

ISSN : 2301-6590



# Proceedings ICETD 2012

The First International Conference in  
Engineering and Technology Development



**Universitas Bandar Lampung**  
**20 - 21, June 2012**  
**Lampung, Indonesia**



## PREFACE

The activities of the International Conference is in line and very appropriate with the vision and mission of the UBL to promote training and education as well as research in these areas.

On behalf of the First International Conference of Engineering and Technology Development (ICETD 2012) organizing committee; we are very pleased with the very good responses especially from the keynote speakers and from the participants. It is noteworthy to point out that about 45 technical papers were received for this conference

The participants of conference come from many well known universities, among others: Universitas Bandar Lampung, International Islamic University Malaysia, University Malaysia Trengganu, Nanyang Technological University, Curtin University of Technology Australia, University Putra Malaysia, Jamal Mohamed College India, ITB, Mercu Buana University, National University Malaysia, Surya Institute Jakarta, Diponegoro University, Unila, Universitas Malahayati, University Pelita Harapan, STIMIK Kristen Newmann, BPPT Lampung, Nurtanio University Bandung, STIMIK Tarakanita, University Sultan Ageng Tirtayasa, and Pelita Bangsa.

I would like to express my deepest gratitude to the International Advisory Board members, sponsors and also welcome to all keynote speakers and all participants. I am also grateful to all organizing committee and all of the reviewers which contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector which give us endless support to these activities, such that the conference can be administrated on time.

Bandar Lampung, 20 Juni 2012

**Mustofa Usman, Ph.D**  
**ICETD Chairman**

**PROCEEDINGS**  
**The First International Conference in**  
**Engineering and Technology Development**  
**(ICETD 2012)**

**UNIVERSITAS BANDAR LAMPUNG**  
Bandar Lampung, Indonesia  
June, 20-21 2012

**Sterring Commite**

*Chairman*

Mustofa Usman

*Co-Chairman*

Marzuki

**Technical Committee**

Ahmad Cucus

Agus Sukoco

Dina Ika Wahyuningsih

**Treasure**

Maria Shusanti Febrianti

**Committee Member**

Indyah Kumoro

Fritz Akhmad Nuzir

Baginda Simaimban

Berry Salatar

Harpain

Yuthsi Aprilinda

Usman Rizal

Andala Rama P. Barusman

Yanuar Dwi Prasetyo

**International Advisory Board**

Ahmad F. Ismail, Malaysia

Hon Wei Leong, Singapore

Mustofa Usman, Indonesia

Imad Khamis, USA

Moses L. Singih, Indonesia

Y. M. Barusman, Indonesia

Andreas Dress, Germany

Rozlan Alias, Malaysia

Faiz A.M. Elfaki, Malaysia

Rudi Irawan, Indonesia

Warsono, Indonesia

Gusri Ibrahim, Indonesia

Raihan Othman, Malaysia

Jamal I Daoud, Malaysia

Zeng Bing Zen, China

Riza Muhida, Indonesia

Tjin Swee Chuan, Singapore

Heri Riyanto, Indonesia

Khomsahrial R., Indonesia

Agus Wahyudi, Indonesia

Rony Purba, Indonesia

Lilies Widodojoko, Indonesia

Alex Tribuana S., Indonesia

## **Organizing Committee**

### **Chair Person**

Prof. DR. Khomsahrial Romli, M.Si

### **Vice Chair Person**

Drs. Harpain, M.A.T., M.M

### **Secretary**

Fritz Akhmad Nuzir, S.T., M.A  
Ahmad Cucus, S.Kom., M.Kom

### **Treasure**

Dian Agustina, S.E

### **Special Events**

DR. Zulfi Diane Zaini, SH., MH  
DR. Baginda Simaibang, M.Ed  
Zainab Ompu Jainah, SH., MH  
DR. Alex Tribuana S., ST., MM  
Erlangga, S.Kom

### **Receptionist**

Berry Salatar, A.Md  
Yanuar Dwi Prasetyo, S.Pd.I., M.A  
Siti Rahma Wati, S.E  
Ardiansyah, ST., MT  
Sofie Islamia Ishar, S.T., M.T  
Taqwan Thamrin, S.T., M.Sc

### **Transportation and Acomodation**

Irawati, SE  
Usman Rizal, S.T., MMSi  
Hendri Dunan, S.E., M.M  
Rifandi Ritonga, S.H  
Desi Puspita Sari, S.E  
Roby Yuli Endra, S.Kom  
Tanto Lailam, S.H  
Ilyas Sadad, S.T., M.T

### **Publication and Documentation**

Ir. Indriati Agustina Gultom, M.M  
Monica Mutiara Tinambunan, S.I.Kom., M.I.Kom  
Noning Verawati, S.Sos  
Hesti, S.H  
Rifandi Ritonga, SH

Olivia Tjioener, S.E., M.M  
Violita, S.I.Kom

**Cosumption**

Dra. Yulfriwini, M.T  
Dra. Agustuti Handayani, M.M  
Susilowati, ST., MT  
Wiwin Susanty, S.Kom  
Reni Nursyanti, S.Kom  
DR.Dra. Ida Farida, M.Si

**Facility and Decoration**

Zainal Abidin, SE  
Ahyar Saleh, SE  
Eko Suhardiyanto  
Dina Ika Wahyuningsih, A.Md  
Wagino  
Sugimin

## **Table Of Content**

Organizing Committee.....	i
Table Of Content.....	v
<b>Keynote Speaker</b>	
1. Zinc-Air Battery – Powering Electric Vehicles to Smart Active Labels <b>Dr. Raihan Othman</b> .....	1
2. Enhancing Heat Transfer Using Nanofluids(abstract) <b>Prof. Ahmad Faris Ismail</b> .....	6
3. Rapid Prototyping and Evaluation for Green Manufacturing <b>RizaMuhida, Ph.D</b> .....	7
4. Indonesia’s Challenge to Combat Climate Change Using Clean Energy <b>Rudi Irawan, Ph.D</b> .....	12
5. Paraboloid-Ellipsoid Programming Problem <b>Prof.Dr. Ismail Bin Mohd</b> .....	15
6. Model Development of Children Under Mortality Rate With Group Method of Data Handling <b>Dr. IingLukman</b> .....	27
7. The Modified CW1 Algorithm For The Degree Restricted Minimum Spanning Tree Problem <b>Wamiliana, Ph.D</b> .....	36
8. The Fibre Optic Sensor in Biomedical Engineering and Biophotonics <b>Prof. TjinSweeChuan</b> .....	
<b>Speaker</b>	
1. Web-Based Service Optimization with JSON-RPC Platform in Java and PHP <b>WachyuHari Haji</b> .....	1
2. Trouble Ticketing System Based Standard ISO10002: 2004 To Improve Handling of Complaints Responsibility <b>Ahmad Cucus, Marzuki, AgusSukoco, Maria ShusantiFebrianti, Huda Budi Pamungkas</b> .....	6
3. Design of Warehouse Management Application Tool for Controlling The Supply Chain <b>Anita Ratnasari, Edi Kartawijaya</b> .....	10
4. Development Of Decision Related Engine Using Integration Of Genetic Algorithm And Text Mining <b>EvianaTjaturPutri, Mardalena, Asmah</b> .....	15
5. Implementing CBR on The College Rankings Based on Webometrics with EPSBED’s Data and Webometrics Knowledge	

	<b>Marzuki , Maria Shusanti F, Ahmad Cucus , AgusSukoco</b> .....	19
6.	Paypal Analysis as e-Payment in The e-Business Development <b>Nomi Br Sinulingga</b> .....	24
7.	Decision Support System for Determination of Employees Using Fuzzy Decision Tree <b>Sinawaty#1, YusniAmaliah</b> .....	28
8.	Analysis of Factors Influencing Consumer Behavior Bring Their Own Shopping Bag (Case Study KecamatanTembalang) <b>Aries Susanty, DyahIkaRinawati, FairuzZakiah</b> .....	33
9.	The Use of Edge Coloring Concept for Solving The Time Schedule Problem at Senior High School (Case Study at SMAN 9 Bandarlampung) <b>RahmanIndraKesuma, Wamiliana, MachudorYusman</b> .....	41
10.	Analysis Of Web-Education Based on ISO / IEC 9126-4 For The Measurement Of Quality Of Use <b>Marzuki, AgusSukoco, Ahmad Cucus, Maria ShusantiFebrianti, Lisa Devilia</b> .....	46
11.	The Used of Video Tracking for Developing a Simple Virtual Boxing <b>David HabsaraHareva, Martin</b> .....	55
12.	M-Government as Solutions for E-Government problems in Indonesia <b>Ahmad Cucus, Marzuki, AgusSukoco, Maria ShusantiFebrianti</b> .....	60
13.	Open Source ERP for SME <b>Tristiyanto</b> .....	65
14.	Improvement in Performance of WLAN 802.11e Using Genetic Fuzzy Admission Control <b>SetiyoBudyanto</b> .....	70
15.	Cloud Computing: Current and Future <b>TaqwanThamrin, Marzuki, Reni Nursyanti, Andala Rama Putra</b> .....	75
16.	Implementing Information Technology, Information System And Its Application In Making The Blue Print for The One Stop Permission Services <b>Sri AgustinaRumapea, HumuntalRumapea</b> .....	80
17.	Integration System Of Web Based And SMS Gateway For Information System Of Tracer Study <b>EndykNoviyantono, Aidil</b> .....	86
18.	Fuzzy Logic Applied To Intelligent Traffic Light <b>EndykNoviyantono, Muhammad</b> .....	93
19.	Solving and Modeling Ken-ken Puzzleby Using Hybrid Genetics Algorithm <b>Olivia Johanna, Samuel Lukas, Kie Van IvankySaputra</b> .....	98
20.	GIS Habitat Based Models Spatial Analysis to Determine The Suitability Of Habitat For Elephants <b>AgusSukoco</b> .....	103

21. The Course Management System Workflow-Oriented to Control Admission and Academic Process <b>Usman Rizal, YuthsiAprilinda</b> .....	108
22. Fuzzy Graphs With Equal Fuzzy Domination And Independent Domination Numbers <b>A.Nagoorgani, P. Vijayalakshmi</b> .....	115
23. Solving Pixel Puzzle Using Rule-Based Techniques and Best First Search <b>Dina Stefani, Arnold Aribowo, Kie Van IvankySaputra, Samuel Lukas</b> .....	118
24. Capacity Needs for Public Safety Communication Use 700 MHz as Common Frequencyin Greater Jakarta Area <b>SetiyoBudiyanto</b> .....	125
25. Impact of Implementation Information Technology on Accounting <b>Sarjito Surya</b> .....	132
26. Document Management System Based on Paperless <b>WiwinSusanty, TaqwanThamrin, Erlangga, Ahmad Cucus</b> .....	135
27. Traceability Part For Meter A14C5 In PT Mecoindo Of The Measurement Of Quality Of Use <b>Suratman, WahyuHadiKristanto, AsepSuprianto, MuhamadFatchan, DendyPramudito</b> .....	139
28. Designing and Planning Tourism Park with Environment and Quality Vision and Information Technology-Based(Case Study: Natural Tourism Park Raman Dam) <b>Fritz A. Nuzir, AgusSukoco, Alex T</b> .....	149
29. Smart House Development Based On Microcontroller AVR-ATMEGA328 <b>Haryansyah, Fitriansyah Ahmad, Hadriansa</b> .....	157
30. Analyze The Characteristic of Rainfall and Intensity Duration Frequency (IDF) Curve at Lampung Province <b>Susilowati</b> .....	161
31. The Research of Four Sugarcane Variety ( <i>Saccharum officinarum</i> ) as The Raw Materials of Bioethanol Production in Negara Bumi Ilir Lampung <b>M.C.Tri Atmodjo, Agus Eko T, Sigit Setiadi, Nurul Rusdi, Ngatinem JP, Rina, Melina, Agus Himawan</b> .....	174
32. Design an Inverter for Residential Wind Generator <b>Riza Muhida, Afzeri Tamsir, Rudi Irawan, Ahmad Firdaus A. Zaidi</b> .....	177
33. The Research of Two Sugarcane Variety ( <i>Saccharum officinarum</i> ) as The Raw Materials of Bioethanol Production in Negara Bumi Ilir - Lampung <b>M.C. Tri Atmodjo, Agus Eko T., Sigit Setiadi, Nurul Rusdi, Ngatinem JP, Rina, Melina, Agus H.</b> .....	182
34. Design of Plate Cutting Machine For Cane Cutter ( <i>Saccharum Oficinarum</i> ) Use Asetilin Gas <b>M,C, Tri Atmodjo, Tumpal O.R, Sigit D.Puspito</b> .....	186



35.	Behaviour of Sandwiched Concrete Beam under Flexural Loading <b>Firdaus, Rosidawani</b> .....	191
36.	Diesel Particulate Matter Distribution of DI Diesel Engine Using Tire Disposal Fuel <b>Agung Sudrajad</b> .....	196
37.	Microstructure Alterations of Ti-6Al-4V ELI during Turning by Using Tungsten Carbide Inserts under Dry Cutting Condition Ibrahim, G.A. Arinal, H, Zulhanif, Haron, C.H.C .....	200
38.	Validation Study of Simplified Soil Mechanics Method Design with Kentledge Pile Loading Test of Bored Pile Lilies Widodojoko .....	204
39.	Performance Assessment Tool for Transportation Infrastructure and Urban Development for Tourism Diana Lisa .....	211
40.	Earthquake Resistant House Building Structure Ardiansyah .....	221

# Impact of Implementation Information Technology on Accounting

Sarjito Surya<sup>#1</sup>

<sup>#1</sup>Faculty of Economic, Nurtanio University Bandung

Jl. Pajajaran No.219 Lanud Husein Sastranegara Bandung, West Java, Indonesia

<sup>1</sup>tori\_rover@yahoo.com

**Abstract - In recent years business is growing fast and faster and this is the reason for investment in information technology (IT) specially on accounting department. The implementation of an IT improves information flow, reduce costs, establish linkage with suppliers and reduce response time to customer needs. This paper focuses on a sample Indonesian companies in Bandung, West Java, Indonesia investigates the implementation of IT on accounting, the benefits that users have achieved and the influence of implementation of IT on accounting. The results indicate a better level on accuracy, better reporting, using accounting software, functionality increasing and last dimension is faster reporting provided by implementation of IT on accounting.**

**Keywords - Information Technology, Implementation of Information Technology, Accounting Process**

## I. INTRODUCTION

In recent years highly competitive, changing rapidly by global economy, organizations have been forced to consider, and in many cases to implement IT on accounting. Implementation of IT on accounting are software packages that enable companies to combine various business units of different areas such as production, sales, finance, creating a tightly integrated system with flow of financial information across the entire business. The interest of organizations for implement IT and other innovative applications has increased. The executives and the administration company are responsible to make specific choices to serve the company's goals concerned with the internal organization and efficiency or the external environment with the best combination of investment-benefit decision. "IT has a critical role in modern business, especially on accounting function" [8].

Transformed on IT makes the nature of business and accounting practice [11]. "The relationships between accounting and information technology was gradually taken for granted, accounting was simply not possible without information technology, and the assumption appears to be that information technology is the platform for accounting data and it allow certain sophisticated queries to be performed" [10]. Actually implementation of IT has shortening the process of accounting for making financial report which using by organizations to make some decision. The sooner information has provide, the sooner the decision would be made.

Based on a literature review of earlier research and empirical studies we conclude that there is a very limited about the impact of the most recent IT developments in the accounting

field [10]. Existing research has focused mostly on the relation between IT investment and company performance [15]; notably in studies that attempt to measure the level of IT investment and company productivity [7] or even the financial return on IT investments [6]. The objective of this study is to evaluate whether IT implementation has an impact on accounting such computerized accounting system, increasing functionality, improve accuracy, faster processing and better reporting.

## II. LITERATURE REVIEW

The implementation of IT using an accounting applications software such a modules which links various accounting transaction recording such cash in and cash out transaction, sales modules, purchase modules, pay roll and also makes some reporting according those transaction. Information technology (IT) has created significant benefits for accounting departments. IT networks and computer systems have shortened the lead time needed by accountants to prepare and present financial information to management and stakeholders.

Not only has IT shortened the lead time required to present financial information, but it also has improved the overall efficiency and accuracy of the information. In practice it can be difficult to classify a software as an ERP system or a non-ERP system [2]. Reference [12] uses the word of integration of functional areas of business as a criterion for this classification. ERP systems are not a solution for a business but can enhance the need for integration [13]. There are several forces that are potentially influencing an organization's decision to adopt ERP systems. There is 5 dimension for implementing IT on accounting, which is:

### 1. Computerized Accounting Systems

The biggest impact IT has made on accounting is the ability of companies to develop and use computerized systems to track and record financial transactions. Paper ledgers, manual spreadsheets and hand-written financial statements have all been translated into computer systems that can quickly present individual transactions into financial reports.

Most of the popular accounting systems can also be tailored to specific industries or companies. This allows companies to create individual reports quickly and easily for management decision making. Additionally, changes can be made relatively easy to reflect any economic changes in business operations.

2. Improved Accuracy

Most computerized accounting systems have internal check and balance measures to ensure that all transactions and accounts are properly balanced before financial statements are prepared. Computerized systems will also not allow journal entries to be out of balance when posting, ensuring that individual transactions are properly recorded.

Accuracy is also improved by limiting the number of accountants that have access to financial information. Less access by accountants ensures that financial information is adjusted only by qualified supervisors.

3. Faster Processing

Computerized accounting systems allow accountants to process large amounts of financial information and process it quickly through the accounting system. Quicker processing times for individual transactions has also lessened the amount of time needed to close out each accounting period. Month- or year-end closing periods can be especially taxing on accounting departments, resulting in longer hours and higher labor expense. Shortening this time period aids companies in cost control, which increases overall company efficiency.

4. Increased Functionality

Computerized accounting systems have also improved the functionality of accounting departments by increasing the timeliness of accounting information. By improving the timeliness of financial information, accountants can prepare reports and operations analyses that give management an accurate picture of current operations. The number of financial reports has also been improved by computerized systems; cash flow statements, departmental profit and loss, and market share reports are now more accessible with computerized systems.

5. Better External Reporting

Reports issued to outside investors and stakeholders have been improved by computerized accounting systems. Improved reporting allows investors to determine if a company is a good investment for growth opportunities and has the potential to be a high-value company. Companies can utilize these investors for equity financing, which they use for expanding business operations.

III. EMPIRICAL STUDY

To determine the answers to the research questions, a paper based survey was prepared and administered at organizations that had implemented IT on accounting. Data collected from 30 companies. Managers responsible for the integrated system implementation in their organizations were chosen as the target recipients as they were best placed to provide informed responses to the range of issues covered in the survey. Most of the questions asked were open-ended concerning topics as the perceptions of 5 dimensions. The questionnaire was pretested with three respondents to check its validity. A cover letter and survey questionnaire were distributed to managers responsible for integrated systems in the company. Responses to the

questions were measured on a 5 point Likert scale 1=very poor to 5=very good. The data was codified and analyzed using SPSS 16.0. Techniques included descriptive statistics and independent samples t-test were used.

Table I. Dimensions of Implementation

Dimensions	Before Implementation	After Implementation	Growth
Computerized Accounting System	83%	95%	14%
Accuracy	90%	100%	11%
Faster Processing	82%	90%	10%
Functionality Increasing	75%	93%	24%
Better Reporting	89%	98%	10%
<b>AVERAGE</b>	<b>84%</b>	<b>95%</b>	<b>14%</b>

The lowest dimensions before implementation is functionality increasing dimension scored 75% and increasing to 93%, and there is a higher growth scored 24%. The higher dimensions before implementation is better reporting dimension scored 89% and increasing to 98%, and there is a lower growth scored 10%. Overall score before implementing IT scored 84% and increasing to 95% with overall growth 14%.

Table 2t-Test: Paired Two Sample for Means

Statistic	Before Implementation	After Implementation
Mean	0.838	0.952
Variance	0.00367	0.00157
Observations	5	5
Pearson Correlation	0.762374272	
Hypothesized Mean Difference	0	
Df	4	
t Stat	-6.413001035	
P(T<=t) one-tail	0.001519017	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.003038033	
t Critical two-tail	2.776445105	

Based on calculation of Paired Samples T Test Correlation the results of the correlation between variables produced to 76,23% with 0,0001 probability value < 0,05 this suggest that the correlation between scored before implementation IT on accounting and after implementation IT on accounting is significant.

#### IV. CONCLUSION

The companies studied have high levels of investment in information technology. Most of companies was found to use accounting software more significantly than period of cut off before and after. The data gathered demonstrate that the priority dimensions for implement IT on accounting is accuracy, better reporting, using accounting software, functionality increasing and last dimension is faster reporting. Future research needs to examine between the implementation IT and accounting relationship. Today accounting and IT are unseparable. Accountant's uses of accounting software which is clearly dependent of IT existence. The configuration choices made in IT implementation are powerful in what enable. The benefits for accounting from IT materialise only in uncertain ways and only after long implementations.

#### ACKNOWLEDGMENT

The author would like to thank the accounting manager from many companies in Bandung, West Java, Indonesia which is cooperatively supporting for this research

#### REFERENCES

- [1] Burns, J., Ezzamel, M. & Scapens, R. Management accounting change in the UK. *Management Accounting*. 1999, 77 (3): 28-30.
- [2] Chien S. & Tsaur S. Investigating the success of ERP systems: Case studies in three Taiwanese high-tech industries. *Computer in Industry*. 2007, 58:783-793.
- [3] Chua W. Radical Developments in Accounting Thought. *The Accounting Review*. 1986, LVI (4):601-632.
- [4] Cooper D. & Morgan W. Case Study Research in Accounting. *Accounting Horizons*. 2008, 22 (2):159-178.
- [5] Crescenzi A.D. & Kocher J. Management Support Systems: opportunity for Controllers. *Management Accounting*. 1984, 65(9):34-36.
- [6] Dechow N., Granlund M. & Mouritsen J. Management Control of the Complex Organization: Relationships between Management Accounting & Information Technology. In: C. Chapman, et al (eds). *Handbook of Management Accounting Research*. Elsevier, Lda. 2007:625-640.
- [7] Dedrick J., Gurbaxani V. & Kraemer K. Information technology and economic performance: A critical review of the empirical evidence. *ACM Computing Surveys*. 2003, 34 (1):1-28.
- [8] Efendi J., Mulig E. & Smith L. Information Technology and Systems Research Published in Major accounting Academic and Professional Journals. *Journal of Emerging Technologies in Accounting*. 2006, 3:117-128.
- [9] Granlund M. & Mouritsen J. Introduction: problematizing the relationship between management control and information technology. *European Accounting Review*. 2003, 2 (1):77-83.
- [10] Granlund M. On the Interface Between Management Accounting and Modern Information Technology – A literature review and some empirical evidence. Working paper, SSRN, 2007.
- [11] Hunton, J. E. Blending Information and Communication Technology with Accounting Research. *Accounting Horizons*. 2002, 16(1):55-67.
- [12] Ittner C. & Larcker D. Assessing empirical research in managerial accounting: a value-based management perspective. *Journal of Accounting & Economics*. 2001, 32:349-410.
- [13] Johnson, D.G., King M., Lee R.A. & Piper J.A. Studying the impact of information technology on the role of the management accountant – A conceptual framework and research method. *Management Research News*. 1986, 9(4):4-6.
- [14] McLeod R., Jones J. & Poitevent J. Executives' perceptions of their information sources. Reprint in Gray P. *Decision Support & Executive Information Systems*. Prentice Hall, 1984:108-122.
- [15] Melville N., Kraemer K & Gurbaxani V. Review: information technology and organizational performance: An integrative model of IT business value. *MIS Quarterly*. 2004, 28 (2):283-322.
- [16] Sutton S. G. The Changing face of Accounting in an Information Technology dominated World. *International Journal of Accounting Information Systems*. 2000, 1:1-8.
- [17] Teng J. & Calhoun K. Organizational Computing as a Facilitator of Operational and Managerial Decision Making: an Exploratory Study of managers' Perceptions. *Decision Sciences*. Fall 1996:673-710.

Hosted By :  
Faculty of Engineering and Faculty of Computer Science  
Universitas Bandar Lampung (UBL)

