



AWARD LETTER

According to the Memorandum of Agreement between **Universitas Muhammadiyah Prof Dr Hamka** (uHANIKA) and **Universiti Teknologi PETRONAS (UTP)**, both universities agree to provide funding for this international collaborative research fund (ICRF). Both universities have agreed with the following statements:

- a. The funding amount for UHAMKA-UTP international collaborative research fund 2020 is RM20,000/team
- b. Four couple of teams have been successfully chosen.
- c. The selected winner of UHAMKA-UTP international collaborative research fund 2020 are:

No	Project Title	Team	Project Leader
	Developing Holistic Green Driven Innovation Scale: Transition Toward A Low Carbon Society in The Era of Industrial Revolution 4.0, A Comparative Study of Indonesia and Malaysia	UHAMKA	Dr. Yadi Nurhayadi Dr. Nuryadi Wijiharjono Ummu Salma
		UTP	AP Dr. Satirenjit Kaur Johl
2	The Utilization of Data Analysis to Formulate Possible Business Process Improvement for Finance Services of Academic Sector	UHAMKA	Dr. Ahmad Diponegoro Dr. Sunarta
		UTP	Dr. Norshakirah Azis
3	Study on Maintenance Downtime (Maintainability of Equipment and System in Petrochemical Plant	UHAMKA	Delvis Agusman, ST, MT Firman Nur Hasan, ST, MT
		UTP	Dr. Hilmi Hussin
4	Investigation of Self—Regulated Learning of STEM Students in Flipped-Based Instruction of Technical Course Using Gamification Elements	UHAMKA	Prof. Dr. Suswandari Dr. Ihsana El Quloqo
		UTP	Dr. Iskandar Dzulkamain
5	Evaluation of Universities' Promotional Video Advertisements Effectiveness using Electroencephalography (EEG) and Human-Eye Tracking (HET)	UHAMKA	Dr Edrni Rizki Edison, Deni Adha Akbari M.Si, Yayu Hizza Anisa S.Psi
		UTP	Dr Amjad Shamim

- d. The UHAMKA-UTP International Collaborative Research Fund 2020 Will be officially started on **5th June 2020 with 1-year project duration.**

Universitas Muhammadiyah
Prof. Dr. Hamka

Prof. Dr. Suswandari, MPd
Director
Research and Community Service

Universiti Teknologi PETRONAS

ASSOC. PROF. DR. ABDUL RAHIM BIN OTHMAN
Director
Research Management Centre

PROPOSAL FOR COLLABORATIVE RESEARCH FUNDING

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



**UHAMKA Team: 1. Ahmad Diponegoro, MSIE., Ph.D.
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
Researcher Name : Ahmad Diponegoro, MSIE., Ph.D.
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Functional : Senior Lecturer
Faculty / Center / Unit : Graduate School
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E-Mail : adipone@uhamka.ac.id
Researcher Member : Dr. Sunarta, SE, MM.
NIDN : 0322116301
University : University of Muhammadiyah Prof. DR. HAMKA
Duration of Research : February 2020 – February 2021
Research Cost : USD 5.000

Jakarta, 31 January 2020
Applicant



Ahmad Diponegoro, Ph.D.
NIDN.0323017002

Menyetujui, Ka.Lemlitbang UHAMKA



Prof. Dr. Hj. Suswandari, M.Pd.
NIDN : 0020116601

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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 bottlenecks, 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

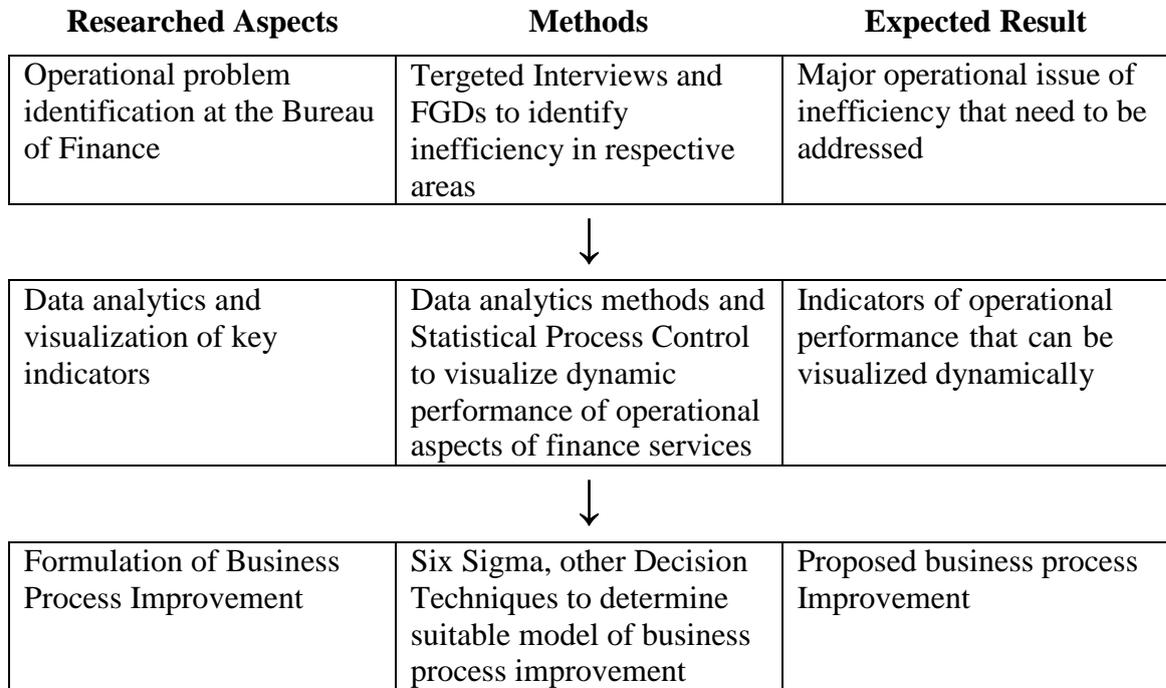


Figure 1. Research Methodology

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

- Balzer, W. K., Brodke, M. H., & Kizhakethalackal, E. T. (2015, 10). Lean higher education: successes, challenges, and realizing potential. *International Journal of Quality & Reliability Management*. doi:10.1108/IJQRM-08-2014-0119
- Chen, H., Chiang, R. H., & Storey, V. C. (2012, 12). Business Intelligence and Analytics: From Big Data to Big Impact. *MIS Quarterly*, 36, 1165-1188. doi:10.2307/41703503
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- Ong, V. K. (2016, 3). Business Intelligence and Big Data Analytics for Higher Education: Cases from UK Higher Education Institutions. *Information Engineering Express*, 2, 65-75. Retrieved from <http://www.iaiai.org/journals/index.php/IEE/article/view/63>

- 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
- Vukššić, V. B., Bach, M. P., & Tomiččić-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.
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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

Name (with Degree)	: Dr. Sunarta, SE., MM.
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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

**INTERNAL PROGRESS REPORT (70%) OF COLABORATIVE
RESEARCH UHAMKA-UTP**

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RESEARCH SUMMARY

This document is a progress report that provides the current state of investigation in the original research entitled “The utilization of data analytics to formulate possible business process improvement for finance services of academic sector.” This research is a joint effort between UHAMKA, Indonesia and UTP, Malaysia. 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 bottlenecks, 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. This report is organized in the following parts: (i) background, (ii) objective, (iii) methodology, (iv) progress report, (v) budget, (vi) concluding remarks, and (vii) references.

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 [1]. 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 [2].

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.* [3] 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 [4]. Further, Daniel [5] 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 [6]. This research seeks to obtain a Business Process Improvement for finance service of UHAMKA and UTP.

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- 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

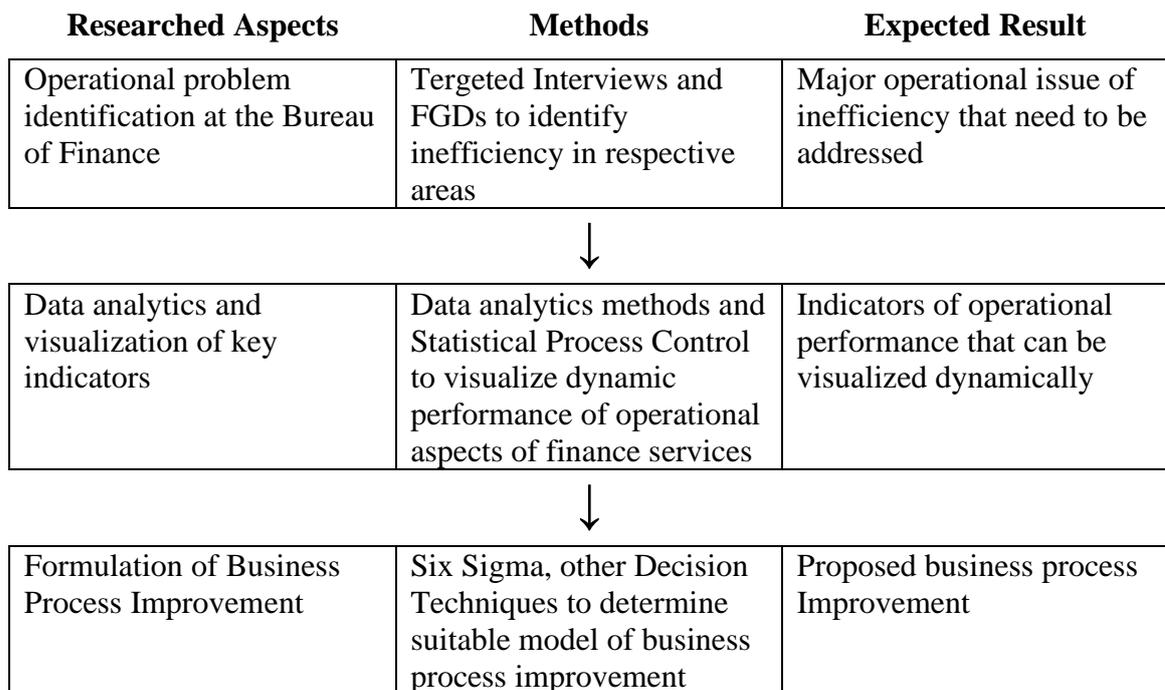


Figure 1. Research Methodology

A *Expected Results*

This research is expected to produce

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

B *Delliverables*

- Publication(s) in international reputable journals.
- Staff mobility for two weeks.
- Student mobility for two months.

C *Schedules (Updated)*

Time	Research Project Activities
June 2020	Commencement of Contract (SPK)
June – Aug 2020	Interviews for Preliminary Investigation and investigating on documents

Time	Research Project Activities
Sept – Oct 2020	Definition of inefficiency problem in Bureau of Finance
Nov – Dec 2020	Data Acquisition
Jan – Mar 2020	Development of data visualization
Apr – May 2020	Formulation of Business Process Improvement
Jun 2021	Documentation and reporting

4 PROGRESS

A Research Progress

Table 1 Research Progress Outline

Researched Aspects	Methods	Expected Result	Achieved & Further Action
Operational problem identification at the Bureau of Finance	Targeted Interviews and FGDs to identify inefficiency in respective areas	Major operational issue of inefficiency that need to be addressed	70% - Most of problem identification has been determined. Need further confirmation from corresponding individuals. Ref. to Table 2 in detail
Data analytics and visualization of key indicators	Data analytics methods and Statistical Process Control to visualize dynamic performance of operational aspects of finance services	Indicators of operational performance that can be visualized dynamically	70% – Key indicators has been identified, in the metrics of financial strength. The key indicators for operational performance need to be determined. Ref. to Table 2 for detail.
Formulation of Business Process Improvement	Six Sigma, other Decision Techniques to determine suitable model of business process improvement	Proposed business process Improvement	40% – The need for improvement in the areas of information technology is instrumental. Other improvement is to be determined. Ref. to Table 2 for detail.

Table 2. Detailed Progress Results

Researched Aspects	Key Progress Findings	Further Action
Operational problem identification at the Bureau of Finance (and other related organization units)	<p>Identified operational issues based on initial interview and investigation on relevant documents [7] [8] [9] [10] [11] [12] and [13].</p> <ol style="list-style-type: none"> 1. Coordinating within bureau issues, which include partially developed tasks monitoring to delegated to staffs. 2. Coordinating with other units in the organization, which include identifying time frame of targeted activities. This issue is not specific to the bureau of finance, but rather due to lack of supporting information technology. 3. Presenting tactical and strategic financial strength of the organization in timely manner to all stakeholders. 	Confirmation of findings by means of focus group discussion with parties of interest in the top level to unit level within UHAMKA.
Data analytics and visualization of key indicators	<p>There are two main results indicators. (1) indicators set by BAN-PT [14] [15], which are well established and employed by all higher education in Indonesia: (i) Ratio of fund from students to the total fund obtained, (ii) Ratio of fund from other than student and government to the total fund obtained, (iii) Average annual operational costs for learning process, (iv) Average annual research funds, (v) Average annual PkM¹ funds, (vi) Ratio of spending on research to the total spending, and (vii) Ratio of spending on PkM to the total spending.</p> <p>The second (2), we propose the Composite Financial Indicator (CFI) to measure financial soundness of a higher education institution established by Tahey et al. [16]. We consider this measure is important for stakeholders to measure UHAMKA's financial strength in more depth, compared to general-purpose measure for profit-oriented business organization. Composite result indicator for strategic financial strength of the university. The composite indicator proposed here consists of result indicators of financial strength in the following:</p> <ol style="list-style-type: none"> 1. Viability Ratios 2. Debt Burden Ratio 	<ol style="list-style-type: none"> 1. Establish the Key Performance Indicators is needed to be investigated further. This type of indicators is situational and specific for each organization. Preferred approach in this direction is employing Balanced Scorecard. 2. By means of focus group discussion, the KRIs and KPIS need to be agreed by stake holders. 3. Develop dashboards visualization of key indicators by computer application to implement data analytic model. 4. Take observation sample data for metric. Target

¹ PkM stands for Pengabdian pada Masyarakat (i.e., Community Engagement)

Researched Aspects	Key Progress Findings	Further Action
	3. Debt Service Coverage Ratio 4. Interest Burden Ratio 5. Portfolio Principal Duration Metric 6. Return on Net Assets Ratio: 7. Physical Asset Reinvestment Ratio 8. Age of Facilities Ratio 9. Facilities Burden Ratio 10. Deferred Maintenance Ratio 11. Net Operating Revenues Ratio: 12. Cash Income Ratio 13. Net Tuition and Fees Contribution Ratio 14. Net Tuition Dependency Ratio 15. Net Dependency per FTE Ratio 16. Demand Ratio	sample is from the bureau of finance.
Formulation of Business Process Improvement	<p>The need for improvement in the areas of information technology is found to be very instrumental. This research assumes the use of data analytics in finding problems and formulating improvements, in which the main requirement is the establishment of a mature information system as the source of data and its seamless data retrieval.</p> <p>Although UHAMKA has established information system technology, it has not yet integrated the IS (Information System) technology it has, i.e., financial IS, academic IS, and learning management IS.</p>	<ol style="list-style-type: none"> 1. Observe cases of business process from School of Economics and Business as sample. 2. Gather historical data in academic aspects and financial aspects. 3. Formulate business process improvement by means of statistical analysis and discrete modeling. This is further discussed in an FGD by relevant units within UHAMKA.

The performance indicators are primarily from National Accreditation Board of Higher Education in Indonesia (BAN-PT) standard [14] [15]. We also present the Composite Financial Indicator (CFI) to measure financial soundness of a higher education institution proposed by Tahey et al., [16] which consists of four core ratios, i.e., Ratios of Primary Reserve, Viability, Return on Net Assets and Net Operating Revenues. The ratios, although employed mainly in the United States of America, they are also employed in a number of higher educations in the Europe, Australia, Africa, and Southeast Asia as reported by [17], [18], [19], [20], [21], and [22].

To progress this research, there is a considerable obstacle from the limited data that is organized in an integrated manner in the information system. They are academic system, financial system,

and learning management system, that are still independent and unconnected. Hence, this research must perform some extra efforts in integrating the data required.

B Deliverables

1. Student Mobility and Staff Mobility

In the current Covid-19 pandemic situation, activity restriction in many sectors is imposed by authorities both in Indonesia and in Malaysia. When this condition is going to ease is still uncertain now. Hence, traveling to Indonesia as well as to Malaysia to attend activities in respective universities becomes prohibitive within reasonable time. Two deliverables of this research, i.e., student mobility and staff mobility, shall be adjusted to overcome the situation.

We have discussed with our UTP partner and agreed on the following points:

- a. As the alternative, the student mobility activity will be conducted in online platform to perform research work. Graduate student is preferable.
 - The student will perform research work for 2-3 months.
 - Time of execution will be arranged.
- b. The lecturer staff mobility activity will be conducted by exchange lecture session for about 1 – 2 hours.
 - Dr. Noorshakirah (UTP) will deliver a 1 – 2 hours lecture to UHAMKA student.
 - Dr. Ahmad Diponegoro will deliver a 1 – 2 hours lecture to UTP student.
 - Time of execution will be arranged.

2. Publication

The current progress in publication is in the stage of drafting. In addition to the main publication output, we promise a conference proceeding publication as the output of the online “student mobility.”

5 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

6 CONCLUDING REMARKS

1. This research has progressed approximately 70%, for which details are shown in Table 2.
2. We and our UTP researcher team has agreed to conduct student mobility and staff mobility using online platform.

3. Extra effort is needed in integrating required data to perform “big data” analytic process due to lack of information system integration.

7 REFERENCES

- [1] C. Svensson, J. Antony, M. Ba-Essa, M. Bakhsh and S. Albliwi, "A Lean Six Sigma program in higher education," *International Journal of Quality & Reliability Management*, 10 2015.
- [2] W. K. Balzer, M. H. Brodke and E. T. Kizhakethalackal, "Lean higher education: successes, challenges, and realizing potential," *International Journal of Quality & Reliability Management*, 10 2015.
- [3] H. Chen, R. H. L. Chiang and V. C. Storey, "Business Intelligence and Analytics: From Big Data to Big Impact," *MIS Quarterly*, vol. 36, pp. 1165-1188, 12 2012.
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APPENDIX 1: RESEARCHER DATA

Ahmad Diponegoro

A.1 Identity

Name (with Degree)	: Ahmad Diponegoro, MSIE., Ph.D.
Functional	: Senior Lecturer
NIP/NIK/Other IDs	: -
NIDN	: 0323017002
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Faculty / Center / Unit	: UHAMKA Graduate School
Office Address	: Jl. Warung Buncit Raya 17 Jakarta Selatan 12790, Indonesia
Telephone/Facs.	: T: +62-21-79084063, 65. F: +62-21-79084068.

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
The utilization of data analytics to formulate possible business process improvement for finance services of academic sector	2020
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
“Triple Helix as a model of a knowledge-based economy for small and medium-sized enterprises: the Indonesian case.” <i>International Journal of Innovation, Creativity and Change</i> , 11(8), 2020, 369-386.	Journal

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 ACISE (Annual Conference on Industrial and System Engineering) and World Standard Cooperation Academic Day, 2018, 49 .	Conf. Proceeding
“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

Name (with Degree)	: Dr. Sunarta, SE., MM.
Functional	: Senior Lecturer
NIP/NIK/Other IDs	: -
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Telephone/Facs.	: T: +62-828-17055264 F: +62-21-87796977.

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

**APPENDIX 2: MINUTES OF MEETING WITH COUNTERPART FROM UTP
JANUARY 5, 2021**



**Universitas Muhammadiyah Prof. Dr. HAMKA (UHAMKA) –
Universiti Teknologi PETRONAS (UTP)**

Collaborative Research Talk

Confidential

Universitas Muhammadiyah Prof. Dr. HAMKA (UHAMKA) – Universiti Teknologi PETRONAS (UTP)	
TITLE:	UHAMKA-UTP: Collaborative Research Talk
SUBJECT:	COLLABORATIVE RESEARCH TALK

MINUTES OF MEETING		
Date	05 January 2021, Tuesday	Objective of Meeting: Collaborative Talk
Channel	Zoom Meeting	
Time	01:00 PM Jakarta (UTC +7)	
Attendees:		
	NAME	COMPANY
1.	Dr. Ahmad Diponegoro	UHAMKA
2.	Dr Sunarta	UHAMKA
3.	Dr. Norshakirah Ab Aziz	UTP
4.	Mohd Hafizul Afifi Abdullah	UTP

MATTERS DISCUSSED	ACTION BY
<p>1.0 INTRODUCTION</p> <p>This is the first meeting to discuss the initial collaboration plan between Universitas Muhammadiyah Prof. Dr. HAMKA (next to be referred to as UHAMKA) and Universiti Teknologi PETRONAS (next to be referred to as UTP).</p>	FOR INFORMATION
<p>2.0 DISCUSSION</p> <p>2.1 The meeting begins with an introductory of UHAMKA by Dr Ahmad and followed by introductory to UTP by Dr Norshakirah Ab Aziz.</p> <p>2.2 Dr Norshakirah requests a general idea regarding potential activities to be executed for the collaboration between the two universities.</p> <p>2.3 Dr Ahmad has suggested the following research collaboration activities: -</p> <ul style="list-style-type: none"> i. Student exchange program ii. UHAMKA-UTP lecture sessions iii. UHAMKA-UTP research collaboration-based on proposal submitted <p>2.4 Dr Ahmad and Dr Sunarta seeks further information about UHAMKA -UTP student exchange for undergraduate students (UG) or postgraduate students (PG).</p> <ul style="list-style-type: none"> • Student Exchange Programme: <ul style="list-style-type: none"> ○ It has been agreed by both parties that the student exchange program will compose of 2 exchange students (undergraduate/postgraduate). ○ Exchange student platform: Online; TBD ○ Student CV will be submitted by week 4 January 2021 	<p>Info</p> <p>Info</p> <p>Info</p> <p>Info</p> <p>UHAMKA UTP</p>

MATTERS DISCUSSED	ACTION BY									
<ul style="list-style-type: none"> ○ Undergraduate not suitable for this exchange program due to the semester arrangement not same as UTP ○ Identified student will perform research work 2-3 month and preferable postgraduate student <p>2.5 UHAMKA-UTP lecture sessions:</p> <ul style="list-style-type: none"> ● As agreed DR Norshakirah will deliver 1-2 hrs lecture to UHAMKA student and topic : Big Data Analytics ● Dr Ahmad will deliver 1-2 hrs lecture to UTP student on manangement topic ● Platform: Online ● Deadline : before 30/06/2021 <p>2.6 UHAMKA-UTP research collaboration-based on proposal submitted:</p> <ul style="list-style-type: none"> ● UTP will prepare agenda for next workshop to discuss futher findings from research <ul style="list-style-type: none"> ○ Progress update ○ Risk assessment/threat ○ Future work/Way Forward ● UHAMKA team will advise on business improvement based on the problem statement during the brainstorming session ● Proposed date: Week 4 January 2021 	<p style="text-align: center;">Info</p> <p style="text-align: center;">Decision UHAMKA UTP</p> <p style="text-align: center;">UTP Info</p>									
<p>3.0 WAY FORWARD – NEXT DELIVERABLES</p> <p>3.1 UHAMKA-UTP agreed to conduct workshop to discuss further research findings</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #4F81BD; color: white;"> <th>Item Discussed</th> <th>Focal Action</th> <th>Proposed Dateline</th> </tr> </thead> <tbody> <tr> <td>1. MoM</td> <td style="text-align: center;">Hafizul</td> <td style="text-align: center;">06/01/2020</td> </tr> <tr> <td>2. Next discussion meeting/workshop</td> <td style="text-align: center;">UHAMKA & UTP</td> <td style="text-align: center;">Week 4 Janury 2021 (AM/PM session)</td> </tr> </tbody> </table>	Item Discussed	Focal Action	Proposed Dateline	1. MoM	Hafizul	06/01/2020	2. Next discussion meeting/workshop	UHAMKA & UTP	Week 4 Janury 2021 (AM/PM session)	<p style="text-align: center;">Info</p>
Item Discussed	Focal Action	Proposed Dateline								
1. MoM	Hafizul	06/01/2020								
2. Next discussion meeting/workshop	UHAMKA & UTP	Week 4 Janury 2021 (AM/PM session)								

SIGNED BY		
Prepared by: <i>Hafizul A.</i>	Reviewed & Endorsed by (UTP): <i>Shakinah Azyiz</i>	Approved by (UHAMKA):