply chain system with fixed-interval delivery and linear demand,” <i>Journal of the Operational Research Society</i> , 58 (7), 2007, pp. 901–910.	Journal
“Finite horizon planning for a production system with permitted shortage & and fixed-interval deliveries,” <i>Computers and Operations Research</i> , 33 (8), 2006, pp. 2387–2404.	Journal
“Finite horizon planning with fixed-interval deliveries and no shortage,” <i>Opsearch: Journal of the Operational Research Society of India</i> , 2006, 43 (4), pp. 404–424.	Journal
“Flow distance reduction for a multi-product flowline with sets of identical machines,” <i>European Journal of Operational Research</i> , 147 (3), 2003, pp. 591-612.	Journal
“Operations Method for a Lean Supply-Chain System with Multiple Suppliers and Multiple Buyers,” <i>IIE Annual Conference Proceedings</i> , 2003, pp. 1–6.	Conf. Proceeding
“Determining manufacturing batch sizes for a lumpy delivery system with trend demand,” <i>International Journal of Production Economics</i> , 77 (2), 2002, pp. 131–144.	Journal
“Machine assignment in a nonlinear multi-product flowline,” <i>Journal of the Operational Research Society</i> , 54 (4), 2003, pp. 472-489.	Journal

Sunarta

A.5 Identity

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A.6 Education

	Bachelor's	Master's	Doctoral's
Univesity Name	Satya Negara University, ID	STIE Kusuma Negara, ID	Brawijaya University, ID
Degree in	Economics	Management	Management
Year Completion	1998	2001	2013

A.7 Research

Title of the Research	Year
Dampak Liberalisasi Perdagangan Negara-Negara Asean Terhadap Ekspor Komoditas Non Migas Unggulan Indonesia	2018
Pengembangan Sistem Komunikasi Pemasaran Terpadu Nelayan Binuangeun Malimping Lebak Banten	2018
Peningkatan Pendapatan Melalui Desain Kemasan dan Perluasan Saluran Distribusi Pengrajin Gula Aren di Kabupaten Bandung Barat Propinsi Jawa Barat	2016
Analisis Strategi Generik Terhadap Kinerja Perusahaan Sepatu Di Athaya Shoes Sebagai Unggulan Bersaing Dalam Menghadapi Masyarakat Ekonomi Asean	2015
Analisis Gaya Kepemimpinan Wanita Pada Usaha Kecil Sepatu Di Athaya Shoes Tangerang Selatan	2014

A.8 Publications

Articles	Types
“The Effect Of Generation X And Generation Y Behavior On Employee Loyalty Through Job Satisfaction,” <i>Agregat: Jurnal Ekonomi dan Bisnis</i> , 2019.	Journal
“Gaya Kepemimpinan Wanita Pada Usaha Kecil Menengah di Tangerang Selatan,” <i>Agregat: Jurnal Ekonomi dan Bisnis</i> , 2(1), 2019, pp 1 – 19	Journal
“The effect of packaging design, distribution channel expansion and work experience toward the income level of sugar palm farmers in west Bandung regency, java province,” <i>International Journal of Advanced Research</i> , 5(11), 2017, pp. 1253-1260.	Journal
“The Disclosure of Corporate Social Responsibility and Good Corporate Governance toward Company’s Financial Performance and Stock Price of Lq45 Company,” <i>International Journal of Business and Management Invention</i> , 6(2), 2017, pp. 23 – 29.	Journal
“The Success Tips of An Entrepreneur (A Study on Soetrisno Bachir’s Entrepreneurship In Gadamer’s Hermeneutics Perspective),” <i>International Journal of Business and Management Invention</i> , 3(6), 2014, pp. 1 – 11.	Journal