



**2018 International Conference on  
Information Management and Technology  
(ICIMTech)**

**3 - 5 September 2018  
Tangerang, Indonesia**

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# Conference Book

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# Greetings !



Dear Delegates,

It is our great pleasure to welcome you attending the 2018 International Conference on Information Management and Technology (ICIMTech 2018) held in Bina Nusantara University, Alam Sutera Campus, Banten, Indonesia. This is the 3rd international conference that annually organized by School of Information Systems, Bina Nusantara University.

Organizing such a prestigious conference was incredibly challenging and would have been impossible without our outstanding committee, so I would like to extend my sincere appreciation to all committees and volunteers of the Binus Join International Conference from Bina Nusantara University, Especially from School of Information Systems for providing the conference with much needed support, advice, and assistance on all aspects of the conference.

With the theme of **ICT for Community** for this year, ICT plays a very important role in the community to interact and exchange information to facilitate socializing and carrying out activities. ICIMTech 2018 received high quality of papers and being presented in the conference. We also invite experts from academia to share their knowledge and research experience as keynote speakers. We believe this conference will improve your knowledge.

This event is a great opportunity for social networking and discuss the current Information Management and Technology that always involve researchers, academicians, professionals, and student from various research background and interest especially in Business Intelligent, e-Business, Human-Computer Interaction, Information Engineering, Information System Audit, Management Information System, Software Engineering and Strategic Information System.

We wish you all find opportunity to get rewarding technical program, intellectual inspiration, renew friendships and forge innovation, and appreciate your attending the conference and hope you enjoy your stay in Jakarta.

Sincerely Yours,

**Sulistyo Heripracoyo**

Conference Chair ICIMTech 2018



## WELCOMING REMARKS

### General Chair

## BINUS Joint International Conference (BJIC) 2018



Distinguished guest,  
Ladies and gentlemen,

First of all, I would like to welcome all keynotes speakers, presenters, and participants of The First BINUS Joint International Conference (BJIC) 2018. Dissemination of research, sharing knowledge, and developing new ideas through academic conferences are some of the key elements of the advancement of science, technology and innovation. In this vein, we proudly present the BINUS Joint International Conference (BJIC) to be held from the 3rd to the 14th of September 2018 in Kemanggisan, Senayan, and Alam Sutera campuses.

The BJIC consists of 8 unique and integrated conferences that reflect the state of the art in engineering, computer science, game application, business, management, social sciences, and the arts and humanities. These conferences will provide you opportunities to present your current research, share your knowledge and experiences, discuss new ideas, meet like-minded scholars and broaden your international networks

The total number of accepted and presented papers is 872 that comprises of 171 papers from universities across Indonesia, 56 papers from international, and 645 papers from Binus University. The details are as follow:

1. INAPR : 62 papers; 22 (national); 4 (international); 36 (Binus)
2. ICSSLAH : 240 papers; 46 (national); 4 (international); 190 (Binus)
3. ICGGAG : 34 papers; 7 (national); 3 (international); 24 (Binus)
4. IMHA : 189 papers; 42 (national); 9 (international); 138 (Binus)
5. ICCSCI : 87 papers; 10 (national); 23 (international); 54 (Binus)
6. ICIMTech : 104 papers; 18 (national); 11 (international); 75 (Binus)
7. ICEED : 100 papers; 16 (national); 2 (international); 82 (Binus)
8. @MITS : 56 papers; 10 (national); 46 (Binus)

With the theme: "Fostering Innovative Science, Technology and Humanities in a Disruptive World", BJIC underlines the growing importance and significance roles of science that interacts closely with technology. All respected conferences bring their uniqueness in discussing and deliberating these important issues.

In this occasion, I would like to appreciate all chairmen of the 8 conferences and committee members who have been working very hard to make this conferences happen. I would like to thank our reviewers and publishers of the papers that will be presented in the conferences. Last but not least, my deepest gratitude goes to CEO, Rector, Vice Rectors, Directors and all Binusian leaders for their tremendous supports. I hope you enjoy the conference!

Jakarta, 3 September 2018

**Tirta Nugraha Mursitama**  
**General Chair BJIC 2018**



# Welcome Message



Dear Delegates,

It's our great pleasure to welcome you to attend the 3rd International Conference on Information Management and Technology (ICIMTech 2018) held in Jakarta, Indonesia. This is the third conference hosted by School of Information Systems, BINUS University (Bina Nusantara University). More than 100 delegates worldwide participate in the conference as participants and presenters. We are very excited to have all of you to join in this great event.

Through ICIMTech, we believe many young researchers have been helped to develop their research work and skills through constructive face-to-face interaction with experienced academics. We find this encouraging and we will continue to develop initiatives that provide ICT young researchers with opportunities to develop their research potential and ideas.

Learning from mature research and stimulating discussion with academics, practitioners, and more experienced researchers in the conference has turned ICIMTech to be a melting pot of multi-generation researchers. This is important for developing countries. And many high-quality papers related to this issues will be presented in the conference. In addition to paper presentation, we also invite experts from academia and industries to share their knowledge and research experience in keynote speeches. We believe you will find the conference very fruitful in enhancing your knowledge.

We congratulate the authors of papers that made it into the proceedings and to IEEE Xplore, for the job well done. We wish to express strong appreciation to our most important sponsors: BINUS University and IEEE Indonesia Section. We are also blessed to have three distinguished Guest Speakers: Professor Dr. Fitri Yuli Zulkifli, Professor Dato' Dr. Hasnah Haron and Professor Ellen Yi-Luen Do. As always, many thanks are due to all members of ICIMTech committee for their dedication for making this conference a success. Above all, thank you to all of you for coming to this conference. Our conference next year ICIMTech 2019, Indonesia and we look forward to seeing all of you again on Next to year and hope you enjoy your stay in Jakarta.

Sincerely Yours,

**Yohannes Kurniawan**  
Dean of School of Information Systems  
Bina Nusantara University



## **WELCOMING MESSAGE RECTOR BINUS UNIVERSITY**



Distinguished keynote speakers,  
Respected professor and fellows,  
Presenters and participants,  
Ladies and gentlemen,

On behalf of Binus University I would like to welcome all of you to Bina Nusantara University. We have four campuses in Kemanggisian area; and Anggrek campus is the biggest one. For those of you coming for the first time to Binus University, I hope you can enjoy our technologically equipped campus, along with its friendly ambiance.

As one of the leading Universities in Indonesia, Binus has a bold and clear vision in Fostering and Empowering the society, particularly by enhancing knowledge, technology, and intellectual property rights. We encourage and provide full support to all Faculty Members to conduct research, and to publish their research findings in reputable international journals and conferences, similar to the event that we are currently in. Therefore, the Binus Joint International Conference that we are opening today is very relevant and important to the vision of Binus University.

As a part of our commitment, the First Binus Joint International Conference (BJIC) 2018 is the manifestation of our new initiative that brings 8 conferences altogether, held at the same time and place, in Kemanggisian, Senayan, and Alam Sutera campuses. Most importantly, all the presented papers will be published in Scopus-indexed sources, both proceedings and journals. We are optimistic that this initiative will enhance research and publication capacity of all presenters from inside and outside of Binus University.

In this excellent occasion, I would like to express my deepest gratitude to all invited Keynote Speakers and all invited Plenary Session Speakers who are willing to show their enthusiasm to share their knowledge, experience, and skills in this conference. I believe that your presence will build better network and bring closer interaction among academia, industry and public. In the end, it will create a global collaboration that benefits all of us.

Finally, I also thank all the chairmen and committee members of the conference. I wish all of you a great conference experience, and an occasion to make new acquaintances during the conferences.

Thank you very much

Jakarta, 3 September 2018

**Harjanto Prabowo**  
**Rector Bina Nusantara University**

  
2018 International Conference on  
Information Management and Technology  
(ICIMTech)

# Keynote Speakers

**Professor Dr. Fitri Yuli Zulkifli, S.T., M.Sc., IPM, SMIEEE**

**Topic :** Radar for Transportation



**Prof. Dr. Ir. Fitri Yuli Zulkifli, ST., MSc** (S'06; M'09; SM'13) is a Professor of microwave antenna engineering and Head of Telecommunication Laboratory in the Electrical Engineering Department, Faculty of Engineering, Universitas Indonesia.

She received her Bachelor and PhD (cum laude) degrees in Telecommunications Engineering from Universitas Indonesia and MSc degree in Telecommunication and Information Technology Department, University of Karlsruhe, Germany.

Her research interests are Antenna, Propagation, Microwave and in the field of Electromagnetic. She joined the Antenna Propagation and Microwave Research Group (AMRG) UI since 1997 and has become lecturer since 1998. She has published more than 170 papers in international/national journals and conference proceedings and has been involved in more than 40 granted researches.

With all of here activities, in 2011 she was granted "Best Lecturer Award (Dosen Berprestasi)" from Universitas Indonesia and achieved 4<sup>th</sup> place "Best Lecturer Award" from Indonesia in the same year.

She is involved in many teamwork activities and also involved as organizing committee in many seminars and workshops. She has been the Secretary and Treasurer of IEEE joint chapter MTT/AP and in 2010 as Treasurer of the same joint chapter, then from 2011-2012 she has become the **joint chapter chair**. 2013-2016 she was coordinator technical activity in IEEE Indonesia section as well as executive committee of joint chapter MTT/AP-S. **Now she is the IEEE Indonesia Section Chair 2017-2018.**

**Professor Ellen Yi-Luen Do**

**Topic :** From Design Computing to Creating Unique Technology for Everyone



Ellen Yi-Luen Do invents at the intersections of people, design and technology. She works on computational tools for design, especially sketching, creativity and design cognition, including creativity support tools and design studies, tangible and embedded interaction and, most recently, computing for health and wellness.

She holds a Ph.D. in Design Computing from Georgia Institute of Technology, a Master of Design Studies from the Harvard Graduate School of Design and a bachelor's from National Cheng Kung University in Taiwan. She has served on the faculties of University of Washington, Carnegie Mellon University and Georgia Institute of Technology. From 2013 to 2016, she co-directed the Keio-

NUS CUTE Center in Singapore, a research unit investigating Connected Ubiquitous Technology for Embodiments. She enjoys playing the Djembe and performs at festivals and other venues with The Sensua Players.

**Professor Dato' Dr. Hasnah Haron**

**Topic :** Education in IR 4.0



Hasnah Haron is a Professor of Auditing at the Faculty of Industrial Management, Universiti Malaysia Pahang. In 1996, she was conferred a PhD degree from the University of Hull, United Kingdom. Hasnah carries with her more than 25 years of academic experience.

She was the founding Dean of the Graduate School of Business at Universiti Sains Malaysia. She is a professional member of CPA Australia, a Chartered Accountant of the Malaysian Institute of Accountant and a Fellow of the Institute of Internal Auditors Malaysia. She is a member of the Commission of the Malaysian Competition Commission (MyCC) since 2011.

Hasnah is also involved in many consultancy and training projects. Her active role in the university and in the professional accounting circle, has much shaped her publications. Hasnah has not only published in internationally refereed journals but also in Professional Accountancy Journals. Her most recent appointment is as a member of Economics and Management Cluster, National Council of Professors Malaysia.

# Organizing Committee

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**Dr. Sulisty Heripracoyo**, Bina Nusantara University, Indonesia

## Advisory Board

**Prof. Dr. Ir. Harjanto Prabowo, MM**, Bina Nusantara University, Indonesia

**Prof. Bahtiar Saleh Abbas**, Bina Nusantara University, Indonesia

**Prof. Dr. Fitri Yuli Zulkifli, S.T., M.Sc., IPM, SMIEEE**, IEEE Indonesia Section

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**Dr. Ford Lumban Gaol**, IEEE Indonesia Section

## General Committee

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<b>Local Arrangement</b>	<b>Ratna Sari</b> , Bina Nusantara University, Indonesia

# PROGRAM INFORMATION

## Program at a Glance

Monday, 3 September 2018

<b>Time</b>	<b>Agenda</b>	<b>Venue</b>
14:00 - 17:00	Registration	Binus @Alam Sutera Campus -Lobby

Tuesday, 4 September 2018

<b>Time</b>	<b>Agenda</b>	<b>Venue</b>
08:30 - 09:00	Registration	Binus @Alam Sutera Auditorium Hallway, 5 <sup>th</sup> Floor, Building B
09:00 - 09:20	Opening	Binus @Alam Sutera Auditorium, 5 <sup>th</sup> Floor, Building B
09:20 - 09:50	Keynote Speech (Session 1)	
09:50 - 10:00	Q&A session	
10:00 - 10:30	Coffee Break	Binus @Alam Sutera Auditorium Hallway, 5 <sup>th</sup> Floor, Building B
10:30 - 11:00	Keynote Speech (Session 2)	Binus @Alam Sutera Auditorium, 5 <sup>th</sup> Floor, Building B
11:00 - 11:10	Q&A session	
11:10 - 11:40	Keynote Speech (Session 3)	
11:40 - 11:50	Q&A session	
11:50 - 12:00	Announcement	
12:00 - 13:00	Lunch	In Front of Room C0309
13:00 - 15:00	Parallel Session (Presentation)	Room C0301, C0302, C0303, C0304, C0305, C0306, C0309, C0310
15:00 - 15:30	Coffee Break	In Front of Room C0306
15:30 - 17:30	Parallel Session (Presentation)	Room C0301, C0302, C0303, C0304, C0305, C0306, C0309, C0310
19:00 - 21:00	Gala Dinner	Eatboss Restaurant Alam Sutera (Behind Binus @Alam Sutera)

# Detailed Parallel

## Tuesday, 4 September 2018

Time	Room C0301 (Session Chair: Dr. Suroto Adi)			
13:00 - 15:00	<b>Important Clauses Construct The Integration Process of Quality, Safety, Occupational Health, and Environment Management Systems</b>  Ringgy Masuin, Muhammad Rofi'udin, Yusuf Latief	<b>Information System Development on Web-Based in Integrated Management System through Improving Knowledge Management to Increase Organization Performance of Construction Company – A Conceptual Framework –</b>  Ringgy Masuin, Yusuf Latief, T. Yuri Zagloel	<b>Knowledge Management Study in Data Warehouse</b>  Ali Gunawan, Stephen G. Kurnia	<b>The Influence of the Application of Knowledge Management System on the Increase of Performance of Employees of SDM Pro Global</b>  Riyandi Novian, Wahyu Sardjono
	<b>Information Systems Risk Analysis using Octave Allegro Method Based at Deutsche Bank</b>  Muhamad Ilham Cholik, Wahyu Sardjono	<b>Evaluation of Budgeting Management Information System at DKI Jakarta Forestry Service</b>  Wahyu Sardjono, Taruma Leo Wijaya		
Time	Room C0302 (Session Chair: Dr. Sulisty Heripracoyo)			
13:00 - 15:00	<b>Data Governance Maturity Assessment at PT. XYZ. Case Study : Data Management Division</b>  Remi Indra Permana, Jarot S. Suroso	<b>Sales Distribution Activity Tracking System Using Mobile Location Based Services</b>  Daryanto, Suharijito	<b>Designing Knowledge Management System on Seller Education Tokopedia</b>  Muhammad Ihsan Nugraha, Jarot S.Suroso	<b>Development of Data Warehouse to Improve Services in IT Services Company</b>  Fajar Zaki Al Faris, Suharijito, Diana, Ariadi Nugroho
	<b>Information System Audit Using Framework Cobit 4.1 on PT Klikfix Asia International</b>  Jarot S.Suroso, Sridhatu, Shanlunt, Joshua Jonathan Halim, Kevin Berson S. Turnip	<b>User Satisfaction Factors on Learning Management Systems Usage</b>  Yanti Tjong, Yulia Magdalena, Lianna Sugandi, Clara Evelyn, Alifah Nurshafita, Novita Sari Yosieto		

Time	Room C0303 (Session Chair: Tri Pujadi)			
13:00 - 15:00	<b>OLAP Analysis of Water Formation Data</b>  Benfano Soewito, Sani Muhamad Isa, Fergyanto E. Gunawan	<b>Smart City Implementation Modelling in Indonesia with Integration Platform Approach</b>  Firman Anindra, Harco Leslie Hendric Spits Warnars, Daniel Moonkee Min	<b>Analysis Students' Graduation Eligibility Using Data Warehouse</b>  Edward Chandra, Ryo Hadinata, Abba Suganda Girsang, Sani Muhamad Isa	<b>The Application of AGNES Algorithm to Optimize Knowledge Base for Tourism Chatbot</b>  Albert Verasius Dian Sano, Tanto Daud Imanuel, Mega Intanadias Calista, Hendro Nindito, Andreas Raharto Condrobimo
	<b>Data Center-Disaster Recovery Center (DC-DRC) For High Availability IT Service</b>  Narendra Dhanujati, Abba Suganda Girsang			
Time	Room C0304 (Session Chair: Evaristus Didik M)			
13:00 - 15:00	<b>Classification of Land Cover from Sentinel-2 Imagery Using Supervised Classification Technique (Preliminary study)</b>  Eka Miranda, Achmad Benny Muftiara, Ernastuti, Wahyu Catur Wibowo	<b>Potential Impact of Social Media to Support Government Services in Jakarta Smart City</b>  Evaristus Didik Madyatmadja, Edi Abdurachman, Ford Lumban Gaol, Bonifasius W. Pudjianto, Manik Hapsara	<b>Customer Segmentation in XYZ Bank using K-Means and K-Medoids Clustering</b>  Mediana Aryuni, Evaristus Didik Madyatmadja, Eka Miranda	<b>Analyzing The Benefit of ERP Implementation in Developing Country: A State Owned Company Case Study</b>  Yolanda Trinoverly, Putu Wuri Handayani, Fatimah Azzahro
	<b>Factors Influencing Continuance Usage of Mobile Wallets in Indonesia</b>  Nadya Azizah, Putu Wuri Handayani, Fatimah Azzahro			
	<b>Agile methods for ERP implementation: A Systematic Literature Review</b>  Santo Fernandi Wijaya, Harjanto Prabowo, Raymondus Raymond Kosala, Meyliana			
Time	Room C0305 (Session Chair: Tanty Oktavia)			
13:00 - 15:00	<b>User Behavior Adopt Utilizing FinTech Services on Online Transportation in Indonesia (Scale Validation and Developed Instrument)</b>  Erick fernando, Surjandy, Ernawaty, Dina Fitria Murad, A.Raharto Condrobimo, Giovanka Savina, Leonie Madeleine Tirtamulia, Pascal Listyo	<b>Technology Risk in Financial Technology at Online Transportation Systems</b>  Surjandy, Erick Fernando, Ernawaty Giovanka Savina, Pascal Listyo, Leonie Madeleine Tirtamulia	<b>Impact of the Entrepreneur Course and Technology for University Students</b>  Surjandy, meyliana, Erick Fernando, Drajad Wiryawan, Steven Wijaya	<b>The Comparison of MOOC (Massive Open Online Course) Platforms of edX and Coursera (Study Case: Student of Programming Courses)</b>  Tanty Oktavia, Meyliana, Harjanto Prabowo, Suhono Harso Supangkat

**Evaluation of IT Project Management Governance Using COBIT 5 Framework in Financing Company**

Rahmigina Rooswati,  
Nilo Legowo

**Evaluation of Policy Processing System Using Extended UTAUT Method at General Insurance Company**

Christine, Nilo Legowo

**Evaluation Of Use Agent Proposal System Using Unified Theory Of Acceptance and User Technology (UTAUT) Model**

Ronald Wilbert, Nilo Legowo

**Time Room C0306 (Session Chair: Yakob Utama Chandra)**

13:00 -  
15:00

**Analysis of Determinant Factors of User Acceptance of Mobile Payment System in Indonesia (A Case Study of GO-Pay Mobile Payment)**

Yakob Utama Chandra,  
Desi Maya Kristin, Joni Suhartono, Fina Shabrina Sutarto,  
Minseol Sung

**Designing an Institutional Research Management System Framework for Higher Education**

Noerlina, Brilly Andro Makalew, Siti Elda Hiererra, Desi Maya Kristin, Bahtiar Saleh Abbas, Tirta Nugraha Mursitama, David

**Development of a web based corruption case mapping using machine learning with artificial neural network**

Noerlina, Desi Maya Kristin, Retno Dewanti, Sasmoko, Tirta Nugraha Mursitama, Andi Muhammad Muqith, Sheila Putri Fajrianti, Nathasya Shesilia Krishti, Brilly Andro Makalew

**A KMS Architecture: Push New Content from Cloud Storage**

Karto Iskandar

**Towards Enhancing Citizens Participation: A Review of Parliamentary Websites in the 36 State Houses of Assembly in Nigeria**

Abdulsalam S. Mustafa,  
Dr. Mahammad Sharifov

**The Development of Anti Bribery Management System: A Preliminary Study**

Hasnah Haron, Ishak Ismail, Daing Nasir Ibrahim, Mohd Ridzuan Darun, Kamal Zuhairi Zamli, Aziman Abdullah, Anderes Gui

**Factors Influencing Intention to Use Cloud Storage Services Amongst Postgraduate Students in Malaysian Technical Universities**

Mahmood A. Bazel, Hasnah Haron, Ishak Ismail, Suryanto Anderes Gui

**Time Room C0309 (Session Chair: I Gusti Made Karmawan)**

13:00 -  
15:00

**Business Process Management System Implementation Model for Improving Employee Performance**

Hanny Juwitasary, Lay Christian, Edi Purnomo Putra, Fifilia, Wahyu Sardjono

**Evaluation Implementation of E-Learning in Teaching and Learning Activities using SPSS (Case Study Bina Nusantara University)**

Edi Purnomo Putra, Hanny Juwitasary, Lay Christian, Fifilia

**Development Model Availability of Rice in Indonesia Using System Dynamics Approach**

Lay Christian, Hanny Juwitasary, Edi Purnomo Putra, Fifilia, Yakob Utama Chandra

**The Impact of e-CRM Implementation to Bank Performance Through e-Service Quality**

Henkie Ongowarsito, Brata Wibawa Djojo, Ferino

**Master Data Management Planning: Case Study of Personnel Information System at XYZ Institute**

Zulwelly Murti, Annisa Andarrachmi, Achmad Nizar Hidayanto, Satrio Baskoro Yudhoatmojo

**Knowledge Mapping System Implementation in Knowledge Management : A Systematic Literature Review**

Shidiq Al Hakim, Dana Indra Sensuse

**Big Data Security Approach in Cloud : Review**

F. R. Damayanti, K. A. Elmizan, Y. F. Alfredo, Z N Agam, A. Wibowo

<b>Time</b>	<b>Room C0310 (Session Chair: Hudiarto)</b>			
<b>13:00 - 15:00</b>	<b>Questions Classification in Online Discussion toward Smart Learning Management System</b>  Bambang Dwi Wijanarko, Dina Fitria Murad, Hapnes Toba, Yaya Heryadi, Widodo Budiharto	<b>Evaluation of Information Technology Governance in STMIK Mikroskil Using COBIT 5 Framework</b>  Marwandy Nyonawan, Suharjito, Ditdit Nugeraha Utama	<b>Business Intelligence Design of Rural Bank Performance Assessment Using Financial Ratio Analysis</b>  Agi Eryyagi Massardi, Ditdit Nugeraha Utama, Suharjito	<b>Evaluate Implementation of Enterprise Resource Planning (ERP) System</b>  Siti Maryam, Dina Fitria Murad, Erick Fernando, Meta Amalya Dewi, Imanuel Revelino Murmanto, Sunardi
	<b>Instant Messaging as Information Goldmines to Digital Forensic: A Systematic Review</b>  Harry Chandra Sihombing, Ahmad Nurul Fajar, Ditdit Nugeraha Utama	<b>Hybrid Cryptography on Wireless Sensor Network: A Systematic Literature Review</b>  R. Benny Gandara, Gunawan Wang, Ditdit Nugeraha Utama		
<b>15:00 - 15:30</b>	<b>Coffee Break</b>			

<b>Time</b>	<b>Room C0301 (Session Chair: Dr. Suroto Adi)</b>			
<b>15:30 - 17:30</b>	<b>What Indonesia's Museum Visitor Needs in Digital Era?</b>  Arta Moro Sundjaja	<b>Enterprise Resource Planning Post-implementation: Human Resource Management Module – Hiring and Assessment (A Preliminary Study)</b>  Julisar, Tjhai Fung Piau	<b>Village Business Intelligence (BI) Design to Support Social Welfare Intervention Programs by Using GIS Approach</b>  Suroto Adi, Sulisty Heripracoyo	<b>Design System Analysis of Water Quality Survey Using Macro benthos Indicator with Biotic Family Index Approach</b>  Teguh Prasandy, Dina Fitria Murad, Titan, Agus Putranto
	<b>Design of Student's Learning Outcomes Measurement System in BINUS Online Learning</b>  Lius Steven Sanjaya, Ferdianto, Titan	<b>Business Process Management (BPM) in Operational BINUS Online Learning</b>  GG Faniru Pakuning Desak, Willy Johan Widjaja Saputra, Titan, Vini Mariani	<b>Greediness Characterization of Genetic Algorithms</b>  Tri Asih Budiono	

<b>Time</b>	<b>Room C0302 (Session Chair: Yakob Utama Chandra)</b>			
<b>15:30 - 17:30</b>	<b>Factors Influencing Mobile Payment Adoption in Indonesia</b>  Natalia Limantara, Fredy Jingga, Stephanie Surja	<b>Designing the Knowledge Management System in an IT Consulting Company</b>  Marisa Karsen, Yohannes Kurniawan, Hariawan Bangun Saputra, Gryan Bestra Tama, Aidil Zuldi, Michal Joštiak, Vladimír Smatanik	<b>The Influence of Knowledge Management Capabilities on Hospital Services Performance</b>  Johan, Yohannes Kurniawan, Sudiana, Diego Fernando Cabezas Tapia	<b>Agricultural Expert System Design based on Bayes Theorem</b>  Cadelina Cassandra, Ratna Sari

	<b>Evaluation Blended Learning Model in Higher Education</b>  Ratna Sari, Togar Alam Napitupulu, Rudy	<b>Learning Simulation Design Using Social Media Facebook</b>  Wibowo Kosasih, Yohannes Kurniawan, Cadelina Cassandra, Kevin Trisnio	<b>Impact of Intention to Use to a Document Management System (Case Study Approach)</b>  Sugiarto Hartono, Raymond Kosala , Suhono Harso Supangkat, Benny Ranti	
<b>Time Room C0303 (Session Chair: Dr. Meyliana)</b>				
<b>15:30 - 17:30</b>	<b>The Evaluation of Education ERP System Implementation in University Using CSF and TAM</b>  Meyliana, Henry Antonius Eka Widjaja, Achmad Nizar Hidayanto, Kongkiti Phusavat, Bruno Sablan	<b>The Affecting Factors of Blockchain Technology Adoption of Payments Systems in Indonesia Banking Industry</b>  Rohmat Taufiq, Meyliana, Achmad Nizar Hidayanto, Harjanto Prabowo	<b>The Trigger Factors and Constraints on e-Supply Chain Processes : A Systematic Literature Review</b>  Maniah, Meyliana, Achmad Nizar Hidayanto, Harjanto Prabowo, Ford Lumban Gaol	<b>Key Successful Factors of Executive Information System Implementation in Higher Education: A Systematic Literature Review</b>  Winanti, Meyliana, Achmad N. Hidayanto, Harjanto Prabowo, Ford L. Gaol
	<b>The Key Success Factors In E-Marketplace Implementation: A Systematic Literature Review</b>  Yoga Prihastomo, Meyliana, Achmad N. Hidayanto, Harjanto Prabowo	<b>The Effect of Dimension of Supply Chain Integration on Schedule Attainment and Competitive Performance (Case Study in PT" X ")</b>  Riana Enny Widayanti , Chudi Adany, Nabilla Mauli Zahra, Riska Fauzi Sanandra, Sambudi Hamali	<b>Using Goal Programming Method for Optimization of Production Planning</b>  Choi Hyun Jong, Nadya Medina, Nisrina Fakhriyah, Cecep Hidayat, Sambudi Hamali	
<b>Time Room C0304 (Session Chair: Hudiarto)</b>				
<b>15:30 - 17:30</b>	<b>Modeling of Information System for Licensing and Extension of Special Hajj Pilgrimage Organizer</b>  Hudiarto, Agustiningsih, Nanda Rizka Kamila, Nely Awaliyah Fitriyani	<b>Green Information Technology Policy in Indonesia</b>  Hudiarto Sukarman, Nuril Kusumawardani Soeprapto Putri	<b>Defect Classification using Decision Tree</b>  Nuril Kusumawardani Soeprapto Putri , Shelma Ibrahim, Kevin Steven Puika, Louis Darmawan	<b>Mobile-Based Prototype Design Model for Rescuing, Protecting and Consulting of Violence Victims on Women</b>  Tumar, Jasa Barus, Billy Julius, Siti Jubaedah, Chandra Buana
	<b>A Three Phase Heuristic for Examination Timetabling Problem</b>  Tuga Mauritsius, Harisno	<b>Reducing the Timeslot Used in Examination Timetable Problem</b>  Tuga Mauritsius, Nilo Legowo, Fergyanto E. Gunawan	<b>Face Detection and Recognition Based E-Learning for Students Authentication: Study Literature Review</b>  Sucianna Ghadati Rabiha, Aditya Kurniawan, Jurike Moniaga, Daud Iqram Wahyudi, Eric Wilson, Sasmoko	

<b>Time</b>	<b>Room C0305 (Session Chair: Tri Pujadi)</b>			
15:30 - 17:30	<b>Should I Use Laptop or Smartphone? A Usability Study on an Online Learning Application</b>  Arfika Nurhudatiana, Alberto Nicodemus Hiu, Win Ce	<b>Text Classification Services using Naïve Bayes for Bahasa Indonesia</b>  Evelyn Setiani Win Ce	<b>Web-Based Application Development for False Images Detection For Multi Images Through Demosaicing Detection</b>  Muhammad Reza Bachtiar, Dias Nugrahaning Gusti, Irwan Wijaya, Monica Hidajat	<b>Vessel Monitoring Systems Based on Aerial Images in Sea Environment</b>  Aldila Ong Devvy, Samuel Mahatmaputra Tedjojuwono
	<b>Evaluation of Knowledge Management System for Disaster Management using Factor Analysis</b>  Tri Pujadi, Wahyu Sardjono	<b>Building a Data Warehouse to Support Active Student Management: Analysis and Design</b>  Indrajani Sutedja, Nurul Khotimah, Pandi Yudha, Claresta Vasthi	<b>Using Enterprise Architecture with The Open Group Architecture Forum to design Information Technology Plan Gap Analysis at BANK PERKREDITAN RAKYAT (BPR)</b>  Eric Gunawan, Indrajani Sutedja	
<b>Time</b>	<b>Room C0306 (Session Chair: Devyano Luhukay)</b>			
15:30 - 17:30	<b>Design and Evaluation of Efficient Bandwidth Management for a Corporate Network</b>  Michael Wairisal, Nico Surantha	<b>Web-Based Evaluation System using Kirkpatrick Model for High School Education A Case Study for Vocational High School in Jakarta</b>  Muchammad Kukuh Fadhillah, Nico Surantha, Sani M. Isa	<b>An Intelligent Model Development for Determining a Friendly Match Sparring-Partner in Football Game</b>  Ditdit Nugeraha Utama, Muhammad Faizal Akbar, Rasyid Al-Ghani, Muhammad Bona Rizky, Ilman Febrian	<b>Decision Support Model for Supplier Selection Using Fuzzy Logic Concept</b>  Ferdi Gunawan, Gunawan Wang, Siti Komsiyah, Ditdit Nugeraha Utama, Suharjito
	<b>Fuzzy Decision Support Model for Human Resources Performance Appraisal</b>  Ditdit Nugeraha Utama, Eri Rustamaji	<b>Fuzzy ecoDSS Development for Road Traffic Engineering</b>  Sofie Nurlatifani, Astari Retnowardhani, Ditdit Nugeraha Utama	<b>Five Stages of Database Forensic Analysis: A Systematic Literature Review</b>  Robertus Bria, Astari Retnowardhani, Ditdit Nugeraha Utama	
<b>Time</b>	<b>Room C0309 (Session Chair: Joni Suhartono)</b>			
15:30 - 17:30	<b>The Influence of IT Service Management Performance Measurement to Customer Satisfaction</b>  Ahmad Nurul Fajar, Diarna Roosy Andini	<b>Information Technology Service Performance Management Using COBIT and ITIL Frameworks: A Case Study</b>  Angellia Debora Suryawan, Veronica	<b>Big Data Implementation Using Machine Learning on Question and Answer Platform (Case Study Ngepo.com)</b>  Sridhatu Sridhatu, Gunawan Wang	<b>The Use of ISO/IEC 27001: 2009 to analyze the Risk and Security of Information System Assets: case study in XYZ, Ltd</b>  Hendry Fajar Yoseviano, Astari Retnowardhani

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**Hybrid Database System of MySQL and MongoDB in Web Application Development**

Gregorius Ongo, Gede Putra Kusuma

**Impact Analysis of Computer Assisted Audit Techniques utilization on Internal Auditor Performance**

Aries Wicaksono, Sebastianus Laurens, Eka Novianti

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**Time Room C0310 (Session Chair: Evaristus Didik M)**

**15:30 - 17:30**

**Generalized Space Time Autoregressive of Chili Prices**

Jamilatuzzahro, Rezy Eko Caraka, Riki Herliansyah, Asmawati S, Dian Megah Sari, Bens Pardamean

**The "Voice of Customer" Web Application at State-Owned Telecommunication Company**

Robertus Nugroho Perwiro Atmojo, Yulius Lie, Hery Harjono Muljo, Uki Manan Saputra, Dian Christianto, Dennis Trisaputra

**Health Assistant Wearable-Based Data Science System Model: A Pilot Study**

Arif Budiarto, Trisna Febriana, Teddy Supparyanto, Rezy Eko Caraka, Bens Pardamean

**Legislation Information System**

Anzaludin Samsinga Perbangsa, Meldy Hariawan, Bens Pardamean

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**Best Practices of Agricultural Information System In the Context of Knowledge and Innovation**

Haryono Soeparno, Anzaludin Samsinga Perbangsa, Bens Pardamean

**Artificial Intelligent Models for Breast Cancer Early Detection**

Erwin Halim, Pauline Phoebe Halim, Marylise Hebrard

# ICIMTech 2018 Presentation Guidelines

First, we would like to welcome all of you to ICIMTech 2018 at Bina Nusantara University, Alam Sutera, Tangerang, Banten, Indonesia.

Thank you for presenting your research in the conference. To make sure that all sessions run smoothly, we provide the following brief guidelines for all authors to follow:

- Make sure you already copied your Presentation File on the Registration Desk. Registration desk will be on in Front of Auditorium (before lunch) or beside C0309 room (after Lunch).
- The presentation is allowed maximum 10 minutes and 5 minutes Q&A, total 15 minutes per paper.
- Research paper will be scheduled for oral presentation in regular sessions, where each session is allocated 2 hours for 6 – 7 paper presentations.
- Every conference room will be equipped with a PC (with Microsoft Office) and a LCD projector (connected to the PC).
- Please try to arrive at the parallel session room of your presentation session 15 minutes before the start of the session, so that you can check your power point file in the computer for presentation, and make sure that your file runs appropriately.
- Please sign the attendance list before you start your presentation to the Room PIC.
- Please introduce yourself to your session chair so that the session chair will know who is presenting the paper.

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# **ABSTRACT**

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**Room C0301**  
**(Session Chair: Dr. Suroto Adi)**  
**Time : 13:00 – 15:00**

# Important Clauses Construct The Integration Process of Quality, Safety, Occupational Health, and Environment Management Systems

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***Abstract***— Implementation level of integration of quality, safety, occupational health and environment management system in state-owned construction company in Indonesia still were partial integrated so it hasn't had an impact on the consistency of performance of the sustainability of the systems. This research aims are identifying clauses construct integration process and analyzing the hierarchy between these clauses. The clauses in the latest management systems standard and their components of innovation's is an important step in the process of integration of the system. This research method using case studies on the application of management systems of construction project management in state-owned companies in the field of public works. The integration process of management systems with the clauses in the structure of ISO:2015 affects the system to achieve objective of systems. Leadership is most importantance factor successes the implementation of the integration process.

***Keywords***—*management systems, clauses of integration process, leadership.*

# Information System Development on Web-Based in Integrated Management System through Improving Knowledge Management to Increase Organization Performance of Construction Company

## *(A Conceptual Framework)*

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**Abstract** — Implementation of quality, safety, occupational health and environment management system were done partially in Indonesia. In this research, I would like to present integrated management system. Integrated management system mentioned in this paper is integration between quality management system, environment management system, health and safety management system in organization of construction company. Most of the research done in manufacturing sector not discuss about the implementation of integrated management system in realizing improving organization performance, especially in improving organization performance sustainability in construction company. For improving organization performance, it need to consider knowledge management and information system in integrated management system. Hopefully, it can be one of the key successes to improve organization performance especially in construction company. Information system is recognized to be one of the most important supported to implementation of integration management system. This research will produce integrated management system concept model to increase organization performance using information system: agent based modelling.

**Keywords**—integrated, management, system, organization, performance, construction, company

# Knowledge Management Study in Data Warehouse

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***Abstract***— The implementation of Knowledge Management in Organization is a must for any organizations in Globalization era. The Knowledge Management combined with Information Technology is a key success factor for sustainable organization. The Information in Knowledge Management should be ready and easy to access from anywhere and anytime. The problem in information is the data is too much and spread out anywhere in many formats. In this condition, the user may not find the information or wasting time to search the correct information according to their needs. The Knowledge Management System is developed to answer the needs to find the data with efficient, reliable, and trust. The Knowledge management keeps the data systematically, and easy to find based on several indicator determined by user. The saved information is available to all level in organization, from operational, tactical to strategic level according to their position. The success of Knowledge management is depended on the information technology. The technology should be suitable with the system and support in terms of scalability, security and mobility. The technology will create the Knowledge Repository, to enable data and information is kept secure. The Knowledge Repository operation and maintainance is designed with the concept of Data Warehouse. The knowledge will grow each time and the structure will grow along the grow of data. In this research, the model is PT Autochem Industry, the retail organization of HealthCare. The organization has 24 branches in Major Cities in Indonesia. The problem arises when 150 marketers need to handle more than 100 products. The marketing has some difficulties in understood 100 products with their uniqueness, and the strategy of marketing in healthcare product. By using Knowledge Management, marketing can more efficient and productive in handling market for healthcare product and organization will be more competitive in globalization era.

***Keywords***— *Knowledge Management, Data Warehouse, Knowledge Repository*

# The Influence of the Application of Knowledge Management System on the Increasement in the Performance of Employees of SDM Pro Global

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***Abstract***— The purpose of this research is to determine whether the three principal elements of KMS (Personal knowledge, job procedure and technology literacy) has a positive effect on the performance of employees at PT XYZ. Data taken from questionnaires to 100 respondents are employees who are in XYZ. The research method is validity, reliability, and classic assumption test using SPSS version 25. The results obtained are variable Personal knowledge, job procedure and technology literacy have a positive effect on employee performance. Therefore, it can be concluded that the three main elements KMS positive effect on the performance of employees at PT XYZ.

***Keywords***— *knowledge management system, personal knowledge, technology literacy, job procedure, performance*

# Information Systems Risk Analysis using Octave Allegro Method Based at Deutsche Bank

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***Abstract*** - Awareness of the importance of information system security and its assets to an organization and the impact that may arise from the destruction of the information system and its assets does not seem to be getting attention for most organizations. Risk assessment is part of the risk management of information systems, conducted to assess how likely the threats and vulnerabilities to information systems and their assets. This study aims to perform risk analysis on enterprise information systems in corporation using factor analysis. The end result of the risk assessment is recommendations on the steps to be taken for the protection of information systems and their assets.

***Keywords***—*risk analysis, risk management, factor analysis*

# Evaluation of Budgeting Management Information System at DKI Jakarta Forestry Service

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***Abstract - This study aims to evaluate the budgeting management information system at the Forest Service of DKI Jakarta. Based on the concept and theory of information technology governance framework developed and carried out on the same domain parameters and processes as needed to build the research. Data were collected from questionnaires to 139 respondents. The respondents are active and routine employees using the information system contained at DKI Jakarta forestry service. Data were processed and analyzed using factor analysis method. From the results of data processing there are 5 factors along with the indicators that affect the level of understanding of information system users at DKI Jakarta forestry service. The five factors are strategic planning, maintenance and development, values alignment, user efficiency and response speed. From the evaluation results using the five factors it can be concluded that the governance information system at DKI Jakarta forestry service into the quiet good category.***

***Keywords—budgeting information system, forestry service, factor analysis***

**Room C0302**  
**(Session Chair: Dr. Sulistyo Heripracoyo)**  
**Time : 13:00 – 15:00**

# Data Governance Maturity Assessment at PT. XYZ. Case Study : Data Management Division

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***Abstract***— The purpose of this study is to assess the maturity level of data governance in order to provide appropriate recommendations to address the problems of data governance in the Data Management Division. The research method used begins with a literature study and survey, which aims to identify the company's vision, mission, objectives and identify the IT resources used by the company today. It then identifies the company's business objectives, objectives and Division strategies, and ongoing processes in the division. The results obtained a gap between the current maturity level with the maturity level that has not reached the company's expectations. The conclusion obtained that the data governance at PT. XYZ can still be improved. The improvement is taken from DAMA DMBOK as best practice on data governance, by identifying which area that the company did not have.

***Keywords***— *Data Governance, Stanford Maturity Assessment, DAMA DMBOK, Data Management*

# Sales Distribution Activity Tracking System Using Mobile Location Based Services

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***Abstract***—The current application sales distribution is still not effective because the officer in the field cannot open the application and still use manual note for distribution sales activities. To overcome this, there is need for development to the mobile application. Sales Distribution Activity Tracking System Using Mobile Location Based Services considered very suitable for developing a web application sales distribution. Applications will be installed on android mobile devices associated with databases and servers equipped with the notification. With this application, field officers can input transactions through its android mobile devices. This research will design and build mobile applications sales distribution on smartphone android based. Applications built using Waterfall process model with development programming language C #, SQLite database and use software Xamarin Studio IDE. These applications can run on smartphone with android version 5.0 to 6.0. The results of this study have designed and built an application that can be used by the company for better process management of the sales distribution and can find sales reports are up to date. The sales distribution activity tracking system using location-based mobile services makes it easy for sales distributions to report their activities to a system that was previously done manually. Based on the result of system feasibility evaluation, this application can be categorized as feasible for business.

***Keywords***—*activity tracking system, location-based, mobile applications , sales distribution*

# Designing Knowledge Management System on Seller Education Tokopedia

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***Abstract***— Tokopedia is one of the biggest marketplaces in Indonesia. With millions of thousands of sellers every day, it is a challenge for Merchant Development (MD) teams to educate sellers, both new and reputable. The problem faced today is the lack of centralized learning information that sellers need to develop their stores. The MD team is also difficult to help improve the quality and sales of sellers in Tokopedia massively. Today, they rely more heavily on city-to-city offline activities to acquire new sellers and provide seller training in every city. Tokopedia requires a Knowledge Management System to accommodate the information needs of the seller and increase the scalability of information dissemination from the MD team. This research will analyze the problem in more detail using best practice from Asian Productivity Organization (APO) to see Tokopedia internal readiness in developing KMS and map information requirement from seller. Data collection through distributing questionnaires to sellers from all categories of sales and to all teams involved with KMS development that will be named Seller Education.

***Keywords***—*Knowledge, Knowledge Management, Knowledge Management System, KMS design, Seller Education*

# Development of Data Warehouse to Improve Services in IT Services Company

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***Abstract***—On time service delivery is one of the ultimate goals of IT services company. The aim of this study is developing data warehouse to help company keeping up the delivery service time is always on target. This study starts with identifying the problem, data collection, literature study, then develop the data warehouse, making analysis with OLAP, build report and dashboard as needed, and at last evaluation of data warehouse already developed. Extract Transform Load process (ETL) transferred data from operational database to data warehouse. OLAP analysis features in data warehouse can help company to analyse information from multi-dimensional data; report and dashboard build from information in the data warehouse can help sales team to know what best strategy and making decision. As the result, data warehouse that has been built can help sales team deliver the services on time to their customers.

***Keywords***— *Data Warehouse, ETL, OLAP, Kimball Methodology, Pentaho, Decision Making, Report, Dashboard*

# Information System Audit Using Framework Cobit 4.1 on PT Klikfix Asia International

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***Abstract***— One of the most rapid areas of progress is Information Technology (IT) or Information System (IS). The development of IS brings significant impact for every company. All companies want to increase business profits and compete in fulfilling all the demands desired by consumers. Implementation of information systems carried out to support the activities of these business processes. The same thing done by PT. Klikfix Asia International, founded in 2015, is a provider of quality improvement services and problem solving on electronic, computer and mobile phone with national service coverage. The object of research includes the sale, purchase and warehouse. Audits are conducted for analysis and know the security and integrity of data from the information system used. Auditing use the COBIT 4.1 framework. Domain used is Delivery Support (DS), because this domain includes the smooth management and system security as well as data management and operational facilities. The purpose of this study is to evaluate and make the audit results as input to improvement the management of the system running on company. From the results of the study concluded that the information system contained in PT. Klikfix Asia International there are still shortcomings in IT governance.

***Keywords***—*machine learning, dataset, computer technology*

# User Satisfaction Factors on Learning Management Systems Usage

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**Abstract**— The purpose of the research is to determine the factors that affect the satisfaction of the use of Learning Management System, especially by students. Research stages are done through literature based on End-User Computing Satisfaction (EUCS) satisfaction factor which consists of content, accuracy, timeless, ease of use and format. Questionnaires were developed based on each factor of EUCS and distributed to the user ie the students. Based on the formula Izaac and Michael the results of the sample calculation there are 380 students who become sample. Based on data from questionnaires that have been distributed validation test and reliability of 20 data responder first before further processing. The result of the questionnaire that has been collected is analyzed to the gap between expectation and reality to get user satisfaction on the use of LMS. After obtaining user satisfaction, it is done by Analytical Hierarchy Process (AHP) approach to determine what factors influence student's satisfaction by the factor on EUCS. The results show that users are not satisfied with all factors, and factor accuracy is the most important factor in determining user satisfaction, while the most important experience factor is timelines. The results of the open questionnaire, the user provides input for improvements to LMS related to access speed and feature addition and development of mobile-based LMS.

**Keywords**— *En-User Computing Satisfaction, EUC, Learning Management Systems, LMS, Analytical Hierachy Process, AHP*

**Room C0303**  
**(Session Chair: Tri Pujadi)**  
**Time : 13:00 – 15:00**

# OLAP Analysis of Water Formation Data

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***Abstract***—In the oil and gas industry, the available data regarding each well are very huge. With data and parameters are very numerous and complex, it is very difficult to analyze and process the data that will be used as a base of decision making. In this research, a technique used to process the data hierarchy formation water into an useful information. In this research, applications developed can analyze data from a wide variety of formats, such as in Excel format, txt, shp, and so on. This can be done because the data will be processed first into a standardized form before the display becomes information. Data processing is the process of ETL (Extract Transform Load), process metadata and processes OLAP (Online Analytics Processing). In this research we use a tool or software Pentaho. In addition, to display the information in the diagram we use the Weka stiff and java script. Results from the study showed that the technique we proposed this, then processing the data to be useful information is extremely easy. Similarly, to see the characteristics or create a footprint for each well in the form of stiff diagram becomes very easy and fast.

***Keywords***—OLAP, water formation, big data, pentaho, stiff diagram

# Smart City Implementation Modelling in Indonesia with Integration Platform Approach

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***Abstract*** — Doing development using Smart City approach has become a necessity. The complexity of the problems facing the government requires a smart solution. Implementation problems of smart city still found in Indonesia, until now still needed a new breakthrough to speed up the implementation process. This paper presents the Integration Platform approach to be an alternative solution for the Smart City implementation model. This open platform concept leverages existing technology resources and applications for shared use. The contribution of this paper is to provide a new alternative solution for policy holders and decisions in government in making smart strategic plans in order to improve the quality of society and public services.

***Keywords*** — *smart city, implementation model, integration platform, smart city implementation, collaboration*

# Analysis Students' Graduation Eligibility Using Data Warehouse

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***Abstract***— Nowadays, most universities have a lot of different ways in considering graduation eligibility for their students. The consideration can use the data which is generated by system on-line analytical processing (OLTP). However, the OLTP system has a limitation to report intuitively. The aim of this research is to create the system using data warehouse which able to see the progress of performance student and the course failed in each term. This system is expected able to predict student's graduation eligibility. Research method of this research consists some steps to implement data warehouse and then is followed by generating the report and on-line analytical processing (OLAP) analysis. Evaluation is done by benchmarking current system with the proposed system. The result shows the system can provide data for the graduation eligibility.

***Keywords***—*data warehouses, OLAP, graduation eligibility, university*

# The Application of AGNES Algorithm to Optimize Knowledge Base for Tourism Chatbot

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***Abstract***—Most tourists have limited time and schedule when they are visiting a particular tourism area. One of the main issues faced by those tourists is that they can not make simple queries to search engines about, for example, which sites or places to visit optimally if we only have one day or two-day visit? Search engines are better and better in replying users' queries with relevant answers. However, search engines are not always able to respond queries suited to users' characteristics such as their styles, personalities, knowledge backgrounds, etc. Also, search engines are not as flexible as chatbots in enabling dialogical-communication-queries. This case study aims to respond aforementioned issue by applying hierarchical cluster analysis on a set of tourism sites around Malang city, Malang regency, and Batu city based on AGNES (Agglomerative Nesting) algorithm. The result, then, is fed into chatbot's knowledge base. This chatbot will assist tourists to get information on which possible sites they have to visit optimally if they are under limited vacancy-time constraints.

***Keywords***—AGNES algorithm, chatbot, tourism sites

# Data Center-Disaster Recovery Center (DC-DRC) For High Availability IT Service

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***Abstract***— Currently, the companies are required to have conducting business activities and continue constantly in touch with its customers to provide IT service availability continuously. The systems must be available at all times with an ever-on-the-job system, requiring a high availability system to keep the service operable 24x7x365. This issue brings the disaster recovery plan (DRP) becomes an important issue for the data and IT infrastructure. This is a very potential risk because the data will be constantly threatened by disturbance such as viruses, hackers or disasters such as natural disasters. This paper explains the concept rather than disaster recovery service planning and database replication. This study covers the evaluation, planning, implementation and testing of the disaster recovery solution.

***Keywords***— *Disaster Recovery Plan, High Availability, Recovery, Business Continuity.*

**Room C0304**  
**(Session Chair: Evaristus Didik M)**  
**Time : 13:00 – 15:00**

# Classification of Land Cover from Sentinel-2 Imagery Using Supervised Classification Technique (Preliminary study)

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***Abstract***—this paper intended to classify land cover of high-resolution satellite image using supervised classification method. The object of this research was the land cover image of the central java area in Indonesia which chosen as an area observed with the cloud cover consideration. The Satellite image was obtained from Sentinel-2 through <https://earthexplorer.usgs.gov>. Supervised Classification and ArcMap 10.5 was used to classified image object. This research classified the land cover into four classifications class namely Water, Forest, Urban and Bare Land due to show the main classes in the Land Cover Classification of RSNI-1 National Standardization Body of Indonesia, RSNI-1 was used as reference for classification process. The confusion matrix used to calculate classification accuracy value. Subsequently, confusion matrix results compared to the truth information. The truth information was derived from the actual value of RASTERVALUE obtained from Google Earth. This research shown supervised classification maximum-likelihood classification has been classified land cover into four class (forest, water body, urban and bare land) with overall accuracy = 1 and kappa value = 0.4896. This result showed this research got moderate kappa accuracy value but high overall accuracy value. High accuracy value reached due to fully supervised experiment during classification process.

***Keywords***—*Supervised classification, Maximum-likelihood classification, Land cover, Land Cover Classification of RSNI-1 National Standardization Body of Indonesia*

# Potential Impact of Social Media to Support Government Services in Jakarta Smart City

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***Abstract***— The purpose of this initiative is to ensure that citizens use social media to access information about the state of the city. Social media application offers benefits in the form of a channel of communication between the community and the government or the group that has public interest. Through this application, the public could channel complaints about public services. Perception becomes the important key for this condition because user action is determined by their perception toward the government e-services. The result of standard measurement for customer satisfaction on government organization is used to help find the weakness of the service and correct it. The interface is made to be more user-friendly to ensure the effective service. So, it is necessary to develop the system continuously. Perceived quality is one of the important determinants of the success of social media application, therefore needs identification of the user's perception and expectations and involving becomes the key to success besides the good quality that will increase the trust and satisfaction of users. Evaluation of social media applications is needed so that it can provide recommendations to the provincial government of DKI Jakarta related to what things can be done to improve community service.

***Keywords***— *government, social media, smart city*

# Customer Segmentation in XYZ Bank using K-Means and K-Medoids Clustering

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**Abstract** — The Internet banking customers has growth very fast. Customer segmentation can be applied based on Internet banking data. Clustering is unsupervised data mining technique that can be used for customer segmentation. This research build clustering models on customer profile data based on their usage of Internet Banking in XYZ bank. The clustering methods employed K-Means method and K-Medoids method based on RFM score of customer's Internet Banking transactions. This research used Knowledge Discovery methodology [18]. The performances of both methods were measured and compared. The result shows that K-Means method outperformed K-Medoids method based on intra cluster (AWC) distance. While based on Davies-Bouldin index, K-Means performs slightly better than K-Medoids.

**Keywords** — *customer segmentation, k-means clustering, k-medoids clustering, data mining, bank*

# Analyzing The Benefit of ERP Implementation in Developing Country: A State Owned Company Case Study

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***Abstract***— The purpose of this article is to provide further insights into the adoption of enterprise resource planning (ERP) systems and the benefits of ERP implementation in Indonesia state-owned companies: PT. Garuda Indonesia and PT. Semen Indonesia. A qualitative study was conducted to collect data on several benefit categories that company may achieve through ERP implementation. Research data obtained by conducting interviews to 9 people which represents four main business units: financial and accounting, operational and logistic, marketing and sales, and human resources. The interviewee has varied position from operational to strategical position. The results of this study are the list of business benefits obtained by companies from ERP implementation and can be used as a reference of similar companies who want to implement ERP or as a framework to measure the success of ERP implementation in the company.

***Keywords***— *enterprise resource planning (ERP), Indonesia, state-owned company (SOE), ERP benefit, business benefit*

# Factors Influencing Continuance Usage of Mobile Wallets in Indonesia

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***Abstract***— This study identifies the factors that influence the continuance usage of mobile wallets and examines continuance usage of mobile wallets that have been registered with Bank Indonesia and issued by non-banks. The respondents were the Indonesian population that have used one of the mobile wallets, such as DOKU, Dompetku, Telkomsel Wallet (T-Cash), UNIK, GO-PAY, XL Tunai, or TrueMoney. The data were then analyzed with a structural equation modeling (SEM). The results of the data processing show that the factors influencing continuance usage of mobile wallets are trust, flow, and satisfaction. Furthermore, quality factors consist of system quality, service quality, and information quality, which affect trust and flow directly. Satisfaction is directly influenced by trust and indirectly by the previously mentioned quality factors. Thus, mobile wallet service providers must continue to improve the system quality, service quality, and information quality of their m-wallet applications. The trust factor also influences flow and satisfaction; thus, directly improving the quality can improve the user experience and user satisfaction.

***Keywords***— *mobile payment, mobile wallet, continuance usage, structural equation modelling, Indonesia*

# Agile Methods for ERP Implementation: A Systematic Literature Review

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***Abstract*** – Since ERP solution facilitates has changed in business environment and also has helped in supporting managerial level to make decision. Therefore, ERP system is important strategy for organization’s survival. One of the critical issues that affect a successful ERP implementation is the implementation method. In previous research, it showed that many organizations had faced complexity when they were implementing ERP in order to meet their requirements. In other cases, the ERP systems are unable to provide solution which is a simplicity of the necessary business processes. The ERP implementation complexity is one of the factors that lead the failures. Thus, here, we intend to propose an agile approach to reduce complexity and eventually our intention is to improve ERP implementing to become more successful. In this study, we are employing a systematic literature review (SLR) approach to identify the principles factors of the agile methods for ERP implementation. In result of employing this SLR method, we found that agile values and principles are correlated in ERP implementation complexity.

***Keywords***–Complexity, Agile methods, ERP implementation, Systematic literature review

**Room C0305**  
**(Session Chair: Tanty Oktavia)**  
**Time : 13:00 – 15:00**

# User Behavior Adopt Utilizing FinTech Services on Online Transportation in Indonesia

## (Scale Validation and Developed Instrument)

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***Abstract***—The Aim this study is to explore the views of consumer intentions in using FinTech services in online transport. this study focuses only on the process testing phase of the research instrument to be used at the next stage of the survey phase. Technology Acceptance Model (TAM) is used as the foundation of conceptual model theory and research instrument developed. Models and instruments were then validated by a pilot study method involving 133 communities as respondents who had been declared valid. analysis of survey data obtained through Smart PLS version 3 applications. This analysis is used to ensure the reliability and validity of the instruments that have been developed. The results of this study indicate that the variable Attitude toward use with 3 instruments, Perceived Useful variable with 5 instruments, Perceived Ease of Use variables with 5 instruments, Intention to use variables with 6 instruments that stated reliability with values above 0.5 and validity with values above 0.7. the instrument has been eligible to collect data from the actual survey in this study.

***Keywords***— *FinTech, Online Transportation, Adoption technology, TAM*

# Technology Risk in Financial Technology at Online Transportation Systems

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***Abstract***—Financial Technology (FinTech) is a new phenomenon that is currently growing rapidly in Indonesia. The use of FinTech as a means of payment becomes a new phenomenon, while the continuous development of the online transport system is becoming a complement for the ease of users. However, the developments that occur produce the impact of the inherent risk to the system and to the users of the service. Therefore, this study aims to see the correlation between inherent risk factors that users feel from various aspects, and do the inherent risk influence the usage of Financial Technology especially in Online Transportation System? The research was conducted using a quantitative statistical method by using SPSS correlation bivariate and a descriptive analysis. In this study found 26 correlations that associated with the use of Financial Technology services and the inherent technology risks have a negative influence on Financial Technology system.

***Keywords***—Financial Technolgy, FinTech, Inherent Technolgy Risk, Sharing Economy, Quantitative method

# Impact of the Entrepreneur Course and Technology for University Students

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***Abstract***— Indonesia so far still needs many entrepreneurs, as the president of Indonesia said, written at national media in April 2018. Bina Nusantara University has implemented Entrepreneur lesson for all university students, so the case study of this research objective to see the impact of the courses and technology that have been taught to university students who do business after receiving the lesson. This study uses time series to gather the multi year's data for about 158 university students who do business after the students receive entrepreneur lessons. The method of quantitative descriptive analysis, with bivariate correlation to see the correlation variables and this study found 17 significant relationships that are very useful for the development of the creation of entrepreneurs in the future.

***Keywords***—*Entrepreneur; the Quantitative method*

# The Comparison of MOOC (Massive Open Online Course) Platforms of edX and Coursera (*study case: student of programming courses*)

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***Abstract***— The recent development of e-learning platform has provided the learning environment with exciting experiences to teach a various and massive learners population using MOOC (Massive Open Online Courses) platforms such as edX, Coursera, etc. A large user uses these platforms to enhance their competency and improve their skills. Numerous platform of MOOC has been implemented in higher education institution, and the public debate about MOOC is growing; is the platform relevant to be formal education or not. Therefore, this research objective is to explore the MOOC's features, particularly, to identify the difference platform of edX and Coursera. Those platforms have the most significant number of learners; in learner's perspectives through the Resource Activity Support Evaluation (RASE) pedagogical method and learning activity components, which consists of Absorb, Do, Connect activity. The study conducted at a private university in Indonesia with 60 students as respondents and they were also involved in experiments activity to use MOOC's platform. This study used quantitative approach to identify the difference platform between edX and Coursera. The significant results from this study can open mind the researcher to understand the uniqueness of MOOC's platform particularly in edX and Coursera, and it also can be considered as a starting finding toward advanced research in education technology area for the higher education institution.

***Keywords***— *e-learning, MOOC, edX, Coursera*

# Evaluation of IT Project Management Governance Using Cobit 5 Framework In Financing Company

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***Abstract***— Competition among financing companies is very tight. This makes the company trying to use and implement the latest technology to support their activities and attract consumers. Especially for software development. This is what makes IT project management, especially project management related to software development, becomes an important factor in a financing company. The purpose of this research is to measure the maturity level of the company project management and to recommend the implementation of best practice in their project management. To make a project success, good governance is required in running and managing the project. COBIT is a management guide that provides measures, indicators, processes and set of best practices to help companies get the most out of IT control and implementation. COBIT method used in this research is the measurement of maturity level with COBIT 5. Mapping business goals to enabler goals, enabler goals to IT related goals, and IT related goals to COBIT 5 process. From the mapping, there were 9 processes for measurement indicator that is EDM02, APO09, APO11, BAI01, BAI02, BAI03, BAI04, BAI08, and MEA02. After the results of the measurement of each process obtained, it is discovered that the overall maturity level of the process is level 1. Specifically, the maturity level of each process is EDM02 (Level 0), APO09 (Level 1), APO11 (Level 1), BAI01 (Level 1), BAI02 (Level 2), BAI03 (Level 2), BAI04 (Level 1), BAI08 (Level 0) and MEA02 (Level 2).

***Keywords***— COBIT 5, IT Project Management, Project Governance, Financing Company

# Evaluation of Policy Processing System Using Extended UTAUT Method at General Insurance Company

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***Abstract***— Company realizes the importance of using technology in business process to improve performance and to improve quality of services for client. Therefore, the company implements the policy processing system. To determine the level of employee acceptance of the system and to improve the use of policy processing system, an evaluation of the system with extended UTAUT method is required. Extended UTAUT method use UTAUT method as a basic model and add two variables which are variable vendor support and management effectiveness. The proposed model use effort expectancy, performance expectancy, facilitating condition, social influence, behavior intention, use behavior variable (UTAUT method), vendor support and management effectiveness as additional variable. This study aims are to determine the effect of effort expectancy, performance expectancy, management effectiveness, and social influence variable on behavior intention of policy processing system. Other purposes are to know whether use behavior is affected by vendor support, facilitating condition and behavior intention variable in policy processing system. Data collection was used survey method by using questionnaire. The subject / sample are employees who use policy processing system at general insurance company in underwriting, marketing and reinsurance department which total are 180 employees. Data analysis was using software SmartPLS2. The result of data analysis show that social influence is the most significant variable that affecting behavior intention (0.408) and management effectiveness does not affect behavior intention. Performance expectancy (0.258), effort expectancy (0.398) affects behavior intention. The result also shows that behavior intention (0.671), facilitating condition (0.222) and vendor support (0.142) affect the use behavior

***Keywords***— *UTAUT, Evaluation, ERP, Vendor Support*

# Evaluation Of Use Agent Proposal System Using Unified Theory Of Acceptance and User Technology (UTAUT) Model

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***Abstract***—The life insurance company rapidly growing because the demand of life insurance is increasing now days. With more competitor in life insurance industry, company need to have appropriate, attractive and competitive insurance product for their customer. Company employee who offers insurance product directly to customer is called insurance agent. Those competitive environments make company to equipped agent with mobile application, which called agent proposal system. With agent proposal system, agent can give an interactive presentation to customer, allow them to make simulation, and offer insurance product to customer. In order to enhance / improve the application, company need to evaluate the use of the agent proposal system. The evaluation result is expected to give company the conclusion about factor that influence agent to increase the use of agent proposal system and as suggestion to enhance / improve the system. The evaluation use UTAUT model with variable used are social influence, performance expectancy, facilitating condition, behavior intention, effort expectancy, use behavior and moderator: experience and age. The sample is 217 agents and the data collection using questionnaire. The result show that performance expectancy, effort expectancy and social influence have a positive influence to behavior intention and behavior intention and facilitating condition have a positive influence to use behavior of agent proposal system.

***Keywords*** — *Evaluation, Agent Proposal System, Mobile Application, UTAUT, Insurance Company*

**Room C0306**  
**(Session Chair: Yakob Utama Chandra)**  
**Time : 13:00 – 15:00**

# Analysis of Determinant Factors of User Acceptance of Mobile Payment System in Indonesia

*(a case study of GO-Pay mobile payment)*

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***Abstract***— Mobile payment in Indonesia is designed to help the growth of online transport, such as GO-Jek with mobile payment products, which is the GO-Pay mobile payment to make it easier for customers to pay drivers and merchants. The study was carried out for the analysis and evaluation of the acceptance of technology in the mobile payment GO-Pay using the technology acceptance model (TAM). The research was carried out using the quantitative research approach by obtaining 284 active respondents using the GO-Pay mobile payment. The research question in this research is whether GO-Pay as a mobile payment system can be accepted in Indonesia? The result of this research is factor of perceived about usefulness, ease of use, mobility, and the attitude factor can make GO-Pay as mobile payment is acceptable in Indonesia. For the perceived trust, it is not a significant effect, but the effect on perceived trust is perceived reputation, while for the environmental risk it does not affect the perceived reputation.

***Keywords***—*mobile payment, TAM, adoption, go-pay, FinTech*

# Designing an Institutional Research Management System Framework for Higher Education

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***Abstract***—Although research activity plays a big role in institutional ranking and provides a great benefit for university lecturer, the process of managing all research activity is tedious and exhausting. In most university, management must be able to collect all hundreds of proposals and reports; not to mention they must be able to accommodate the process of reviewing every single proposal. They also need to monitor all research output in final report and make sure that all of the outputs are correctly achieved from proposed target. In addition to the problems stated, previous activities are done manually, leaving a lot of opportunity to improve and automate the process. All of the addressable opportunity for improvement are explained and explored, thus a model of the web application is created. This paper presents the design of web application used to solve persistent problem in research management, specifically in Binus University. The design methodology is divided into two phases: requirement engineering phase, and system design. Upon finishing the requirement engineering phase, system model is depicted using Unified Modeling Language, specifically: Activity Diagram, Use Case Diagram, and Conceptual Class Diagram.

***Keywords***—*research management system, unified modeling language, higher education*

# Development of a Web Based Corruption Case Mapping using Machine Learning with Artificial Neural Network

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***Abstract***—Cumulative state loss over the years caused by corruption in Indonesia has reached a fantastic number of 15 Billion USD up until 2016 [1]. To imagine the severances of it, 10.000 KM of highway can be built with that much amount of fund. Several responses has been done by Indonesian government to fight corruption from both prevention and persecution. This work focuses on the development of a web application aimed to provide insight to corruption case per province in Indonesia. The web application was developed using Machine Learning, specifically Backpropagation Artificial Neural Network (ANN). Web crawling and web scraping techniques are used to gather news content from 7 major news portal in Indonesia. Accuracy is measured by comparing correct prediction by ANN to its true value. Upon finding corruption news, data is saved and further analysis is done to establish the number of corruption news per region. Finally, the output is visualized using Google Map API. The purpose of this work is to provide regional depiction of corruption case to give further insight to be used by decision makers. Upon using this web application, objectivity of program development is expected to increase. The final output of the web application is a map of corruption case in Indonesia per region. The accuracy of ANN used in this work to classify corruption and non-corruption news is 96.91% using Sigmoid Activation Function.

***Keywords***—*machine learning, corruption prevention, web application, corruption mapping*

# A KMS Architecture: Push New Content from Cloud Storage

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***Abstract***—Nowadays the content growth in a Knowledge Management System (KMS) occurs very quickly and is formed in various file types. Due to the phenomenon, many organizations shift their system or storage media with cloud computing. So that formed an architecture where the application system and content storage to be separate and distribute. In advance these two sub-systems are generally integrated into an intranet infrastructure, so there is no problem in communication between the sub-systems. Another thing to note is that the hook information between the people and the content is required. Hence, an architecture to push new content when it is present in the system is needed. Therefore, it takes an architecture that integrates cloud storage with an on-premise KMS system to push new content in the system. The objective of this study is to generate an architecture for an organization that implements KMS and requires push new content system from cloud storage. The method used is using literature study and architecture model development with examples of implementation in cloud Microsoft Azure and KMS Bina Nusantara University. The result of this study is an architecture on KMS that is integrated with cloud storage and supports a new content push notification system.

***Keywords***—*architecture push, new content, cloud storage, knowledge management system*

# Towards Enhancing Citizens Participation: A Review of Parliamentary Websites in the 36 State Houses of Assembly in Nigeria

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***Abstract***—Parliaments represent the interests of citizens and therefore remain critical to democracy and good governance. Therefore, for effective citizens' participation; ensuring online presence and; enhancing transparency of internal processes, parliaments leverage on Information and Communication Technology, globally. This study investigates the contents of official parliamentary websites in the 36 State Houses of Assembly of Nigeria to determine how they facilitate effective engagement between citizens and their elected representatives. The methodology used include manual test based on categories and critical sub-factors in line with Inter-Parliamentary Union (IPU) Guidelines. Desk research was also used to determine technical challenges for the implementation of e-parliament. The findings reveal that 36% of the state assemblies have official websites. Five are fully functional, and just 5 state legislatures effectively utilize interactivity tools to re-engage the citizens. Results show that 58% of the state legislatures use social media tools such as Facebook and Twitter. The authors concluded that in enhancing civic participation, state legislatures need to provide a relatively open, more responsive, accessible and interactive website while extending social medial tools.

***Keywords***— *Citizens Participation, Legislature, Social Media, State Assembly, Web Tools.*

# The Development of Anti Bribery Management System: A Preliminary Study

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***Abstract***— This paper explain the development of Anti Bribery Management System (ABMS) checklist to measure the state of readiness of an organization in implementing ABMS in its organization. Three instrumentals consisting of ABMS checklist, ABMS Matrix, and ABMS Dashboard were developed based on international references. ABMS has eight dimensions which are (1)Tone of the top, (2)risk assessment, (3)policies and procedures, (4)training and communication, (5)monitoring and auditing, (6)investigation and reports, (7)enforcement and sanction and (8)review and update. Data was collected in September 2017 from 31 middle and top management level of one organization as a preliminary study. The developed checklist was first validated by panel experts in the subject matter. A briefing session was then made to the respondents and they were then requested to answer the final checklist online. Data collected was then analyzed using descriptive statistics to gauge the perception of respondents towards the extent of implementation of ABMS in an organization. The organization was found to score 63.9%. Recommendations were suggested on how to improve the state of readiness of the implementation of ABMS

***Keywords***—*anti-bribery management system, ISO 37001, ABMS checklist, ABMS matrix, ABMS dashboard*

# Factors Influencing Intention to Use Cloud Storage Services Amongst Postgraduate Students in Malaysian Technical Universities

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***Abstract***— The purpose of this research is to supply empirical evidence about the acceptance of Cloud Storage Services (CSS), by attempting to build an enhanced research framework with based on the Technology Acceptance Model (TAM) to identify factors that affect postgraduate students' intentions to use CSS. Factors examined are cloud storage service support, cloud storage self- efficacy, perceived usefulness and perceived ease of use on intention to use CSS. Using convenience sampling method, a total of 219 postgraduate students from 4 Malaysian technical universities participated in the study. Structured equation modelling was used to analyse the data and findings indicate that CSS support have a significant positive relationship with “perceived usefulness”, and “cloud storage self-efficacy” have significant positive relationship on the “perceived ease of use”. Both “perceived usefulness” and “perceived ease of use” have a significant relationship on students’ intention to use CSS. The findings of this study can help the service providers to develop successful strategic plans for usage of CSS. Universities should also have policy and guidelines in using services to ensure the security when access information from intranet.

***Keywords***—cloud storage service, support, self-efficacy, perceived usefulness; ease of use, intention to use

**Room C0309**  
**(Session Chair: I Gusti Made Karmawan)**  
**Time : 13:00 – 15:00**

# Business Process Management System Implementation Model For Improving Employee Performance

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***Abstract***— Business Process Management Systems focuses on the development of the company's business processes in improving the relationship between the customer and the supplier (supply chain management) to fulfill customer demand. This process focuses on understanding the needs of the company's business processes to improve employee performance. The purpose of the study was to define business process management systems implementation model that can be used to measure employee performance improvement. The research methodology used the literature study, observations, questionnaires, and analysis of data using factor analysis. Results obtained from the research is a new factor analysis and indicators that can be used as a basis business process management systems implementation model for employee performance measurement model. Thus it can be concluded that in this study, the example of the company used in the study has an inadequate business process management system so that the results of this study produce a business process management implementation model that can be used as a benchmark in improving employee performance in a better direction.

***Keywords***—*business process management system, key performance indikator, factor analysis*

# Evaluation Implementation of E-Learning in Teaching and Learning Activities using SPSS (*case study Bina Nusantara University*)

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***Abstract***— E-Learning is a media technology that can be used to help learning more effectively and efficiently. The purpose of the study was to evaluate the result of the E-Learning namely Binusmaya 5th version and produce a model that can be used to measure performance improvement. The research methodology used the questionnaire, literature study, observation and analysis of data using confirmatory factor analysis. The questionnaires build based on factors and indicators matrix relationship WELLS Alternative Daniel Y. with the Personalization Factors, System Content Factor, Community Learning Factor, and Learner Interface Factor. The results of this study were to determine the factors and indicators that influence effective and efficient Binusmaya 5th version and create a model used for measuring Binusmaya 5<sup>th</sup> version.

***Keywords***— *e-learning, WELLS alternative, confirmatory factor analysis*

# Development Model Availability Of Rice In Indonesia using System Dynamics Approach

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***Abstract***—Rice is one of the food crops that cannot be replaced for the people of Indonesia. Rice is a primary food of Indonesia's population. With the need for availability of rice will also be arranged for not until blackspots. Indonesia has the level of rice consumption of 125.67 kg / capita / year (data Ministry of Agriculture Indonesia, 2015). Rice also has a strategic role in the stability of food security. The purpose of this study was to analyze the availability of rice as consumption in the future, we use a Vensim equation, then the simulation using historical data to produce graphs. The graph shows a steady population growth then create a simulation of the dynamic model for planning the provision of rice and provide policy alternatives for decision makers.

***Keywords***—*system, dynamics, food, rice, model*

# The Impact of e-CRM Implementation to Bank Performance Through e-Service Quality

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***Abstract***— The purpose of this research was to analyze the impact of e-CRM implementation on bank performance through e-Service Quality and what are the features to be concerned further. The study was conducted in the business process of public bank in Jakarta. The questionnaires were distributed to 58 corporate customers of this public bank using cluster sampling method. Analysis obtained using quantitative research with partial least square (PLS) model. The result of this study found that e-CRM system helps bank performance to accelerate the registration process, product implementation, and help customer dealing with various feature offered.

***Keywords*** – *e-CRM implementation, e-Service Quality, bank performance*

# Master Data Management Planning :

## *(case study of Personnel Information System at XYZ Institute)*

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***Abstract*** – In the management of its information system, XYZ Institute has launched several applications related to personnel affairs. Use of these various applications is necessary because of the specific features in each of these applications. However, problems such as redundancy and inconsistency of employee data arose due to the absence of master data management as a single source of truth. Related to that, the research was conducted to plan the master data management in accordance with the needs of XYZ Institute in managing personnel data. Master data management planning is done by using data management body of knowledge guidance (DMBOK) which is published by Dama International in 2009 as a method. The research succeeded in formulating the need for master data management and master data source of employment at XYZ Institute. Such personnel data can be integrated using collaborative usage methods and transaction hub architecture patterns. Master data management is expected to help XYZ Institute in managing personnel data to improve data quality.

***Keywords*** - master data management, DMBOK, data management, data architecture, data integration

# Knowledge Mapping System Implementation in Knowledge Management : A Systematic Literature Review

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***Abstract***— Knowledge mapping has been studied widely in knowledge management context, but the terminology of knowledge map system (KMSs) is not been much studied and it needs to identify state the art KMSs topic from a literature review to propose the future research. The method refers to the systematic literature review as guidelines from Kitchenham, this research gathers, synthesizes, and analyses some paper based on keyword “knowledge map system” or “knowledge mapping system” and “knowledge management”, where it published from 2008 until 2017 on four international electronic databases and using pre-defined review protocol. We obtained 9 articles used in this study and find that most design systems use customized with some computational technics. the scope is still a lot of focus on enterprise and virtual community, accordingly it needs to be developed further system for the country as public services and also validation method that combines elements of content and software.

***Keywords***— *Knowledge Mapping, Knowledge Map System, Knowledge Mapping System, Systematic Literature Review.*

# Big Data Security Approach in Cloud: Review

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***Abstract*** — In big data era, data may be in the form of structured, unstructured and semi-structured. They become an asset for companies that contain important insights and support in decision-making processes. Big data is one of technologies that used by many organizations for managing store data and data analysis. Therefore, storage management is one of important processes in big data management to ensure that data are stored correctly, safely and easily to be accessed. Despite having many advantages, big data technology still has several issues on storage management, especially if we relate between big data and cloud computing, such as data security which is very important. In this paper, we reviewed the previous works for data security in storage management in big data technology and provide a suggestion to answer the challenge of data security.

***Keywords*** — *big data, cloud computing, management, security, storage*

**Room C0310**  
**(Session Chair: Hudiarto)**  
**Time : 13:00 – 15:00**

# Questions Classification in Online Discussion toward Smart Learning Management System

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***Abstract*** – The widespread interest toward online learning at higher education worldwide brings about necessity toward a smart Learning Management System (LMS), LMS with analytic functionalities, to increase learning outcome of the students. In an effort to develop a smart LMS which is able to both guiding students on learning process and giving automated feedback on online learning delivery to online learning management, this paper presents a preliminary and exploratory results toward textual documents from learning material repository and online discussion forum. The dataset for this study obtained from Bina Nusantara Online Learning repository. The study found interesting finding namely: there is a significant discrepancy between cognitive domain Taxonomy level between question raised in discussion forum and its respective level of learning outcomes. This finding was confirmed using Anova with P-value < 0.05 and 0.86 Accuracy of Naive Bayes classifier.

***Keywords*** – *question-classification, document-similarity, learning outcome, online discussion*

# Evaluation of Information Technology Governance in STMIK Mikroskil Using COBIT 5 Framework

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***Abstract***— This paper describes the maturity degree evaluation of Information Technology Governance at Information System Centre (PSI) in STMIK Mikroskil to measure IT Governance and the success of IT-based facilities that cannot be measured yet. The evaluation measured by using Process Assessment Model (PAM) from Framework COBIT 5 which refers to the specified 10 domain process. Data is collected from 36 returned-questionnaire of 47 distributed-questionnaire. Data is analyzed using Framework COBIT 5, Slovin method is used to determine the number of valid data samples, and Rating Scale Formula operated to determine the scale of capability level for each selected domain. From the evaluation results known 1 domain has been achieved the expected capability that is DSS05 at Level 4, and other process domains still exist under the expected capability level, then the results are used to establish improvement recommendation based on Framework COBIT 5.

***Keywords***— *COBIT 5, Information Technology Governance, Maturity Level, Improvement Recommendation*

# Business Intelligence Design of Rural Bank Performance Assessment Using Financial Ratio Analysis

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***Abstract***— There are more than 1600 rural banks (BPR) registered in the OJK. But not all of them are a healthy company that has a good financial condition. One of the methods to assess bank's financial performance is by using financial ratio analysis. To analyze all BPR financial condition using financial ratio analysis will require so many time and effort. That's why Business Intelligence is needed to provide a fast and reliable information for top management in Bank Andara to help them make decisions regarding their potential customer's financial condition. This paper will result in a design of a business intelligence application that will adhere to required financial ratios needed by management user to analyze BPR's financial condition and resulting in a comprehensive and interactive dashboard that will help them to make decisions.

***Keywords***— *business intelligence, bank's performance, financial ratio, rural bank*

# Evaluate Implementation of Enterprise Resource Planning (ERP) System

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***Abstract***— This study aims to evaluate the successful implementation of ERP system that has been done in the Ministry of Finance Unit. The research methodology is that would be used is literature, collect data sample and data analysis. Method collected data sample with observation and questionnaire. Method data analysis using factor analysis. Method the results obtained from this study is the analysis of new factors and indicators that can be used as a basis for determining that the effect of a successful ERP implementation. Data obtained from questionnaires to 120 respondents in Ministry of Finance unit. Data can be processed from the 92 questionnaire respondents. Data were analyzed using reliability and factor analysis method after that proceed by using regression analysis. Results obtained in the form of a new model that can be used by the Finance Ministry is to evaluate the success of ERP Systems implementation. By using the new model of successful ERP System Implementation evaluate this, we can determine the minimum and maximum values that affect the successful of ERP system implementation to make a reference to improvement and development process of the system for the better system ahead.

***Keywords***— *Enterprise Resources Planning, Evaluation, Factor Analysis, Regression analysis, Successful System Implementation*

# Instant Messaging as Information Goldmines to Digital Forensic: A Systematic Review

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***Abstract***— The use of instant messaging (IM) application is very communal among smartphone users, as it delivers ease in interaction and communication. The speed at which technologies, growth, and expansion of networks infrastructure for high-speed data networks (e.g. wifi, 4G, etc.) are changing and the high number of IM applications are available. IM application usage is significantly escalating, also for doing illegitimate purposes, particularly to organize and coordinate criminal acts. They are practically exploited by the criminality groups involved when they target and interact with the victims or try to run away from criminal occurrences. By systematically conducting a review to understand and to investigate IM applications topic coming from a number of scientific sources (e.g. manuscripts, metadata, files, etc.), a broader picture and opportunity to regain the valuable evidence in the investigation is academically provided.

***Keywords***— *digital forensics, instant messaging, smartphone, systematic review*

# Hybrid Cryptography on Wireless Sensor Network: A Systematic Literature Review

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***Abstract***— Wireless technology gradual growth in the latest years has facilitated it to bridge its applications operated extensively in many types of industry. Wireless sensor network (WSN) technology brings several benefits over traditional wired technology by reason of the lower cost, immense flexibility escalation, and scalability which is able to be obtained from the old-style one. However, in its application WSN still experience some constraints on resource limitations in the form: processor, memory and energy, and any more challenges that related to availability, reliability and security. Based on its benefits, limitation, and challenges, and also three systematic stages, the review study was performed. The result of study was portrayed in this paper. It is regarding investigation result of hybrid cryptography (HC, as one of defense methods) realized for WSN to methodically increase the security level and decrease the resources usage. The result concluded that HC was proven in escalating the security defense level and downgrading the resources use on WSN compared to symmetric and asymmetric algorithms.

***Keywords***— *wireless sensor network, hybrid cryptography, systematic literature review, security*

**Room C0301**  
**(Session Chair: Dr. Suroto Adi)**  
**Time : 15:30 – 17:30**

# What Indonesia's Museum Visitor Needs in Digital Era?

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***Abstract***— The purpose of this study was to understand the behavior of visitors that visited the museum and the adoption of social media technologies in the museum in Indonesia. The data was collected from a sample of 63 respondents using a questionnaire using purposive sampling. The data was analyzed using descriptive analysis. The results were most of the social media users are in the productive age who have minimum, an undergraduate education, and most of them live in Java. They are not visiting the museum frequently, and their visiting purposes are to learn or study about Indonesia culture triggered by their school, relaxing, personal desires, and visit by accident. They know information about museum from the search engine, offline, and social media. Most of museum in Indonesia give bad experience to their visitor, and only some give positive experience. The limited social media users in Indonesia, who already aware of museum presence in social media, utilize it to get information about the museum (profile, exhibition, collection, and news), socializing with other social media members, and showing their existence in society. They suggest that museum management should update their social media frequently.

***Keywords***— *online visitor behavior, museum social media, edutainment marketing, online visitor expectation, Indonesia museum.*

# Enterprise Resource Planning Post-implementation: Human Resource Management Module – Hiring and Assessment (*a preliminary Study*)

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***Abstract*** — The purpose of this study is to find a practical and comprehensive basis for measuring a firm's ERP post-implementation success. The study conducted in Human Resources Management – Hiring and Assessment. The research method is by using qualitative method, such as interview, observation to company. Data collection was obtained by structured interviews to Senior Manager. Data analysis was analyzed as a single case design, as well as preliminary study. Observation was carried-out to identify the employee in the company on their work, while doing their job by using ERP. The result show, training and assessment is needed in the post-implementation process or ERP implementation to maintain the good ERP system, solved the problem of ERP and find out what the company needs. Human Resource Department is an important part of the company in doing the assessment and recruitment. The conclusions are a proper training is a 'must-do' thing that the company should do. Maintaining the relationship among the employees could give a support by making the environment where employee could interact. Then, employee would give you a suggestion and give more contribution for their work.

***Keywords*** — *Human Resource Management, post-implementation phase, hiring, assessment, training*

# Village Business Intelligence (BI) Design to Support Social Welfare Intervention Programs by using GIS Approach

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***Abstract***—Currently the development of rural communities in Indonesia is becoming a priority with the aim of increasing social welfare. Education, health, and food are the three main points of concern to the government, besides unemployment, business opportunities, infrastructures, and village economics. The target is villagers and their communities. Today there are mainly three interventions of village development programs in education (Indonesia Smart Card), health (Indonesia Health Card) and food (Household Food Program) that supported by macro data only. Data on the number of villagers requiring education, health, food and data of village potential resources are available, but who and where they are cannot be known. Furthermore, at the village level, there is no such decision-making tools and no data that specifically refer to the object so that program interventions are often not targeted. The purpose of this paper is to design a database and application of village Business Intelligence (BI) by utilizing the GIS advantage to assist village officials and other government officials for decision making processes in the intervention of village community welfare development program. The methods used are literature studies of village legislation, surveys, and interviews. The result of this research is the design of dashboard including database and applications.

***Keywords***— *village, business intelligence, development, social welfare, intervention, program, GIS*

# Design System Analysis Of Water Quality Survey Using Macro Benthos Indicator With Biotic Family Index Approach

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***Abstract***—Waters are an important part of an ecosystem and have important functions for human life, such as the need for drinking water, household activities, agro-industry, manufacturing and other production activities requiring water so that the aquatic environment needs to be maintained in quality. One of the biological factors from water quality is the life of macro benthos organisms. In some existing studies macro benthos is usually used as a bioindicator of water quality. The presence of a specific macro benthos family or macro benthos organism that has similarities in the aquatic environment signifies the water quality level. Such extreme environmental changes provide a macro benthos life tolerance value called the Biotic Factor Index (BFI). The purpose of this publication is Knowing the relationship between the biotic index and water quality, SQL syntax to calculate the Biotic Index from the input of each sampling point, the design of the system that accommodates each macro benthos findings from each sampling point in a water. The biotic value from spring to autumn is 2.59, 2.68, 3.22, 3.42, all of them is in very good water quality.

***Keywords***— *design system analyze, macro benthos; biotic family index, water quality*

# Design of Student's Learning Outcomes Measurement System in BINUS Online Learning

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***Abstract*** — The rapid growth of online learning in Indonesia is supported by PERMENDIKBUD No. 109 year 2013 about implementation of Distance Education (*Pendidikan Jarak Jauh/ PJJ*), triggering the educational institution to organize the program. This online learning environment has its own challenge that is to measure learning outcomes of students especially because the learning is done online. Therefore, the measurement of effectiveness needs to be done to ensure the learning process through online media can still gain trust from the public in terms of quality of education. Research methods that will be used for data collection are literature review and interview to the faculty. System Development Life Cycle (SDLC) with waterfall approach will also be used as a guideline in system design. From this research, it is founded that the measurement from learning outcomes from several assessments can be done. This finding will help educational institutions, especially BINUS Online Learning in developing monitoring and measurement model and system of student learning outcomes associated with teaching and learning process itself.

***Keywords***— *design, measurement, system, achievement, learning outcomes, student*

# Business Process Management (BPM) in Operational Binus Online Learning

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***Abstract*** - In Indonesia, the growth of online learning more and more after the government published PERMENDIKBUD No. 109 Year 2013 about “Penyelenggaraan Pendidikan Jarak Jauh (PJJ)”. The actors of educational institutions seem to be competing to be the first and largest in the implementation of the PJJ program, which is involves the online learning environment in its implementation. One of the challenges in organizing the PJJ program is about how to manage operational lectures in the learning environment in the network, in order to support the creation of conducive academic academic lectures. Therefore, improvement of business processes, technological reliability (technology), and readiness of human resources (people) is very important to be done continuously in order to provide perfect service for all stakeholders concerned. In addition, this study also aims to implement business process management (BPM) in the Operational Section at BINUS Online Learning. With the achievement of these objectives, is expected to provide benefits such as proposed improvements in the Operational Section BINUS Online Learning and gave an ideas related to operational models in lecture management in the learning environment in the network.

***Keywords***—*People, Process, Technology, Business Process Management, Operational Model*

# Greediness Characterization of Genetic Algorithms

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***Abstract***—This research investigates the effect of selection, replacement, and generational gap on the selective pressure, indicated by the greediness of the genetic algorithms. An a priori ordering of the greediness of genetic algorithms is constructed based on the nature of selection strategy that favors fitter candidate solutions. For the implementers of genetic algorithms, this ordering represents the design space of genetic algorithms involving selection, replacement, and generation gap on which design decision should be taken. These relative orderings of the greediness were examined by experimental runs on timetabling benchmark problems. The results suggest that for a fixed computational budget, a high greediness can be achieved by biased selection with a large generational gap and elitism.

***Keywords***— *genetic algorithm, selective pressure, greediness, timetabling*

**Room C0302**  
**(Session Chair: Yakob Utama Chandra)**  
**Time : 15:30 – 17:30**

# Factors Influencing Mobile Payment Adoption in Indonesia

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***Abstract***— Mobile payment in Indonesia has been growing rapidly in recent years. Based on data from the World Bank's Global Financial Inclusion data, only 0.4% of the population over the age of 15 used mobile payment in 2015. This study's purpose is to define all the elements that affect the adoption of using mobile payment in Indonesia. Using data from 274 respondents which obtained via online to test the hypothesis based on the designed research model. Method of partial least square - structural equation modelling (PLS-SEM) used for processed the collected data. This study found that habit is the most powerful element affecting the rate of mobile payment adoption in Indonesia, followed by facilitating condition, social risk, performance expectancy, and social impact. It also found behavioral intention had a huge effect on usage behavior. Mobile payment service provider could use this outcome to make strategic decisions when implementing mobile payment in Indonesia.

***Keywords***— *mobile payment, behavior intention, partial least square, structural equation modelling*

# Designing the Knowledge Management System in an IT Consulting Company

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***Abstract*** — Every organization needs Knowledge management system manage internal knowledge within the organization, also for IT companies. The purpose of this study is to describe the process of analysis and identification of the existing knowledge management in the IT consulting company and it propose the design of knowledge management system that can be developed by the company to overcome the existing knowledge problems. In this paper, the authors use the interview method to get the needs and problems of the current system at one of the IT consultant companies as the object of case study, then design the knowledge management system based on knowledge taxonomy and use case diagram. From this research we can conclude that the design of knowledge management system basically can be done easily and quickly, as long as the existing problem analysis has been presented clearly and in a detailed manner.

***Keywords*** — *knowledge, knowledge management, system, design, case study*

# The Influence of Knowledge Management Capabilities on Hospital Services Performance

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***Abstract***—Currently healthcare is one of the main problems in Indonesia, particularly with the primary care provided by hospitals. Problems that often occur at hospitals in Indonesia was shown from the high malpractice rate in Indonesia, this problem made public confidence to the hospital was decline, this is indicated by the increasing number of Indonesian citizens who choose to seek the treatment at the hospital in neighboring countries. The suspected problems related to the knowledge management capability of the hospital. This study aims to reveal the role of knowledge management capabilities on the performance of hospital services and provide a prototype system that can improve the knowledge management capabilities of the hospital. The sample for this study are hospitals located in Jakarta. Where the respondent is the head of the hospital. The research method that will be used in this research is qualitative and quantitative method. This research generated a framework strategy to improve knowledge management capability at hospital by looking at factors influencing knowledge management capability of hospital in Indonesia, especially Jakarta.

***Keywords***—*knowledge management capability, services performance, hospital*

# Agricultural Expert System Design based on Bayes Theorem

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***Abstract***— Indonesia is known as a country with agricultural sector in food producing. Major food such as rice (*Oryzae Sativa*). As the main commodity and the increasing demands from year to year, rice production is known to decreased due to high pest and plant diseases. This research is focusing on designing an expert system to diagnosis the diseases of rice plants with bayes' theorem. The Bayesian approach is a powerful statistical procedure in decision support. Expert system in this research is a program that acting as a smart advisor or consultant for equipped the farmers with sufficient knowledge related with plant conditions. Total 19 diseases and 25 symptoms found for data of rice plant diseases and the design of the systems used waterfall approach which start from analysis, system design, coding and testing. This research also using manual calculation of probability as example. As the result, an expert system is design to support farmers in rice diseases detection

***Keywords***— *bayes theorem, expert systems, decision support*

# Evaluation Blended Learning Model in Higher Education

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***Abstract***—This study aimed to evaluate blended learning implementation in one private higher education in Jakarta, build a research model to determine how effective these concepts applied in higher education. This research has two different models which the emphasis of pedagogy variable was divided into two concept: in blended and traditional learning combine with online learning. The research model tested with quantitative data using SPSS Amos, where the total respondents were 415 students from various majors. This research adopt research model from Khan, and add new variable, industrial partnership and collaboration as part of the research. The result from this research, that the most important factor when the higher education adopt the blended learning concept is readiness and commitment of the institutions, both in resources and technology. Another thing that is also an important concern in the application of blended learning is fostering and understanding how to educate students about the learning model itself.

***Keywords***—*evaluation, blended learning, blended learning model, higher education*

# Learning Simulation Design Using Social Media Facebook

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**Abstract**— E-Learning has become the most popular learning method in educational field due to the growth of Internet technologies. One of the E-Learning is Social Learning that can use social media as a learning media. This research discusses the use of social media Facebook as a learning media. The benefits of this research for educators are expected to give feedback for them on the use of social media Facebook in addition to learn activities, whereas for non-regular students, with the use of social media Facebook as a learning media it can increase the motivation of students in learning activities. The main objective of this research is to provide recommendations for the learning model that can improve the learning motivation of non-regular students. Methods of data collection use observation, literature study, and questionnaires given to 80 respondents in the category of non-regular students and the analysis of data use Microsoft Excel. From the analysis results it can be concluded that most of students choose social media as additional learning media. Hence authors design a learning model using social media Facebook.

**Keywords**— *social media, facebook, motivation, non-regular*

# Impact of Intention to Use to a Document Management System (*case study approach*)

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**Abstract** — Document management system makes user to access information anytime and anywhere. The purpose of this research is to analyze what variables have impact on the intention to use of document management system. To achieve the objectives conducted by identification problem on the research model developed from the model of Technology Acceptance Model and Unified Theory of Acceptance and Use of Technology to the use of document management system. Furthermore, the data obtained from the respondents tested outer model, inner model test, hypothesis test and to produce a comprehensive analysis will be conducted Importance Performance Analysis. This research will result in a comprehensive analysis and able to provide recommendations and solutions for improvement from the implementation DMS has been done earlier.

**Keywords**—*technology acceptance model, unified theory of acceptance and use of technology, intention to use, document management system, importance performance analysis*

**Room C0303**  
**(Session Chair: Dr. Meyliana)**  
**Time: 15:30 – 17:30**

# The Evaluation of Education ERP System Implementation in University Using CSF and TAM

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***Abstract***— the objective of the research is to evaluate the implementation of the Education ERP system in the university and identify the factors that influence the success in its implementation. The analytical method used is the Structural Equation Model (SEM) with a software tool SMARTPLS 3. The results of this research can identify the critical success factors (CSFs) in the implementation of the education ERP system in university and its relationship with the Technology Acceptance Model (TAM) and user satisfaction variables. The object of this research is the education ERP system called BINUS Campus Solution (BCS) that is implemented at BINUS University. The conclusions that are obtained are CSFs from the implementation of the education ERP system in the university are training, technology selection & adaptation, vendor relationship, and strategy fit. The ease of use has significant effect on benefits and user satisfaction. The benefits and strategy fit have a significant effect on user satisfaction. The training and vendor relationship have a significant effect on ease of use. All CSFs when combined together significantly affect the ease of use, benefits, and user satisfaction.

***Keywords***—*evaluation, education ERP system, university, TAM, CSF*

# The Affecting Factors of Blockchain Technology Adoption of Payments Systems in Indonesia Banking Industry

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***Abstract***—The purpose of this study is to find the influence factors of blockchain technology adoption of payments system in Indonesia banking industry. Moreover, the researchers proposed new model of payment system by using blockchain technology in Indonesia banking industry. All this time, the researchers of blockchain in payment systems were done in major countries such as UK, USA, Australia, Scotland, Germany, Japan, France, Italy, and China. Systematic Literature Review (SLR) used as a method in this study and there were five databases that taken as references, such as IEEE, Science direct, AIS electronic, ACM and Google Scholar. The researchers were found 26 references Studies Included in Quantitative Synthesis and 9 variables (Easy to use, Usefulness, Transaction fees, Risk perception, Behaviour intention of use, Attitude toward, Cognitive style, Subjective Norm, Effectiveness). Based on the result of data analysis and discussion, there were two conclusions in this study, the first, the researchers found nine factors that expected to be used as a reference if Indonesia banking industry wants to adopt blockchain technology for payment system; and second, the researchers had to propose payment system model by using blockchain technology in Indonesia banking industry.

***Keywords***—*affecting, adoption, blockchain, payment systems, banking industry, Systematic Literature Review (SLR)*

# The Trigger Factors and Constraints on e-Supply Chain Processes : A Systematic Literature Review

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**Abstract**— The development of information technology will certainly have a major influence on all aspects of life, not least for companies engaged in the supply chain. The role of information technology and electronic networks in running a supply chain is called the Electronic Supply Chain (e-Supply Chain). The main point of this research is to conduct a literature review to find the trigger factors and constraints in the e-supply chain. This research uses the Systematic Literature Review methodology to collect selected research articles. The steps in defining the selected article use PRISMA. Keywords used for article search are ("Trigger" OR "Driving") AND "Factors" AND "Constraints" AND ("Supply Chain" OR "SC") AND ("electronics supply chain" OR "e-supply chain" ) AND "Processes". Source of data used includes: Elsevier, ACM Digital Library, Emerald Insight, IEEE Explore, Inder science publisher, and Springer. Based on the literature review that was carried out, the resulting trigger factors in the e-supply chain, including: Integrated supply chain system, IT Support, Service quality; while the constraints include: A supply chain network cyber attack, Manufacturing, storage or distribution problems, Operational, economic, environmental and social factors, Restrictive government regulations, Costs and logistics performance, cost of raw materials, Post-harvest waste, Global / digital markets, product life cycles, consumer demand, Logistics strategy, Global competitiveness, Internationalization of markets and climate change.

**Keywords** — *e-supply chain, trigger factors, constraints, systematic literature review*

# Key Successful Factors of Executive Information System Implementation in Higher Education: A Systematic Literature Review

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***Abstract*** — Providing easy access for university executives that refers to key success factors is a must for universities. The information system integrates with all departments to obtain fast and accurate information for decision making. The purpose of this paper is to determine the factors that affect the application of executive information systems in universities in view of technological factors, data factors and internal factors of college. The results will be used by all stakeholders of higher education internally and externally. Internal side for the purpose of improving the quality and performance of universities, while the external side can be utilized for the purpose of the institution accreditation process. The method used is to collect research results relating to executive information systems in colleges and review based on predetermined keywords and analyze the results of reviews into a complete report.

***Key words***—*key success factor, executive information system, data warehouse, higher education*

# The Key Success Factors In E-Marketplace Implementation: A Systematic Literature Review

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***Abstract***—Globally, internet users and mobile phone are increasing significantly all the time. One of the impacts from the growth of it, there is the revolution in a traditional market. Nowadays, people tend to buy something through an online channel or electronic marketplace (e-marketplace). This study aims to obtain literature of key success factors of e-marketplace implementation. It uses Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines to articles published in 2005-2018. A total of 231 articles obtain from considerable databases for instance: IEEE Explore, ACM Digital Library, Science Direct and etc. Furthermore, it validates and examines in order to obtain 37 articles which can be used as the main study. As the result, it finds 11 key success factors for e-marketplace as follows: trust, technical, platform, platform owner, product, service operation, seller, marketing and sales, payment channel, buyer, and environmental.

**Keywords**—electronic marketplace, e-marketplace, key success factor, systematic literature review

# The Effect of Dimension of Supply Chain Integration on Schedule Attainment and Competitive Performance (*case study in PT “X”*)

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**Abstract**— This research aims to determine the influence of the supply chain integration (SCI) dimensions, ie integration of supplier, internal and customer on schedule attainment (SA) and competitive performance (CP), the research method used is quantitative research, the type of research used is associative by spreading questionnaire. The data analysis method is using SEM-PLS with WarpPLS 5.0. The findings demonstrate that there is an effect on internal integration and customer integration against schedule attainment, and no effect on the integration of supplier. Meanwhile, integration of supplier has an influence on competitive performance, while integration of supplier and integration of internal has no effect. As a result, to gain schedule attainment, the manager should improve the integration of internal and customer. Other than that, to enhance the CP, the CI also must be increased.

**Keywords**—*Competitive Performance, Customer Integration, Internal Integration, Schedule Attainment, Supplier Integration*

# Using Goal Programming Method for Optimization of Production Planning

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**Abstract**—Manufacturing industry business is one of the industries which has significant development therefore it's important to maintain quality and the efficiency of working time in order to meet customer's demand. One way to achieve company's objectives is by optimization process production without reducing the quality of the product. Therefore, the purpose of this research is to maximize production volume for providing customer's demands, maximize sales revenue, minimize production cost and maximize machine's working hour cost. The method used in this research is Goal Programming without priority and with weighted priority and applied to LINGO software version 17. From the calculation of the two methods of Goal Programming, Goal Programming method without priority is the most optimal for production planning at PT XYZ, because it can improve the efficiency for machine's working hours and production cost, thus the sales revenue increased by 404.69%. It will affect and give a good impact on the company for business development. As a result, this research showed that the define objectives achieved optimally

**Keywords**—Goal Programming Manufacturing industry, Optimization Production Process Planning

**Room C0304**  
**(Session Chair: Hudiarto)**  
**Time : 15:30 – 17:30**

# Modeling of Information System for Licensing and Extension of Special Hajj Pilgrimage Organizer

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***Abstract***— The government has given opportunities to travel agencies referred to as Special Hajj Pilgrimage Organizer (PIHK) to organize pilgrimage. The growth of PIHK has made some problems when applying for licensing and extension of PIHK permit. The objective of this research is to analyze the information system resources in the Ministry of Religious Affairs and provide recommendations to improve the licensing and extension process. The result of this research has found that the Ministry has complicated procedure and bureaucracy and it all done manually. So, in this research we will apply the Business Process Reengineering (BPR) method, with an approach using seven out of ten Business Process Management (BPM) Framework phases.

***Keywords***—*business process reengineering, business process management framework, special hajj pilgrimage organizer*

# Green Information Technology Policy in Indonesia

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***Abstract***— Based on prior research about green information technology governance model for private higher education institution, it was founded that the difficulties of green IT implementation, caused by lack of government policies and regulations. Although the Green IT Strategy model has been proposed and elaborated in terms of its starting point and the detail of activities, many of them are reluctant to implement it. Hence, this paper describes and proposes green IT policy that can be prepared and regulated by Indonesia's government. Basic model and advance model of green IT government model were recommended. Various laws and regulations on green IT topic were collected and categorized. Expectantly, it will inspires both government and institutions to implement the strategy.

***Keywords***—*Green Information Technology, Green Information Technology policy, Indonesia policy, green computing*

# Defect Classification using Decision Tree

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***Abstract***— Product defect is any design fault, manufacturing failure or labeling matter which makes a product unsafe to use. It can be classified into several types, such as unacceptable dimensions, defects on the material, and others. However, due to the various factors that may cause the defect, it is not easy to pinpoint what actually causes the defect on the products. By using a decision tree, it is easier to determine the root cause of each defect as well as providing fast-response solution for each case. In the Quality Control (QC) department of a grinding wheel manufacturing company, the QC staffs need to answer some questions about the characteristics of the products. The decision tree certainly will help to find the root cause and it also generates the action for solving the problems. At the end of the session, the staff will get the decision whether the product can be accepted or should be destroyed.

***Keywords***— *defect, decision tree, quality control*

# Mobile-Based Prototype Design Model for Rescuing, Protecting and Consulting of Violence Victims on Women

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***Abstract***—Violence is still a big problem in Indonesia, especially for women. Violence can occur anywhere and everywhere its disturb the public and make the others worry. Despite the big problem of violence against women, the lack of solution and protection make it worse. This research objective was to present a solution for a better protection. This research is conducted by using data collection method through literature study and interview, also Object-Oriented Analysis and Design (OOAD). This analysis based on increasing number violence each year especially against women. So, by analysis and designing this application can help victim of violence by conducting rescue, protection and consultation.

***Keywords***—*violence victims on women, mobile application, OOAD*

# A Three Phase Heuristic for Examination Timetabling Problem

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***Abstract***— As part of timetabling problem, examination timetabling problem (ExTP) concerns with assigning a set of exams to appropriate time and room. As with any other timetabling problems, it is an NP-complete problem, therefore no exact solution available for most of the problems. In this paper we proposed the deployment of three heuristics in an attempt to find feasible solutions with minimum number of soft constraint violations. First, a constructive heuristic is executed to find an initial feasible solution followed by a mechanism to find promising regions. The regions are then exploited using an intensive local search heuristic to find even better solutions. This method are tested on a popular examination timetabling problem (ExTP). The approach shows a reliable performance on the dataset and comparing to state of the art results, this approach contribute to improve the results in many instances.

***Keywords***—*soft computing, computational intelligent, business intelligent, simulated annealing, heuristic/ metaheuristic; timetabling/ scheduling*

# Reducing the Timeslot Used in Examination Timetable Problem

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***Abstract***—In general, a university examination timetabling problem concerns with the task of matching a set of exams to resources (timeslots and rooms) in such a way that meets some predefined requirements. Majority of the examination timetabling problems are NP-complete. This paper addresses the so-called graph coloring reduction of examination timetabling problem which is to find a feasible examination timetable with minimum timeslots used. The report contains an investigation on the implementation of a heuristic hybridized with a simulated annealing-based heuristic using three different neighborhood structures. The method is tested on a popular dataset, and compare the results with several other authors. The method is capable of finding the best solutions ever reported as well as improving current best known results.

***Keywords***—*Computational Intelligence, Heuristics/ metaheuristics Simulated Annealing, Combinatorial Optimization, Timetabling/ scheduling*

# Face Detection and Recognition Based E-Learning for Students Authentication : Study Literature Review

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***Abstract***— The Authentication process is highly dependent on Face Detection and Face Recognition during learning activities. In addition, in the E-Learning learning system we must also provide accurate and accurate information. The research method used is literature study and analysis. Literature study was carried out on the face of face detection and recognition in real-time conditions carried out by various previous studies. Furthermore, analysis was carried out in a literature study studio to find suitable methods for the E-Learning environment. From the results of existing literature studies we recommend face detection using Face Countour and the Adaboost Algorithm added to CNN (Convolutional Neural Network) to normalize the facial contour function and normalize lightning in the surrounding environment where a face detection is located. The process is carried out, we use the 3WPCA-MD (Three-level Wavelet Decomposition Principal Component Analysis with Mahalonobis Distance) method which is able to produce calculations, that is, face recognition that is faster when compared to ordinary PCA (Principal Component Analysis) methods. Thus the process can be carried out in face detection and face recognition.

***Keywords***—*face detecton, face recognition,e-learning*

**Room C0305**  
**(Session Chair: Tri Pujadi)**  
**Time : 15:30 – 17:30**

# Should I Use Laptop or Smartphone? A Usability Study on an Online Learning Application

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***Abstract***—Nowadays, people increasingly use smartphones for numerous activities including learning. This research aims to investigate the usability of an online learning application and compare if there is any difference in usability between usage in desktop environment and mobile environment. The research analyzed system usability according to the Nielsen’s usability model and further investigated how learnability, efficiency, errors, and attractiveness of the application in both website version and mobile app version could influence user satisfaction. The research used Duolingo, an online learning application for foreign languages, and involved Gen Y and Gen Z populations in Jakarta, Indonesia as respondents. The results show that website usage in desktop environment scored higher in learnability compared to the mobile app version; while mobile app usage scored higher in attractiveness compared to the website version. It was also observed that user satisfaction in website and mobile app were influenced by different usability factors. Efficiency and errors were found to have significant influence on user satisfaction in desktop website usage, while only attractiveness showed significant influence on user satisfaction in mobile app usage.

***Keywords***—*online learning; usability; mobile app; website; user experience*

# Text Classification Services using Naïve Bayes for Bahasa Indonesia

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***Abstract***—Today, it is estimated that over 80% of data is unstructured and mostly in text format. Contributing to it is the rise of Internet usage and content from individuals, media, as well as academic, commercial, industrial, and financial organizations and corporations [2, 3, 11]. Thus, an indispensable need for text classification or categorization in order to distill information from this overwhelming amount of data. Additionally, as more corporations outsource their services, web services have become preferable due to its versatility and ease of integration to existing hardware and software. This project aims to create a reusable text classification service for Bahasa Indonesia, a language spoken by over 20 million people, yet any text processing for it is still uncommon, inaccessible, or costly. This text classifier will use Naïve Bayes Classification, a simple yet preferable method due to its computational simplicity and effectiveness. To test the functionalities and efficacy of the machine, the study used data from web articles, reaching an accuracy of 83.75%.

***Keywords***—*text classification, naïve bayes, web service, bahasa Indonesia*

# Web-Based Application Development For False Images Detection For Multi Images Through Demosaicing Detection

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***Abstract***—Image manipulation techniques are getting common among communities causing the growth of hoax information. Various algorithms began to be developed with the aim of detecting fake images and one of them is detection trace demosaicing techniques. The demosaicing trace detection technique works by reading the changes that occur in the color values within the image area that have been forged. This research aim to create web-based application to detecting fake images by combining web technology and algorithm. In this research, the web application managed to produce an accuracy of 72 percent in detecting fake images.

***Keywords***— *web, application, false, image, demosaicing*

# Vessel Monitoring Systems Based on Aerial Images in Sea Environment

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***Abstract***— The utilization of aerial image capturing devices such as satellites and drones in the vessel monitoring systems has provided us with powerful tools and challenges at the same time. Some of this challenges would come from large amount of images that needs to be analyzed along side with a typical natural image noise sea environment could impose. To automate the recognition process, image information systems needed to be implemented in such cases. Most of these processes involve recognizing an object in a scene, whether the object possesses similar characteristics to the reference image. There are many methods that can be applied to the schema. One of them is computer vision technique, which enables the systems to automatically identify objects within a given image samples. This work compares the implementation of such method on aerial images for sea environment monitoring system. Two of the most promising methods are SURF and SIFT. They both work similarly as descriptor which involve application of integral image, where storing information inside descriptors enable users to describe images that is needed for matching. In open sea scenario, it is important to be able to recognize objects from higher altitude from any view point, therefore this paper will be focusing more on evaluating descriptor and matching methods toward aerial images through detected key points and detected matching points. This work as well will conclude which of the methods are best to be implemented on analyzing object in sea environment samples based on the evaluation criteria.

***Keywords***—Aerial images, SIFT, SURF, vessel monitoring systems

# Evaluation of Knowledge Management System for Disaster Management using Factor Analysis

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***Abstract*** — To accelerate the process of improving public knowledge about disaster management, the process of knowledge transfer process can be done in several ways, for example through training, courses, seminars, workshops and socialization. The implementation of the method of knowledge transfer in disaster risk reduction includes seismic disaster type, volcanic eruption, lava, landslides, floods, flash floods, tsunamis and droughts. Includes recognition of emergency response, rehabilitation and reconstruction, preparedness, prevention, mitigation and disaster management and vulnerability management. Knowledge Management Systems (KMS) allows collaborating on disaster management issues, sharing information on risk reduction activities, warning systems, handling emergencies, all of which reduce the impact of disasters. The purpose of this study was to observe the factors that influence the performance of a disaster KMS. The study involved 240 respondents and sampling was done by proportional random sampling. The results show that the evaluation models can be constructed through the function of the factors, the organizational culture and the information through KMS, the support and participation of the administration, the accessibility and the updates and the monitoring of the information.

***Keywords***—*knowledge management systems, disaster management, factor analysis, evaluation model*

# Building A Data Warehouse to support Active Student Management: Analysis and Design

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***Abstract***— Data analysis for the number of active students in a university is very important. It is required for universities to comply with the regulation of the ministry of research, technology, and higher education of the Republic of Indonesia, Number 32 of 2016 on the accreditation of study programs and universities. However, there are many difficulties in analyzing active student reports, additional and ad hoc reports, and the need for business intelligence and data mining development. The purpose of this research is to analyze and design data warehouse to integrate various operational databases needed to provide information about active students at XYZ University. The method of analysis is done by running system analysis and analysis of the running system weaknesses. While the data warehouse design method uses 4 stages (Four-Step Methodology) used by Ralph Kimball in designing a data warehouse. The stages are selecting the business process, declaring grain, identifying the dimensions, and identifying facts. The results achieved are the design of data warehouse and dashboard that will provide relevant and integrated information about active students that can be viewed from different angles. Designed data warehouses are needed to help organizations to analyze information as needed and help management to make strategic decisions. The conclusion is that with the build of a data warehouse to support active student management can help the university to analyze active student and make decisions in the student area.

***Keyword***— *data warehouse, dashboard, four-step methodology, strategic*

# Using Enterprise Architecture with The Open Group Architecture Forum to design Information Technology Plan Gap Analysis at Bank Perkreditan Rakyat (BPR)

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***Abstract***— The purposes of this research are to design information technology (IT) plan with Enterprise Architecture (EA) using The Open Group Architecture Forum (TOGAF) at BANK PERKREDITAN RAKYAT (BPR), it is to improve quality of services and align between business and technology functions. Methods used in this research are literature studies, surveys, and interviews. The next method is to analyze the gap between the target architecture and the architecture of current condition. To align business and technology functions, BANK PERKREDITAN RAKYAT (BPR) requires business, information system, and technology architecture. The research result was to produce IT plan with EA using TOGAF to enhance the competitive value of the enterprise in future business competition. The conclusion of this research is a design of IT plan with EA that based on TOGAF roadmap to produce an integrated system.

***Keywords***— *IT plan, enterprise architecture, TOGAF*

**Room C0306**  
**(Session Chair: Devyano Luhukay)**  
**Time : 15:30 – 17:30**

# Design and Evaluation of Efficient Bandwidth Management for a Corporate Network

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***Abstract***— Problem that usually occurs at every company is a network performance problem, e.g. low throughput and inefficient bandwidth utilization. Those parameters are not well calculated that leads to wasteful costs if we keep doing the continuous bandwidth upgrades. In this paper we propose a new network design method for corporate network. The design is performed using top-down network design that considers the business and technical goals of the corporate. In order to improve the bandwidth utilization efficiency, we evaluate few traffic shaping methods in terms of bandwidth utilization, packet loss, and latency. The experiment results show that the proposed design using per-connection queue (PCQ) traffic shaping method achieves the best performance among all of the evaluated scenarios

***Keywords***—*Network Design, QOS, Traffic Shaping, PCQ*

# Web-Based Evaluation System using Kirkpatrick Model for High School Education (A Case Study for Vocational High School in Jakarta)

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**Abstract**— Evaluation is the best way to refine a service quality. Quality of service will have an effect on the accomplishment of an organization's aim. Suitable and precise evaluation model will help the vocational high school in arranging a master plan to enhance the quality of education services provided. Kirkpatrick's model became the fundamental framework in this case study. This model was usually utilized to evaluate the impact of corporate training to the development of staff and also the impact to organization performance. In this paper, we perform case study for one of the vocational high school in Jakarta. There is a concern from the school about how to conduct evaluation of the teaching activity, students performance, and institution performance. In this paper, we propose a web-based e-learning system using Kirkpatrick evaluation model to solve this problem. We built the e-learning application using codeigniter framework. From the result, it can be seen that the developed system can provide platform for the school to evaluate the quality of teaching activity based on the students feedback, evaluate the performance of students after attending class, and also evaluate how the trend of institution performance year by year.

**Keywords**—*e-learning, Kirkpatrick model, codeigniter, software engineering*

# An Intelligent Model Development for Determining a Friendly Match Sparring-Partner in Football Game

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**Abstract**— The statistical data coming from football match play an interesting phenomenon. They are possibly utilized by a football team to select a strategy to play. One strategy is to choice a proper sparring-partner in exercise. For fulfilling the purpose, the study with objective is to construct an intelligent model for choosing the most proper sparring-partner for friendly-match was academically performed. Here, two methods fuzzy logic and Euclidean distance are applied as fundamental method of model. The method fuzzy logic is operated by experts to justify nine selected parameters' urgency, and the method Euclidean distance is benefitted to calculate the fitness value of two soccer teams' combination. The object oriented method is employed to design the model. Finally, in the study result, the created model shows the list of the fittest sparring-partners of each team recorded.

**Keywords**—*intelligent model, football game, sparring-partner, fuzzy logic, Euclidean distance, object oriented*

# Decision Support Model for Supplier Selection Using Fuzzy Logic Concept

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***Abstract***— Improving the company's performance to compete globally, in rapid growth market economy condition, is practically required. One of the important things is right decision in issues of supplier selection. The improper supplier affects consequence negatively to the quality of company's business process. Thus, the right way to answer the issues is incredibly crucial to be proposed. This study aims to design an application to determine the sub-criteria weight with Fuzzy-AHP method, select the best supplier via Fuzzy-TOPSIS method, and calculate the allocation of quota to each supplier thru Fuzzy-MOLP method. The study was conducted on high class store by taking the object of material gymnastic product (spandex). Simulation confidently demonstrates that the Fuzzy-AHP approach is able to be operated to generate parameter Quality Product as the best sub-criteria (with value 0.221), the Fuzzy-TOPSIS technique can be used to ring out the supplier (where CV. Maju Jaya Abadi as the best supplier), and the method Fuzzy-MOLP is exploited to calculate the allocation of quota (where CV. Maju Jaya Abadi as a supplier with the highest percentage of 44.40%).

***Keywords***— *fuzzy logic, fuzzy AHP, fuzzy TOPSIS, fuzzy MOLP, supplier selection, decision support application*

# Fuzzy Decision Support Model for Human Resources Performance Appraisal

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**Abstract**— Human resources (HRs) performance appraisal is one of several parts of HRs planning. It plays the imperative role to encourage HRs to have a good spirit and become correctly loyal to institution. The major objective of research is to propose a constructed decision support model (DSM) for appraising the HRs performance. The methods object oriented, fuzzy logic, hill climbing, and survey are benefitted to be main methods of this study which respectively are used to analyze and design the constructed model, justify and analyze data values, optimize the suggested decision, and collect data. By scientifically taking into account four selected fundamental performance parameters (i.e. education, teaching capability, research, and community service), the study was conducted; where, the measurement of performance bonus for university lecturer is chosen as a research object. Specifically for collecting data, 35 university lecturers were occupied to estimate the significance level of parameters. The lecturers are coming from two faculties of UIN Syarif Hidayatullah (Jakarta, Indonesia); i.e. faculties of science and technology and communication. At last, the model is practically going to assist the decision makers to fairly assess HRs performance; and the study showed a simulation result of assessment based on forty empirical data of university lecturer.

**Keywords**—*human resources, performance appraisal, fuzzy logic, hill climbing, decision support model*

# Fuzzy ecoDSS Development for Road Traffic Engineering

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**Abstract**— A road traffic engineering (RTE) is realistically required to reduce the road traffic congestion (RTC) degree. The congestion negatively affects not only to economy and physiology factors, but also for human environment and health. This paper methodologically represents the development of ecological decision support system based on the concept of fuzzy logic (Fuzzy ecoDSS) for RTE. Three types of core method operated here; fuzzy logic, water flow algorithm (WFA), and object oriented. The method fuzzy logic used to avoid the fuzziness in parameterizing and prioritize the parameters. The WFA approach functioned to replicate the flow of road traffic and optimize it thru RTE. Finally, the method object oriented benefited to analyze and design the constructed system. Thus, the simulation result exhibits the best decision alternative taken gives better air condition (more 200% than normal condition) and better road traffic velocity (more 2,200% than normal situation).

**Keywords**—road traffic engineering, system development, decision support system, ecology, fuzzy logic, water flow diagram, road traffic congestion

# Five Stages of Database Forensic Analysis: A Systematic Literature Review

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***Abstract***— Database forensic analysis (DFA) is a forensic method that is performed on the database to prevent illegal access to existing database security systems. DFA is going to detect a violation and collect evidence related to the interruption. Various techniques are theoretically operated to touch up data/files after analyzing content of existing data which influencing a metadata damage. This paper systematically reviews DFA techniques that have been exploited in previous studies. The systematic literature review started from selecting a theme of issue, taking a scope of review, choosing online-database to conduct searches, searching and finding literatures, and the last step is reviewing the screened literatures. The purpose of paper can summarize such an analytical technique as a new method that can be utilized for further investigation. This research methodically searched starts from 2015 to 2017 data and obtained from two literature databases namely ScienceDirect and ieeexplore.

***Keywords***—*database forensic, digital forensic, carving, forensic analysis*

**Room C0309**  
**(Session Chair: Joni Suhartono)**  
**Time : 15:30 – 17:30**

# The Influence of IT Service Management Performance Measurement To Customer Satisfaction

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***Abstract***— This study discuss the efforts to overcome the problems related with the low level of customer satisfaction of IT services in PT.BSI. It's reflected in the result of customer satisfaction survey. In this case, the IT Service Management (ITSM) performance measurement method became a very important matter, because with the best performance measurement, any deviation is expected to be followed up immediately. Therefore, the purpose of this study is to exploration the correlation of performance measurement IT service Management (ITSM) method with customer satisfaction level, and to recommend the design of ITSM performance evaluation method by aligning Balanced Scorecard (BSC) method which has been used as performance measurement method at enterprise level. In this study, correlation analysis is run by statistical test that is T test and F test to prove three statistical hypotheses about the correlation. The results of this study is the correlation analysis and the design of performance evaluation method which is aligned with the implementation of BSC made in the form of dashboard ITSM made with the help of one of analytical tools.

Keywords— IT Service Management, Correlation, Balanced Scorecard, Performance Management Framework, dashboard

# Information Technology Service Performance Management Using COBIT and ITIL Frameworks : A Case Study

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***Abstract***—In managing, regenerating, and fixing the operational performance of university required an information systems. IT division responsible to provide the proper information systems based on business and user perspective with decent quality IT service. Therefore, it is pertinent to measure the IT service performance must matching with the user needs and make users satisfied for using information systems. This research purpose is to identify and analyze the service maturity level that provided by IT division of BINUS University to information systems users, so that an evaluation of IT service performance is obtained. This research methodology is a questionnaire, literature study, and a data analysis of BINUS University, designing and measuring the maturity level by using the COBIT framework and the ITIL framework, as well as testing the relationship between the COBIT and ITIL maturity level results.

***Keywords***—*maturity level, COBIT, ITIL, IT service, performance management*

# Big Data Implementation Using Machine Learning on Question and Answer Platform (*case study ngepo.com*)

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***Abstract***— Ngepo.com is a website-based question and answer platform created by start-up Indonesia, so people can access the website from various circles. Users of this website can send questions to ask questions and add knowledge. The system can automatically detect what topics match the questions sent by the user and then will be answered by a particular field expert. This website is growing more and more people are joining. Users and data continue to increase every day so ngepo.com website system must provide large enough data processing and store and analyses data. Big Data refers to technologies and initiatives that involve data that is so diverse, rapidly changing, or super-large that it is too difficult for conventional technology, expertise, and infrastructure to handle it effectively. Therefore, big data implementation is required using machine learning on the question and answer platform to help and improve the ease of accessing this website to be more effective, and to analyses the previous data to be able to create brilliant ideas or ideas for the present and future.

***Keywords***— *Information and Communication Technology, Big Data, Machine Learning, Web API*

# The Use of ISO/IEC 27001: 2009 to analyze the Risk and Security of Information System Assets: case study in XYZ, Ltd

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***Abstract---***Information is one of the most valuable assets for the survival of an organization (company), government institution, and college. Information security aims to maintain the confidentiality, necessity and availability of information. As a fulfillment of the need for information on XYZ, Ltd that does not yet have guidelines relating to the information security process, as well as a lack of understanding of the risks of information loss and how to control information security risks. In this paper, risk management planning is implemented using ISO / IEC 27001: 2009 framework for security of information system assets at XYZ, Ltd. Stages in the design process of the Information Security Management System (ISMS) include the determination of scope, risk analysis and the determination of control objects and security control. The results of this study are a security policy document, risk assessment, and ISMS procedures which will become a reference in the research and will facilitate the next stage of research.

***Keywords---*** Information Security, ISO/IEC 27001:2009, Risk Management, ISMS

# Hybrid Database System of MySQL and MongoDB in Web Application Development

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***Abstract***—The increasing amount of data that need to be processed in a company are affecting the performances of the database system. Relational Database Management System (RDBMS) is a commonly used database system, but also known to having a decreased performance when handling high amount of data. NoSQL is an alternative storage option that is different than RDBMS and known for faster performance when handling high amount of data. In this contribution, we compare the performances between RDBMS MySQL and a hybrid model of MySQL and NoSQL MongoDB when being used on a web application. We implemented a simple social media website to evaluate the performance of using different database models. The website is equipped with chat and profile view features. Experiments are performed using randomly generated user profiles and chat data. Based on our evaluations, the hybrid database of MySQL and MongoDB achieves higher read and write performances than the MySQL alone. Meanwhile MySQL can handle more sensitive data and maintaining data consistency. The hybrid model database MySQL and MongoDB uses less disk space than MySQL alone, but uses more RAM. We also observed that there is not much difference in CPU usage for both database models.

***Keywords***—MySQL, MongoDB, hybrid database, web application, database performance

# Impact Analysis of Computer Assisted Audit Techniques Utilization on Internal Auditor Performance

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***Abstract***—The background of this research is to know how the impact of using Computer Assisted Audit Techniques (CAATs) on auditor performance and what factors of auditor performance are affected by the use of Computer Assisted Audit Techniques (CAATs). This study aims to determine whether the use of Computer Assisted Audit Techniques (CAATs) in the audit process has an impact on the performance of auditors and Generate conclusions in the form of evaluation of Computer Assisted Audit Techniques (CAATs) in the audit process in order to have a positive impact on auditor performance. to evaluate the impact of using Computer Assisted Audit Techniques (CAATs). are Quantity of Work, Quality of Work, Job Knowledge, Creativeness Cooperation, Dependability, Initiative, personal qualities, and Timeliness. The method used in this research is qualitative method is descriptive analytical and evaluative, by analyzing the impact of using Computer Assisted Audit Techniques (CAATs) to auditor performance components. The results obtained are the use of Computer Assisted Audit Techniques (CAATs) have a positive impact on auditor performance components.

***Keywords***—CAATS, internal auditor, performance

**Room C0310**  
**(Session Chair: Evaristus Didik )**  
**Time : 15:30 – 17:30**

# Generalized Space Time Autoregressive of Chili Prices

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***Abstract***—Indonesian people are mostly like spicy. Therefore, Chili becomes an ingredient in cooking that cannot be separated from Indonesian people. In certain months there is too much demand from the public and inversely proportional to the stock of chili. So, appreciate the chili prices to rise. In the heart of statistics, several methods can be used as forecasting as well as data series from univariate, bivariate and multivariate cases. The reason for choosing the method is following the analysis needs and available data. One of the popular methods in the multivariate case is Generalized Spacetime Autoregressive (GSTAR) the advantage of this method is that it can capture the characteristics of location-based data as well as time. For this reason, in this paper, we used chili prices data in 4 major cities in Java Province, Indonesia. Such as Jakarta, Bandung, Semarang, and Yogyakarta. As a result, GSTAR (21) I (1with inverse weighted be the best models because it fulfilled white noise and normal multivariate assumption with the lowest RMSE and MAPE

***Keywords***—*space time, GSTAR, forecasting, multivariate*

# The "Voice of Customer" web application at State-Owned Telecommunication Company

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***Abstract*** — This research will discuss about the application of web-based Customer Knowledge Management to build an effective communication between customers with a telecommunication company in Indonesia. Customer Knowledge Management (CKM) is more than just a method of applying Knowledge Management (KM) concepts that already exist in an organization. Where, if the KM concept focuses on creating knowledge and innovations sourced from within the organization, the CKM focuses on the consumer's perspective as a trigger for the creation and improvement of innovation. In other words, CKM builds two-way communication between companies and consumers, with the aim of accelerating knowledge creation. Expected knowledge will be more targeted at engaging customer expectations for company services.

***Keywords***—*Customer Knowledge Management, Knowledge Management, Team-Based Co-Learning, Web Application, Customer Satisfaction.*

# Health Assistant Wearable-Based Data Science System Model: A Pilot Study

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***Abstract***—The rapid development of Information and Communication Technology (ICT) has an impact on the innovation of new technology that gives benefits for health. One of its latest development is wearable device technology. Nowadays, the growth of this technology market is very positive. But unfortunately the growth of this technology is not followed by the availability of supporting applications that provide maximum benefits for users by utilizing personal health and activity data. This paper is intended to provide a report of our initial research in developing a health assistant solution that utilizes wearable device generated data. The whole research process is executed using Design Thinking approach that put the users as the main consideration. This initial research is started by designing a field research that can potentially gathered users' data generated from wearable device. A series of statistical and machine learning techniques are presented to analyze time series data to create a model. Finally, to implement the model, a mobile application prototype is also proposed. The outcomes from this initial research will be used to develop a fully working solution.

***Keywords***—wearable, health assistant, data science, mobile application, recommendation system

# Legislation Information System

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***Abstract***—Each ministry has legislation in force in accordance with its field. The legislation initiator unit in the ministry has the duty to propose legislation programs, conduct discussions, and publish legislation already ratified. However, the implementation of these processes still faces obstacles, ranging from submitting legislation program until publication is still done manually and in hardcopy form. From the list of approved legislation, only a few people can access it. This is due to the lack of publication and limited access to the public. The study intends to develop a system model that manages the legislation process, from proposing legislation, harmonization, and publication. Data collection on system requirements is done by spreading questionnaires, interviews, and literature studies. Followed by conducting the analysis and system design using Object Oriented Analysis & Design (OOAD) method with Unified Modeling Language (UML) notation. The model of the legislative system presented by this study can facilitate the legislative activities in government.

***Keywords***—*model, web-based, information system, legislation*

# Best Practices of Agricultural Information System In the Context of Knowledge and Innovation

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***Abstract***—Agriculture plays a very important role in the welfare of the Indonesian people, amounting to more than 260 million people, with the majority of professions as farmers (40 million people). Agriculture is also very strategic for national development because it absorbs 32% of the labor market, the largest compared to the trade sector which is only 23%, services as much as 16%, industry by 13% and construction around 5%. However, agriculture cannot be perceived as a sufficient livelihood for some farmers, which is indicated by a decline in the number of farmers by 1.1% per year. Knowledge and information will be one of the important solution to the problem if it can be collected, accessed and implemented by farmers, so they can increase productivity, and sell high-value commodities. Agricultural Knowledge and Information System is a necessary instrument for that purpose because it is an efficient model of managing resources which will drive low cost model of operation and can be accessed anytime and anywhere. This study proposes an agricultural knowledge and innovation system model by conducting a literature review and questionnaire distribution to collected data, then followed by conducting system analysis and design with Object Oriented Analysis & Design (OOAD) method. Furthermore, the study using use case diagram and class diagram in Unified Modeling Language (UML) notations. The results of this research are the comprehensive and robust system model to collect, manage, and disseminate agricultural knowledge and information in the context of best practices in the field.

***Keywords***—*agriculture, innovation, knowledge, system*

# Artificial Intelligent Models for Breast Cancer Early Detection

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**Abstract**—Cancer prevalence increases year by year and the medical management develops along with it. As the number increases, breast cancer which contributes most to the number become major attention. Breast cancer detection can be done using many methods but their main purpose are all same. Considering the current situation, Machine Learning (ML) application to support cancer detection have the ability to provide better diagnostic result as in 97.4% of the cases without ML participation, malignancy was to be found on surgery while 30.6% surgeries conducted on benign lesion can be prevented. This paper propose an early detection model for breast cancer which will combine models from previous researches to become functional for many detection methods. Methods that had been proven to show accuracy in their specific field and suggested to be used in parallel: DWT- based multi-resolution MRF (MMRF) segmentation for mammography, MLP for histologic examination, and k-NN – SVMRFE method for gene identification which will be effective by learning from experience of at least 450 datasets of positive breast cancer result for each method and refers to Wisconsin Breast Cancer Diagnosis (WBDC). The research itself will be conducted from October 2018 until March 2019 and the final result will be applied to conduct further research in ML application in breast cancer early detection.

**Keywords**—*artificial intelligent, breast cancer, machine learning, wisconsin breast cancer diagnosis*

