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THE DESIGN AND USE OF MANAGEMENT CONTROL SYSTEM IN DEVELOPING ORGANIZATIONAL LEARNING Saarce Elsye Hatane Evelin Lesmanaputri, Vanny Lisayani Wijaya & Joan Jesslyn Prajnawati Firman Accounting Department, Petra Christian University ABSTRACT The roles of management control systems (MCS) and organizational learning (OL) in organizational sustainability have been the concern of researchers and business practitioners. This study is conducted on 35 limited liability companies in Indonesia by distributing questionnaires in the form of a Likert scale to managers. This study describes MCS in the form of its design and use. OL is measured through the organization's ability to collect, distribute and internalize information into organizational memory. The data is processed using the Structural Equation Model. The result shows that MCS has an important role in facilitating OL. An adequate design of MCS can improve the organization's ability to gather information and store it in the organization's memory. The use of MCS even has a greater influence in distributing and interpreting information. Utilizing advanced information technology is necessary for gathering and processing the information as well as monitoring the control system. 1. Introduction Management control systems (MCS) is a notable function within an organization. The negligence in management control systems will have an impact on the organization that can lead to financial losses and organizations' market perceived values destruction (Merchant and Stede, 2017). MCS is a compulsory function for an organization in order to gain the useful information to apply the management roles, such as making decision, doing planning and evaluating performance (Shurafa and Mohamed, 2016).

MCS can change the **individuals' perceptions** of **existing strategies and structures.**   **1**

Thereby, those individuals, as the members of the organization, can immediately identify new resources to enhance the organization's competitive advantage through organizational learning (Wee, et al., 2014, Naranjo-Gil and Hartmann, 2007). OL enables an organization to adapt to the business environment that has been changing to be more dynamic and competitive by facilitating the creation and retention of knowledge (Choe, 2002; Sisaye and Birnberg, 2010; Zhang, et al., 2010; Wee, et al., 2014). MCS is an organizer for organizational learning. MCS transforms the organization's experience into a knowledge that enables the organization to improve its business practices to form its competitive advantage (Shurafa and Mohamed, 2016). MCS is a repository to store financial and non-financial data of the company, which then will be transformed to be the information that can direct the behavior of individuals to be more initiative in enhancing the overall performance of the company (Batac and Carassus, 2009; Henri, 2006; Wee, et al., 2014). Problem Statement Research on the relationship between MCS and OL has been done by some researchers in several previous studies. Those studies show significant results in the effect of MCS on OL, in which MCS plays an important role in facilitating OL. However, the discussion of MCS in this study is divided into two aspects, which are the design of MCS and the use of MCS as conducted in the research of Wee, et al. (2014). The prior studies often examine these two aspects of MCS on OL separately, and show that those two aspects are prominent

to OL on their own (Batac and Carassus, 2009; 1

Henri, 2006; Kloot, 1997). This study, following Wee, et al. (2014), investigates

both the design and use of MCS on OL **in the same** 1

framework. In Indonesia, the discussion on MCS is limited to investigating the relationship between MCS and firm performance, not with organizational learning (Utari, 2014; Hanif, 2015). Therefore, this research will investigate the relationship between design of MCS and use of MCS with OL in Indonesia.The purpose of this paper is to present the study on relationship between the design and the use of management contol system and organizational learning especially in limited liability companies, both listed and non-listed companies in Indonesia. This study focuses on qualitative data, and in addition to the previous study, this study examines the effects of design and use of MCS on the four elements of OL, which are knowledge acquisition, information distribution, information interpretation and organizational memory as argued by Kloot (1997).Examining the

design and use of MCS simultinously **enables the researchers to** improve 1
insights into the relative effects of these **two aspects of MCS on the** elements **of**

OL. The remainder of this paper is organised as follows. 1

A review of the literature and the development of hypotheses for this **study** | 1

is presented in second section. The third section frameworks the research methods adopted in the study. The fourth section presents and discusses the findings of the study.

Concluding remarks are then made in the fifth section. 2. | 1

Conceptual Model Management Control Systems (MCS) MCS is a process that can convince managers that the resources obtained have been used effectively and efficiently in achieving organizational goals (Ferreira andOtley, 2009). Oliver (2009) states that

MCS can be viewed as a **control** in organizations **with** some **components such as accounting information** systems (financing **systems and budget systems), performance measurement** systems, **reward systems, and planning systems.** | 2

Instead of focusing on measured performance, some management controls focus on encouraging, enabling, or sometimes forcing employees to act in organization's best performance. Moreover, some management controls are proactive, which are designed to prevent problems before the organization suffers from any adverse effects on performance (Merchant and Stede, 2017). MCS equips

organizational learning through design features and interactively influence strategy (Simons, 1990). | 2

MCS can be intrepreted as either strategic controls or financial controls (Li, et al., 2005). Strategic controls refer to long term objectives which based on information exchange and proper knowledge of markets. In contrast, the financial controls focus on the short-term financial performance, such as return on investment. MCS has characteristically been designated as tools for implementing strategy. Coller, et al. (2018) argues that, in that capacity, MCS has frequently been inspected as "the use" rather than as "the design". Meanwhile, another study reveals that the implementation of MCS should also be concluded as part of MCS design (Tessier and Otley, 2012). Design of MCS The MCS design

determines the type **of information that the** system **can provide** | 1

(Wee, et al., 2014). An organization must design an MCS while still working to learn faster. The ability to learn faster from competitors in this dynamic and volatile market will be an advantage, because who can learn faster will gain a competitive edge (Slater and Narver, 1995). This design can be conceptualized in the form of information character. Wee et al. (2014) cited Chenhall and Morris research in 1986, identifies four

characteristics of information that are useful for top management; they are the scope; timeliness; aggregation; and integration. The scope of a broad management control system

> **provides information** about **the external environment,** in addition to **financial and future-oriented** information. **Timeliness refers to the speed and frequency of reporting information. Aggregation** is a collection **of information** [1]

between periods and between departments. Integration includes information from certain sub-unit decisions that affect the organization. All these characteristics represent the design of management control system. Use of MCS The use of MCS is considered to be an action or implementation of MCS which comes from the design that has been prepared. MCS is implemented by managers to replace their supervision in performing all control functions, ranging from making plan, making decisions, motivating and coordinating employees, communicating objectives, providing feedback, and integrating complex activities (Kloot, 1997). Compared to

> **the design of MCS, the use of MCS** [1]

in previous studies had more influence on organizational learning (Wee et al., 2014). There are six major types in the use of MCS: improved

> **understanding, focus** of **attention, scorekeeping,** improvement of **learning, performance evaluation, and reward and feedback** systems **(Chenhall and Langfield-Smith, 2003; Chenhall and Morris, 1993; Henri, 2006; Kerr and Slocum, 1987; Kloot, 1997).** [1]

Improving the understanding of information in MCS will help management to find weaknesses and dependencies among business units within the organization, evaluate the impact of external events, and examine options. The individual's ability

> **to use the information available** in the **MCS** for **decision-making** activities **depends on the** [1]

positions in the organizational hierarchy and the connections with other members within the organization (Wee et al., 2014). The use of MCS can act like a precursor to organizational capabilities leading to strategic choice when used by the top anagement team. The use of MCS supports the implementation of strategy and implementation of MCS designs, which actively links the sent signal across the board to focus organizational attention, stimulates dialogue and supports the emergence of new strategies (Henri, 2006). Concentration includes how the organization highlights the problem area and provides a signal of potential threats to the

organization. Control is related to organizational goals, coordinations, and changes (Kloot, 1997). Effective control is not only related to following predetermined procedures and ensuring that individuals have worked productively to achieve the stated goals, but effective control also providing space for freedom in innovation in achieving goals (Simon, 1995). Innovation is important in the current business environment which is tightly competitive and full of uncertainty. Some organizations concluded that the external environment become much more volatile. Thus, will have more impact on the organization's performance (Eldridge, et al., 2014). In committing to business excellence while dealing with the uncertain environment, an organization must adopt the interactice MCS to manage its business process. The effectiveness of the interactive MCS can be seen from the results which must be monitored regularly. Recording the results of the control includes tracking progress towards the goal, measuring the achievement of the determinants of success, and comparing results with expectations. Effective MCS can be achieved by improving learning. Learning enhancement is the ability to identify the weaknesses of the strategies used, formulate new strategies, and improve the competitiveness of the products or services produced. MCS can influence the perception that the goals and processes that are being run are no longer meeting external challenges. The use of a broader perspective can provide creative solutions (Coopey, 1995). Information collected by MCS can be used to test whether current strategies and structures are appropriate to be implemented in this dynamic environment. Achieving the enhanced performance outcomes in the organization is an underlying objective in several management control researchers. Managers can choose the ways they use control to achieve the goals. Managers can make decision about their use of control based on expectations (right or wrong) of how their choices affect future performance (Tucker and Thorne, 2013). In addition to performance evaluation, MCS can be achieved by implementing a reward system. The reward system states and strengthens the values and norms that cover the organizational culture itself. The design of the reward system can help decision makers to modify the organizational culture. The reward system is a powerful mechanism that can be used by managers to communicate attitudes and behaviors desired by members of the organization. As time goes on culture can change through clear communication of performance criteria and consistent rewards applications (Kerr and Slocum, 1987). Organizational Learning (OL) The phenomenon of organizational learning (OL) in attracting the attention of researchers continues to increase. This has also become a point of controversy regarding to learning conducted in or by the organization (Jyothibabau, et al., 2010). There is no single perspective on current learning theory that is right to capture various relationships and the possibilities that arise from learning and where it is done (Antonacopoulou, 2006). Organizational learning is the result of an understanding that arises from the external environment and adaptation of beliefs and behaviors that are compatible with these changes (Yeo, 2003). 2 Organizational learning can be seen in the process of

> **knowledge acquisition, information distribution, information interpretation and** organizational **memory that** can **influence** organizational behavior **(Huber, 1991; Templeton et al., 2002; Walsh and Ungson, 1991). The** [1]

main focus of organizational learning

> **is continuous improvement (Senge, 1990; Wang and Ahmed, 2003).** [1]

Through a global economy and dynamic market conditions, companies have realized that continuous

improvement in products and processes is needed to create and maintain competitive advantage (Flood and Olian, 1996). To fulfill the information interpretation process, organizations must first determine the nature of learning. In order to determine what learning behavior is needed to develop individual and organizational competencies, some researchers argue that behavioral change must be followed by cognitive change (Fiol and Lyles, 1985; Senge, 1990). According to Murray (2003), individual competence is very valuable but stored in the human capital of the organization. This competence can be raised through several types of learning systems and organizational learning routines. Individual activities are needed before implementing the learning routine. Murray (2001) combines individual competencies and organizational competencies to support organizational learning. Hypothesis Oliver (2009) states that OL's role is to support sustainable development and to identify organizational attributes in a particular organizational learning mechanism in which management views quality programs as successes. In addition, Oliver (2009) also defines MCS as an organizational control

> **with components such as accounting information** systems (financing **systems and budget systems), performance measurement, reward systems and planning systems.** `2`

Therefore, a control can be interpreted as an ongoing process in

> **evaluating performance and taking corrective action when** needed **and** allowing **the organization to maintain** a **high quality** process **and** `2`

control the process, thus the development can be carried out

> **(Evans and Lindsay, 1996). As noted by** Simon **(1991), MCS is** very **influential on organizational** `2`

activities. In other words, if

> **MCS is** designed **to support** a **learning environment,** MCS will **be a system that supports decision making** processes, **facilitates rapid and effective learning, and** allows acquisition **and** `2`

> **development of information, knowledge and understanding. MCS sets** the **framework for** `2`

organizations to search for information and accountability. Feedback is designed to ensure that MCS adapt to changes in the environment (Kloot, 1997; Lowe, 1971). An MCS of an organization is considered to be

capable of supporting OL through design features and interactively influencing strategy (Simons, 1990). Based on these matters, this study uses the following hypothesis: H1: Design of MCS has influence on organizational learning H2: Use of MCS has influence on organizational learning 3. Research Methodology The analysis model used in this study is multiple linear analysis. Figure 1 is the model used

> **to examine the effect of the relationship between** Design **of** | 4

MCS and Use of MCS on OL. This study uses Likert scale as the measurement tools in collecting the data. The type of data used is quantitative data (numerical data) which is then analyzed by statistical methods. Source of data used is primary data collected from 35 companies in Indonesia by using managers as the respondents to fill out the questionnaires. In this study, questionnaires are used to collect data regarding the

> **design of MCS, use of MCS and OL.** | 1

The questionnaires are adopted from previous research by Wee, et al. (2014). Statements for each variable are presented in Tabel 1. Data analysis techniques consist of validity, reliability testing and hypothesis testing by WarpPLS. Analysis will be carried out

> **with the help of** WarpPLS software. **Partial Least** Square **(PLS) is** | 4

part of Structural Equation Modeling (SEM). The purpose of using WarpPLS is to predict the impact of the independent variable (X) on the dependent variable (Y) and to explain the relationship between these variables. This analytical technique is able to provide accurate results and can be used on a small sample scale. There are two models namely the outer model and the inner model. Outer model consists of testing validity and reliability. Figure 1. Research Framework The statistical equation is: $OL = \beta0 + \beta1.DoM + \beta2UoM + \varepsilon$ Where: OL = Organizational Learning DoM = Design of MCS UoM = Use of MCS $\beta0$ = constant $\beta1- \beta2$ = coeficients ε = error 4. Findings The questionnaires are responsed by 37 from 132 companies in Jakarta and East Java as the samples. In order to meet the respondent criterias, 2 companies are eliminated since the respondents were only in staff position. Thus, it represents a response rate of 26.5%. In total, 37.1% of the respondens are female and 62,9% are male. The majority of job tenure is 1-3 years. There is also job position as director (8,6%) and the remaining are managers. The industries sectors are manufacture (37,14%) and non- manufacture (62,86%). Based on Table 1 it can be concluded that each indicator that is in a latent variable has a difference with indicators in other variables indicated by a higher loading score in its own construct. Thus, the model has good discriminant validity. Based on Table 2, composite reliability and Cronbach's alpha, both have fulfilled the rule of thumb. All

> **composite reliability values** are **above 0.7** and **the** value **of** | 4

> **cronbach's alpha** is above **0.** 6 **which indicates that** this research model **is** | 4
> **reliable.**

Tabel 1. The Outer Model No. Variabes Measurements Loading Factor Average Descriptive P- Value DESIGN OF MCS 1 DESIGN1 <- DESIGN Information that relates to projected future financial results under different scenario (e.g. sales under forthcoming new government legislation, competitors' new products). 0,841 3,40 2 DESIGN2 <- DESIGN Non-financial information that measures production efficiency, output rates, employee absenteeism, etc. 0,674 3,77 <0.001 3 DESIGN3 <- DESIGN Non-financial information that measures market size, growth share, customer satisfaction. 0,768 3,37 4 DESIGN4 <- DESIGN Non-financial information that measures innovation and new product/service introduced. 0,787 3,29 USEOF MCS IMPROVING UNDERSTANDING How often do you use accounting information to: 2 USE2 <- USE identify weaknesses. 0,622 3,69 3 USE3 <- USE evaluate impact of external event. 0,799 3,60 <0.001 4 USE4 <- USE explore options. 0,845 3,63 FOCUSING ATTENTION How often do you use accounting information to: 1 USE5 <- USE highlight problem areas. 0,673 4,09 <0.001 SCOREKEEPING How often do you use accounting information to: 1 USE7 <- USE track progress towards goals. 0,764 4,03 <0.001 ORGANIZATIONAL LEARNING KNOWLEDGEACQUISITION 3 ACQ3 <- ACQ Our management proactively addresses problems. 0,658 3,86 <0.001 4 ACQ4 <- ACQ Our management monitors important organisational performance indicators. 0,79 4,06 <0.001 5 ACQ5 <- ACQ Our management learns from organisation's parters (such as customer, suppliers, allies) 0,615 4,17 <0.001 6 ACQ6 <- ACQ Our management is interested in the strategies of competitors. 0,564 3,91 <0.001 7 ACQ7 <-ACQ Our

management learns new things about your organization **by direct observation. 0,** 3

831 3,91 <0.001 8 ACQ8 <- ACQ Our organization collects data on market or consumer-related information, such as customer preferences, employee attitudes of government and consumer bodies, competitive threats, etc. 0,809 3,80 <0.001 INFORMATION DISTRIBUTION 1 DIS1 <- DIS Our employees make extensive use of information resources available in the system to support their work 0,654 4,06 <0.001 2 DIS2 <- DIS Our

top management integrates information from different organizational areas. 0, 3

807 4,00 <0.001 3 DIS3 <- DIS Our employees share

information (such as numbers, plans, idea) with **other employees. 0,** 3

739 3,91 <0.001 4 DIS4 <- DIS When our

employees need specific information, they know who will have it. 0, 3

767 3,97 <0.001 INFORMATION INTERPRETATION 1 INTR1 <- INTR Our organization is quick to react to

technological change 0,81 4,00 <0.001 2 INTR2 <- INTR Our employee

have a large variety of communications tools (telephone, email, internet and so on) from which to

`3`

0,86 4,51 <0.001 3 INTR3 <- INTR Our employees do not

resist changing to new ways of doing things. 0,

`3`

835 3,83 <0.001 4 INTR4 <- INTR Our employees are encouraged to communicate clearly. 0,826 4,23 <0.001 5 INTR5 <- INTR Our

management encourages the use of frameworks and models to assist in decision-making. 0,

`3`

776 4,00 <0.001 ORGANIZATION MEMORY 1 MEM1 <- MEM Our organization stores detailed information for guiding operations. 0,819 4,06 <0.001 3 MEM3 <-MEM Our organization

makes extensive use of electronic storage (such as database, data warehousing, scanned

`3`

0,835 4,23 <0.001 4 MEM4 <-MEM Our employees use electronic means to communicate. 0,794 4,49 <0.001 5 MEM5 <-MEM Our employee retrieve archieved information when making decisions. 0,805 4,03 <0.001 Figure 2. The Inner Model Tabel 2. Reliability Tests Composite Cronbach's Reliability Alpha Design of MCS 0.853 0.768 Use of MCS 0.86 0.796 Acquisition 0.863 0.806 Dsitribution 0.831 0.728 Interpretation 0.901 0.853 Memory 0.887 0.829 The equiations resulted from the inner model tests are: ACQ = 0.29.DESIGN + 0.58.USE.. R2=0,568 DISTRIB = 0.45.DESIGN + 0.51.USE.. R2=0,661 INTERP = 0.24.DESIGN + 0.70.USE.. R2=0,678 MEMORY = 0.40.DESIGN + 0.38.USE.. R2=0,419 Overall it can be seen that

the design variables of MCS and the use of MCS

`1`

are positively associated with OL. The

Use of MCS and the design of MCS

`1`

strongly influence interpretation, although partially the design significance of MCS is weaker than the use of

MCS. The design of MCS most strongly affects distribution. This can be seen from the coefficient (0.45) which is the largest among the other coefficients and also supported by the P-value of less than 0.01. The use of MCS most strongly influences interpretation (coefficient = 0.70) and it is also supported by a P-value of less than 0.01. The P-value limit in this study is 5%. These criteria are met by testing all relationships except the relationship of the design of MCS to interpretation. In this study OL is specifically examined according to its components, which are information acquisition, information distribution, interpretation and memory. The components of knowledge acquisition are proven to be

influenced by the design of MCS by 29% and **the use of MCS**   1

by 58%. This result shows that the use of MCS influences the organization more in gaining new knowledge about the company, such as knowledge about competitors' strategies, consumers, and issues proactively. The use of MCS facilitates employees in highlighting problem areas, exploring options and evaluating company performance compared to expectations in order to always acquire new knowledge, therefore, the Use of MCS has more influence on information acquisition than the design of MCS. The distribution of information is proven to be

influenced by the design of MCS by 45% and **the use of MCS**   1

by 51%. These results indicate that the Use of MCS has more influence on information distribution in the company. However, the design of MCS has the greatest influence on the information distribution component compared to other components in OL. Design of MCS talks about availability and accessability of information for companies. While the information distribution speaks of the organization's ability to learn through employees who can use the information available in the company to support their work, the integration of information in various areas of the company, shares information such as ideas and plans so that employees know who has the information needed. Therefore the design of MCS has the greatest correlation with information distribution, but it is not enough for organizational learning to be supported by the availability of information (Design of MCS). The information has to be used for decision making (Use of MCS). The use of MCS has a little more influence on information distribution component in OL. The third component which is information interpretation is

influenced by the design of MCS by 24% and **the use of MCS**   1

by 70%. These results show that information interpretation is more influenced by the use of MCS. Information interpretation speaks about the organization's readiness to deal with changes around it, such as changes in technology, changes on how employees are encouraged to communicate information clearly and changes on how to make decisions using models or frameworks. Use of MCS facilitates OL, especially the interpretation of information by encouraging employees to identify weaknesses and potential problems in the company in order to formulate new strategies that are always relevant to change. The last is organization's memory which is

influenced by the design of MCS by 40% and **the use of MCS**   1

by 38%. These results indicate that the Design of MCS has a little more influence on organizational memory than the use of MCS. Organizational memory talks about how companies collect, manage and store information for working guideliness. This component is more associated with the design of MCS because both talk about the availability, accessability and storage of information while associated with the Use of MCS through the management of information for decision making. The results of this study are similar to the results of previous studies by Wee, et al. (2014) which states

that both design and use of MCS are both positively associated with OL   1

(knowledge acquisition, information distribution, interpretation of information and organizational memory) in organizations. These results also support the research of Kloot (1997), which states that MCS has an important role in facilitating OL. MCS has proven to be able to influence the company's understanding of change and to explain how solutions are generated. This finding is also in accordance with the opinion of Canonico, et al. (2015) that 5 MCS is not only used for planning and coordination purposes, but also for creating opportunities to foster learning development within the organization. As expressed by Siska (2015), MCS can help organizations lead to their goals. Other results are supported by research conducted by Batac and Carassus (2009) and Shurafa and Mohamed (2016), emphasizing that MCS is able to stimulate OL, and that managerial decisions are influenced by the information provided. With the effective design of MCS, OL will be stimulated, and the company has the advantage of maintaining growth and development. In line with the opinions expressed by Henri (2006), this study proves that the use of MCS will improve OL capabilities which can improve company performance.However, when compared,

the Use of MCS has more influence on OL   1

(knowledge acquisition, information distribution, information interpretation) than the Design of MCS on OL (organizational memory).A good design of MCS is needed, but it is not enough to just use the design of MCS in order for OL to occur. The use of MCS (Use of MCS) by members of the organization both formally and informally can produce a significant impact on OL activities within the organization. Senior managers must be able to

balance the need to manage information flows and the need to facilitate OL to determine the   1

level of MCS usage by

subordinates. Lower level managers must recognize the fact that not all relevant information   1

for decision making can be made available through MCS, thus the search for information from various

sources is still needed. 5. Managerial Implication and Conclusion Management Control System (MCS) is an ongoing system for evaluating performance and taking corrective actions when needed, also allowing organizations to maintain high quality systems and control the system hence that development can be carried out. An MCS from an organization is able to support

organizational learning through design features and interactively influence strategy. The design **and**   2

application of MCS is very influential on organizational activities. In other words, if MCS is designed and used to support Organizational Learning (OL), MCS will be able to become a system that supports decision making processes, facilitates quick and effective learning, and allows acquisition and development of information, knowledge and understanding. There is a positive influence between the Design of MCS and Organizational Learning. A good MCS design can improve OL's ability to obtain information on organizational memory. Thus the first hypothesis is accepted. There is a positive influence between the Use of MCS and Organizational Learning. The use of good MCS can improve OL's ability in knowledge acquisition, information distribution, and information interpretation. Thus the second hypothesis is also accepted. Use of MCS has more influence on Organizational Learning when compared to the Design of MCS. This is because a design will be more meaningful when used and applied. Similarly, the MCS design will be more influential when used and applied appropriately. Besides the Use of MCS, the Design of MCS must also be considered. Good design will also produce good use too. For this reason, organizations need to be aware of the importance of designing MCS appropriately to support the use of MCS to develop OL. The scope of access to information acquisition must be expanded in order to make each member in the organization obtain relevant information easily. Complete and transparent information held by members in the organization can support the smooth running of OL because all the information needed is available and known. The changing times encourage organizations to continue to make changes to adjust to these changes. Organizations must be more focused on OL and not be conservative about the design and use of MCS. Control and learning systems using advanced technology are also recommended therefore information can be obtained and managed accurately and credibly. Future research can improve this research by focusing on research methods. First, by using a qualitative methodology to provide further evidence and new insights into this relationship. Second, future research can begin to explore any variables that mediate the relationship between MCS and OL. It is expected that further research can find the impact of long-term interactions between MCS use and MCS design on OL. References Antonacopoulou, E. (2006). Learning-in-practise: the social complexity of learning in working life. AIM working paper series, Advanced Institute of Management Research, London. Batac, J. and Carassus, D. (2009), Interactions between control and organizational learning in the case of a municipality: a comparative study with Kloot (1997), Management AccountingResearch, 20(2), 109-116. Canonico, et al. (2015). The boundaries of a performance management system between learning and control. Measuring Business Excellence, 19(3), 7-21. doi: 10.1108/MBE-04-2015-0021 Chenhall, R. H. & Morris, D. (1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. Accounting Review, 61(1), 16-35. Chenhall, R.H. &Langfield-Smith, K. (2003). Performance measurement and reward systems, trust, and strategic change. Journal of Management Accounting Research, 15, 117-143. Chenhall, R.H. & Morris, D. (1993). The role of post completion audits, managerial learning, environmental uncertainty and performance. Behavioral Research in Accounting, 30(5), 170-186. Choe, J.M. (2002). The organisational learning effects of management accounting information under advanced manufacturing technology. European Journal of Information Systems, 11(2), 142-158. Coller,G., Frigotto, M.

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