

# Intellectual Capital, Technology And Management Accounting Information System For Creative City: Bandung

Daryanto Hesti Wibowo, Heksawan Rachmadi

**Abstract:** This research aims to know the role of intellectual capital and technology to management accounting information for creative city policy in Bandung. The city was awarded Creative City in design which was set by UNESCO at the end of 2015. This research is a quantitative study based on a survey to be conducted in Bandung. This review will address the issue of how management accounting information system can meet the needs of quality information for users in the creative industries for creative city development. The study discusses the creative industries in which government strongly encourages this emerging sector as an alternative source of economic and urban development. The results of this study will help municipalities in making strategic decisions to spur the growth of creative economy. In a nutshell, intellectual capital in Bandung as creative city supports management accounting information systems to generate accountable information to improve efficiency and effectiveness in structuring sustainable urban economy. It is required to meet the needs of the city policy maker based on the advancement of technology.

**Keywords:** Creative Cities, Intellectual Capital, Information, Management Accounting Information System, Technology

## 1 INTRODUCTION

The creative economy has become a promising source of transformative economy. There has to be some efforts to capitalize its potential (Unesco, 2013). The Special Edition of the United Nations Creative Economy Report, has recorded trade of USD 624 billion in 2011, an increase of more than doubled compared with 2002. Moreover in that report states that the growth of it in general and the cultural and creative industries in particular, recognized not only for their economic value but also increasingly for their role in producing new creative ideas or technologies, and their intangible social benefits. Landry (2001) explains that information and communication technology (ICT), global production networks and supply chains play crucial roles in the development of urban world networks. In 2004 Unesco initiated Creative Cities Network (UCCN). It is to promote cooperation among for creativity as a strategic factor for sustainable city improvement. There are 116 cities join this network in order to place creativity and cultural industries at priority plans at the local level and cooperating actively at the international level (Unesco, 2017). In 2015, Bandung – the capital city of West Java province in Indonesia – has been accepted as the City of Design as part of the UCCN. The city is the fifth largest city in Indonesia, populated by about 2.5 millions of people.

It has an economically strategic position due to its relatively short distance (129km) from Jakarta, the capital city of Indonesia, and is surrounded by smaller towns that are rich in natural and industrial material producers, manufactures, craftsmen, and other forms of skilled labor. Since the 1930s, Bandung has had the reputation as the distribution center for world's fashion industry; and the city is also a favorite destination for shopping and culinary experiences. Design in this context as stated in (Design Cities, 2017) refers not only to the physical appearance and the environment of the city, but also the way of thinking to solve urban issues, which makes use of local potential and resources in efficient way, and which manages to promote values and spirits in accordance with the actual needs and contexts. Creativity in general is seen as a strategy to lessen the gap between people and government, people and policy, and among all stakeholders, and prototypes – often in the form of social innovation and experiments – are created to make rapid improvements that can be conducted by citizens at all levels. All of these compose the intellectual capital of the city. The Indonesian government has realized that creativity is powerful enough to be a motor of economic development. The government issued Medium Term Action Plan for 2015 to 2019 as the reference practical creative business development in Indonesia. It focuses on improving values of creative economy to be more competitive. Therefore, there will be synergy with other sectors in boosting national affordability. That vision is implemented in the main missions: (1) increasing the availability of human resources and material for creative economy; (2) increasing growth and competitiveness; (3) generating supportive environment for creative economy expansion. Those vision and missions of the national strategy in creative economy are reflected in Bandung city authority achievement as previously explained. Triawan Munaf as Head of the Creative Economy Agency the Republic of Indonesia revealed that the ecosystem of creative industries in Indonesia is still a mess. The agency is still discussing with various parties, such as reviewing which foreign investment can enter Indonesia or not. This needs to be done for the advancement of the creative industry forward (Munaf, 2015). Whilst Ridwan Kamil, Mayor of the city of states that the main obstacles in the creative industries in Indonesia are royalty, knowledge of intellectual property, distribution and regulatory process (Kamil, 2009). According to Yigitclair (2008),

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managers put creativity as a priority to be achieved through a new platform of urban economic development. He initiated Creative Urban Region (CUR) defined as urban creative area that promote creative industries in order to be drivers of the community for regional economy improvement. With the increasing intensity of knowledge from contemporary economics and the need for innovation in order to maintain a competitive advantage, it has become imperative for countries to enter the realm of creativity with that great potential. It is even easier with the rapid advances in information and communication technology (ICT), which makes borderless nations around the globe. Such opportunities are created for developing countries to access global markets with their creativity products and cultural diversity (Unctad, 2008) This paper will discuss how the management accounting system regarding intellectual capital and technology can meet the needs of quality information for the city manager to generate policy in creative urban economy. In that sense, accounting management system plays an important role in promoting accountability, efficiency and effectiveness of the creative city manager.

## 2. Review of Literature

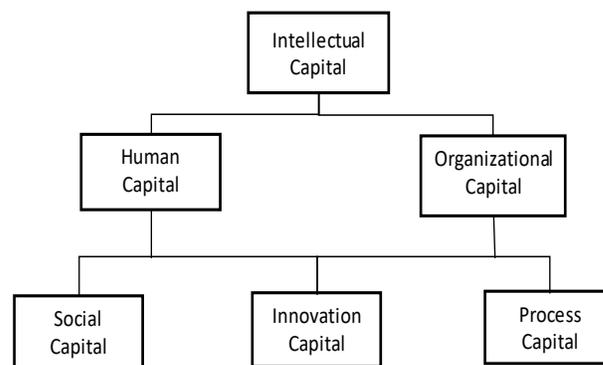
### 1. Management Accounting Information System (MAIS)

Managers use the MAIS to find more specific information which helps them to strengthen information on strategic issues from informal sources (Åhlström & Karlsson, 1996; Heidmann *et al.*, 2008), can also be used to give the company a competitive advantage (McLeod & Schnell, 2009). MAIS should be integrated to retrieve information easily (Wilkinson, 1989). Management accounting system according to Chenhall (2003) provided only internal, historical, and financial information. There has to be improvement on the system to get a broader scope of information, covering more on non-financial information. In digital age, organizations inevitably comply with the current technology in their accounting system for generating qualified information. (Boiney 2000; Chandra 2001; Sutton 2000). The monitoring, measurement, and assessment activities are the priorities of the organizations in the digital information system so as to deliver products and services (Bhimani, 2003). MAIS is reliable when information provided can satisfy its users with accuracy, timeliness, and relevance (Fleischman *et al.*, 2010), good financial information as well as information on non-financial (Weisenfeld & Killough, 2001). Moreover, Stair & Reynolds (2010) put efficiency while Wixom & Todd (2005) consider reliability, integration and flexibility as key feature in the information quality. All in all, quality information promotes efficiency in the business process thus improves productivity and job satisfaction (Laudon & Laudon, 2012). On contrary, dissatisfied information will increase doubts among users on it. Even users ponder to abandon it since it may cause disturbance in decision making process. (Ribiere *et al.*, 1999). Therefore, managers should put great attention since the early stage of designing information system to avoid any discontented information (Kendal & Kendal, 2011). Laudon & Laudon (2012) states that generally information system consists of 5 (five) variables: scope, time, cost, quality and risk.

### 2. Intellectual Capital

Intellectual capital referring to (Edvinsson 1997; Stewart 1997; Bontis 1998; Lev and Zarowin 1999) has been progressed to

decrease the disparity between the market value and the book value that will convert to the price of the firm financially. In 2005, PriceWaterhouseCoopers completed a research regarding the city intellectual capitals that consists of: (1) Human capital; (2) Social capital; (3) Organizational capital; (4) Process capital; and (5) Innovation capital. Furthermore, the report puts human capital as one of the most important sources of values covering knowledge, creativity and the ability to invent. Social capital encompassing mainly on social connectivity that accommodates interactions among citizens. Organizational capital as mentioned by Bonfour & Edvinsson (2005) denotes values of the organizations which could be reflected in organizational structures, principles, visions, missions as an employee's guidance. Process capital requires involvement of human and organizational capital for realizing the outlay in social resources. Whereas the city management's ability to adjust the human and organizational capital as the shifting urban economic environment contribute to innovation capital. Such changing in the urban economic has pushed the city management to promote creativity for realizing any resident potentials. With the support of advancement in information and communication technology (ICT), it will create opportunities to expand markets for such creative products globally. In turns, it will sustain the urban economy (UNCTAD, 2008).



**Fig. 1** Different types of capital, Edvinsson (2005)

The IC Navigator-model developed by Professor Leif Edvinsson of Intellectual Capital at Lund University has been chosen in this study. The lower tier of the model shows three different types that capital values of the organizations which could be reflected in organizational structures, principles, visions, missions as an employee's guidance. Process capital requires involvement of human and organizational capital for realizing the outlay in social resources. Whereas the city management's ability to adjust the human and organizational capital as the shifting urban economic environment contribute to innovation capital. The creative city manager regards intellectual capital as an implement for sustainable urban city development.

### 3. Technology

The dependency on accounting information by managers come up as an issue in the debate over the relevance of management accounting with digitization within organizations becoming more significant (Boiney 2000; Chandra 2001; Sutton 2000). With companies becoming increasingly

concerned about the process of digital information relating to the production and delivery of digital and physical products and services, the challenge lies in how to remain faithful in monitoring, measuring, and assessing organizational activities. (Bhimani, 2003). Technology Acceptance Model (TAM) by Fred Davis and Richard Bagozzi (Davis & Warshaw, 1992) is the common theory used for research in technology reception. The theory stands on the theory of Fishben theory of reasoned action (TRA), which discusses a person's behavior to accept or reject technology in an activity. Reception technology refers to perceived ease of use and perceived of usefulness. The easier the technology is adapted by the society, the easier it is also the acceptance of technology. Similarly, the perception of benefit. When technology is considered to provide many benefits then the community will accelerate more quickly. Li & Huang (2009) also argues that the purpose of TAM is to explain and estimate the possibility of receiving a technology based on two dimensions: perceived ease of use and perceived of usefulness. TAM is the development of behavioral theory that links between attitudes and behavior of a person to technology. This is influenced by their perception of perceived ease of use dimension and perceived of usefulness dimension. Both dimensions are influenced by external variables. Furthermore, both dimensions affect the attitude in the activity of use, behavior in using and actual system use. The process of acceptance or rejection of a thing that is considered new is often encountered in society. Rogers (1995) argues that if an innovation is introduced it will have consequences for the changes that occur. So that technology-related innovations are facing resistance by users.

### 3. Research Methodology

This article is an exploratory study, (Sekaran, 2003) views it should be done when a collection of facts is known, but more information is needed to develop a practical theoretical framework. Kothari (2004) calls this kind of research an analytical study using facts or information already available, and analyzing it to obtain a critical evaluation or other view of phenomena. This is applied research using quantitative and qualitative method (mix-method) with case study on creative city management in Bandung, West Java. The case study according to Yin (2003) was conducted to answer the 'how' and 'why' questions on a recent series of events. This study examines the phenomenon of increasing awareness of sustainable creative city development that requires qualified information based on intellectual capital. This phenomenon is studied from the point of view of management accounting information system. Mixed-methods research is done because according to (Creswell, 2009) quantitative and qualitative data can be combined so that the results can be used to strengthen one another. The same thing is expressed (Shauki, 2016) that mixed-methods research is very likely to provide superior research findings and results. The quantitative data are interpreted qualitatively by using Respondents Answer Rate Sugiyono (2009) in Table.

**Table 1.** Respondents answer rate

Interval	Categories	
	Number	Percentage
Max. Score	5	100%
Min. Score	1	20%
Levels		
20,00% - 35,99%		Very Poor

36,00% - 51,99%	Poor
52,00% - 67,99%	Fair
68,00% - 83,99%	Good
84,00% - 100%	Excellent

Source: Sugiyono (2011)

### 4. Result and Discussion

The survey of intellectual capital, technology and qualified information of management accounting in Bandung. It was conducted to have description about their practices in the development of creative city. Questionnaires were delivered to proprietorships in creative industry. Whilst interviews were performed to the Head of Creative Economy, City Government of Bandung.

**Table 2.** Survey Result: Intellectual Capital, Information Quality and Technology

No.	Variables	Score	Category
1.	Intellectual Capital	71,43%	Good
2.	Information Quality	69,33%	Good
3.	Technology	68,00%	Good

Based on the survey, the three variables are in the category of "Good". However, the scores reveals that it is only the Intellectual Capital (IC) stands quite above the limit. While the others, Information Quality and Technology are in between being "Good" and "Fair". By using the IC Navigator-model of Intellectual Capital Edvinsson (2005), we review the development of human and organisational capital as follows: Values of the organizations could be reflected in organizational structures, principles, visions, missions as an employee's guidance. Process capital requires involvement of human and organizational capital for realizing the outlay in social resources. Although the IC is good, respondents experience that the local government has not played a significant role in assisting the creative industry proprietorship to get financing from banks. They are also expecting to have more portions of the city budget to support their business. Related to social capital, the local government has not succeeded yet to play a key role in making the most of the investment made in social capital. Regarding the information quality, respondents finds the creative-economy information that is provided the city government requires to be upgraded. It has to be fit to the need of the creative business proprietor. It means that the information has to be more comprehensive covering wide aspects related to the business. Respondents consider technology has not yet been applied effectively in promoting creative economy within the city. The use of social media and any other digital technology ought to be utilized to the optimum level. In order to confirm the relationship between the city regulator and creative businessmen, an interview with the Head of Creative Economy, City Government of Bandung was delivered. She recognized that intellectual capital is significantly contributed to the success of being Design City as part of Unesco Creative City Network (UCCN) in 2015. People in West Java called Sundanese are very interested in arts and culture. Additionally, the Mayor, Ridwan Kamil is actually an international award winning architect who has paid great attention in arts and design. Those strengths compose such

blend that make Bandung as an international creative city. The city government has been working with Bandung Creative City Forum (BCCF), an association representing artist and businessmen within creative industry. Through this relationship, information is shared both ways that links to the creative efforts. Triple Helix concept is a pilot project that runs together to attach the authority, academics and proprietors in creative industry. It is expected to have such synergy among parties to make the industry more effective and efficient. In the national scale, the city authority has developed connection with Indonesian Creative City Networks (ICCN). It is a platform for creative cities in Indonesia to work together in this promising economic sector. It includes Pekalongan, a city in Central Java, another Unesco creative city for crafts and folk arts since 2014. The city management's ability to adjust the human and organizational capital as the shifting urban economic environment contribute to innovation capital. The nature of the interaction between those two capitals will determine the strength and extent of human and organizational capital present in any organization or city, which in turn will determine the overall level of intellectual capital. Intellectual capital has a significant impact on the productivity and competitiveness of cities and regions, and nations as a whole. Bandung Creative Hub (BCH) is a breakthrough in the creative city. The artistic, 6 story building owned by the city government has been completed in 2017. It is a home for creative achiever to produce artworks or other creative products. The government provide such facilities: rooms, studios, theaters freely to seriously support the industry. Regarding the creative economy policy, the city authority conforms the national blueprint, The Development of Indonesia Creative Economy 2015-2019. It focuses on improving competitiveness of creative economy. Therefore, there will be synergy with other sectors in boosting national affordability. That vision is implemented in the main missions: (1) increasing the availability of human resources and material for creative economy; (2) increasing growth and competitiveness; (3) generating supportive environment for creative economy expansion. Those vision and missions of the national strategy in creative economy are reflected in Bandung city authority achievement as previously explained.

## 5. Conclusion

Intellectual capital in Bandung creative city supports management accounting information systems to generate accountable information to improve efficiency and effectiveness in structuring sustainable urban economy. It is required to meet the needs of the city policy maker based on the advancement of technology. Based on the survey, the three variables are in the category of "Good". However, the scores reveals that it is only the Intellectual Capital (IC) stands quite above the limit. While the others, Information Quality and Technology are in between being "Good" and "Fair". The city authority conforms the national blueprint, The Development of Indonesia Creative Economy. It focuses on improving competitiveness of creative economy through network development with creative community organizations and Bandung Creative Hub as an essential facility to support the creative business in the city.

## REFERENCES

[1] Åhlström, P. & Karlsson, C. (1996), Change processes towards lean production: The role of the management

accounting system. *International Journal of Operations & Production Management*, 16, 42–56.

- [2] Ahrens, T. and Chapman, C. (2004). 'Accounting for Flexibility and Efficiency: A Field Study of Management Control Systems in a Restaurant Chain', *Contemporary Accounting Research*, 21(2): 271–302.
- [3] Belkaoui, Ahmed. 2002. *Behavioral Management Accounting*. Quorum Books.
- [4] Bhimani, Alnoor. 2003. *Management Accounting in Digital Economy*. Oxford University Press.
- [5] Boiney, L. G. 2000. New Roles for Information Technology: Managing Internal Knowledge and External Relationships. *Review of Accounting Information Systems*, 4/3: 1–10.
- [6] Chenhall, R.H. 2003. Management Control Systems Design within its Organizational Context: Finding from Contingency-based Research and Directions for the Future, in: *Accounting, Organizations & Society* 28 (2/3) pp. 127-168.
- [7] Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks, CA: SAGE Publications, Inc.
- [8] Davis, F.D., R.P. Bagozzi, and P.R. Warshaw. 1992. "Extrinsic and Intrinsic Motivation to use Computers in the Workplace, *Journal of Applied Social Psychology*, 22, 1111-1132.
- [9] Departemen Perdagangan Republik Indonesia. 2007. *Studi Industri Kreatif Indonesia*, Depdag.
- [10] Departemen Perdagangan Republik Indonesia. 2007. *Program Kerja Pengembangan Industri Kreatif Nasional 2009 - 2025*, Depdag.
- [11] Edvinsson, L., Malone, M. S. 1997. *Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Brainpower*. New York: Harper Business.
- [12] Hall, P and Landry, C. 1997. *Innovative and Sustainable Cities*. Dublin: European Foundation for Improvement of Living and Working Condition.
- [13] Heidmann, M., Schäffer, U., & Strahringer, S. (2008), Exploring the Role of Management Accounting Systems in Strategic Sensemaking. *Information Systems Management*, 25, 244-257.
- [14] Kendall, K.E., & Kendall, J.E., (2011), *Systems analysis and design*. 8th Edition, Prentice Hall International.
- [15] Kothari, C. R. (2004). *Research Methodology: Methods & Techniques*, 2nd ed. New Delhi: New Age International
- [16] Landry, Charles. 2008. *The Creative City: A Toolkit for Urban Innovators*. 2<sup>nd</sup> edition. Earthscan.
- [17] Laudon, Kenneth C. and Laudon, Jane, P. 2012.

Management Information System: Managing Digital Firm.  
12<sup>th</sup> Edition. Pearson Prentice Hall.

- [18] McLeod, R., & Schell, G.P., (2009), Sistem Informasi Manajemen. Tejemahan Ali Akbar Yulianto dan Afia R. Fitriati, Edisi Kesepuluh, Jakarta : Salemba Empat.
- [19] Ribiere, V.L., Khorramshahgol, R.A.J., & Gousty, Y., (1999), Hospital information systems quality: a customer satisfaction assessment tool. Proceedings of the 32nd Hawaii International Conference on Systems Sciences. Maui. Hawaii, January, 5-8.
- [20] Sekaran, U. (2003). Research Methods for Business: A Skill-Building Approach, 4th ed. New York: John Wiley & Sons, Inc.
- [21] Shauki, E.R. Metode Penelitian Terapan. Bandung: IAI Jabar – Unpad.
- [22] Stair, Ralph M and Reynolds, George W. 2010. Principles of Information Systems. 9<sup>th</sup> Edition. Boston.
- [23] Stair, R.M., & Reynolds, G.W., (2010), Principles of Information Systems. 9th Edition. Boston-USA: Course Technology.
- [24] Sugiyono. (2011). Metode Penelitian Bisnis Kombinasi. Bandung: CV Alfabeta.
- [25] UNCTAD. 2008. Creative Economy Report. The Challenge of Assessing Creative Economy: towards Informed Policy Making.
- [26] Wall and Greilling. 2011. Accounting Information For Managerial Decision-Making In Shareholder Management Versus Stakeholder Management. Springer Verlag.
- [27] Weisenfeld, L.W., & Killough, L.N., (2001), One Company's Experience With Accounting Information System Changes – An Analysis of Manager's Satisfaction. The Review of Business Information Systems, 5, Num2, 21-36.
- [28] Wilkinson, J.W., (1989), Accounting Information System : essential concepts and applications. John Wiley & Sons Inc.
- [29] Wixom, B.H., & Todd, P.A., (2005), A Theoretical Integration of User Satisfaction and Technology Research, 16, No 1. March, 85-102.
- [30] Yigitcanlar, Tan et al. 2008. Creative Urban Region: Harnessing Urban Technologies to Support Knowledge City Initiatives. Information Science Reference.
- [31] Yin, R. K. (2003). Case Study Research: Designs and Method. Thousands Oaks, CA: Sage