Strategic Communication and Performance Management System for Research and Development: A Review of Literature and Proposed Research Agenda

Yuliani Rachma Putri
School of Communication and Business
Telkom University
Bandung, West Java, Indonesia
yuliani.nurrahman@gmail.com

A.K. Siti Nabiha
Graduate School of Business
Universiti Sains Malaysia
nabiha@usm.my

Zubir Azhar
School of Management
Universiti Sains Malaysia
zubirazhar@usm.my

Abstract—The purpose of this paper is to conduct a review on the normative and empirical literature and on the role of strategic communication in conducting, implementing and institutionalising the performance management system for R&D activities. The nature of manager’s role in communicating the key performance indicators (KPIs) for evaluating and measuring R&D performance and the need of appropriate strategic communication that could help to measure and manage R&D performance are all discussed in this paper. It analyses some gaps and identifies some research issues that are useful for future research.

Keywords—strategic communication, performance measurement system, performance management system, research and development.

Biographical notes: Yuliani.R.Putri is a management researcher and practitioner. She has 7 years’ experience in human resources management practices and 6 years of research experiences on management business areas. Currently, she is working on a research project which concerns performance management system and innovation. She is now working as a lecturer at Telkom University in Indonesia.

Dr Siti-Nabiha is an associate professor at Graduate School of Business, USM. Her research interest is in management accounting, specifically in the area of accounting and organisational change, performance measurement and systems of accountability in both the public and private sectors.

Dr Zubir Azhar is senior lecturer at School of Management at USM. His research interests are in the area of performance management system, ERP system and management control system.

This paper is a revised and expanded version of a paper entitled ‘Performance measurement and management system for research and development activities: A review of literature and proposed research agenda’ presented at the 8th International Management and Accounting Conference, 28–29 September, Langkawi, Malaysia, 2016.

I. INTRODUCTION

Nowadays, organisations face dynamic and uncertain business environment that force them to be more competitive in order to sustain their businesses. Often, organisational success depends on the achievement of desired business performance and how far they reach their targets set as part of their key performance indicators (KPIs). These give rise to the need for organisations to manage not only their business performance, but also performance of employees, groups and processes to ensure that business objectives are met favourably. In this case, utilisation of performance management system can be regarded as critical in enhancing organisational performance, so as to achieve a competitive position in global marketplace (Sahoo and Jena, 2012; Carenys & Sales, 2012).

Due to the dynamic change and the uncertainty of business environment, there is a need for organisations to reach their objectives and to attain good performance by leveraging on innovations. Indeed, the capacity to innovate is among the most important factors that impact business performance (Škerlavaj, Song, & Lee, 2010). Most organisations set up a research and development (R&D) centre to create and nurture the culture of innovation.
For the last decades, R&D activities become more important because its responsibility in every stages of the innovation process which have become more complex in view of the current uncertain and dynamic environments. On the basis of available literature, it can be presumed that investments on R&D and innovation have become one of the priorities for both - country’s development and also for the company’s competitiveness. The rapid increase of R&D demand caused the emergence and the need of a unified system, which evaluates effectiveness of different type of R&D which covers three main areas of activity: basic research (BR), applied research (AR) and development research (DR). Those different types of R&D obviously requires different resources, leads to different processes and, of course, different type of results. That is why the R&D effectiveness assessment in research organizations should be differentiated according to the coverage of their activity type (Laliènė & Sakalas, 2014).

As R&D are unique activities, managers as decision-makers faced the problems of finding the right strategy in institutionalising and communicating the appropriate key performance indicators (KPIs) for evaluating and measuring R&D performance. It requires a separate analysis and research because of the specificity of the R&D activities as compared to other ordinary units at the organisation. Therefore, while planning the KPI of R&D activity, it is important to keep in mind that it is impossible to predict precisely the target production level and quantify it accurately (Laliene & Liepe, 2015).

Hence, the main purpose of this paper is to discuss gained from both the normative and empirical literature regarding R&D effectiveness of measurement and management system in the organisation. This paper focuses in examining at a macro level about the role of strategic communication in supporting and helping managers as decision makers and as the agent of change in institutionalising the performance measurement and management systems at R&D activities. In so doing, the feasibility and applicability of several frameworks or models were analysed to gain insights on the role of strategic communication in supporting the implementation of performance measurement and management practices.

2. Strategic Organisational communication

Communication is perceived as a process where a sender transmits a message via a channel to a receiver (Carey, 1988). The process is successful when the recipient has received the message. Based on this view, communication is finding the right words, expressing them as precisely as possible and selecting an effective medium. Organisational communication is describing at how communication processes contribute to the coordination of behaviour in attaining organisational and individual goals. Thus, the function of organisational communication is to connect individual employees and the organisation. It conceptually consists of employee’s perceptions of the information flow and the climate in which the communication occurs (Pace, 1983). Several research indicate the positive relationship between communication in the organisation to the level of employee’s commitment to reach organisation objectives (Falcione, Sussman & Herden, 1987; Trombetta and Rogers, 1988).

Several studies has shown that organisational communication is one of the most vital link in the organisational chain as the organisation’s strength or weakness depends on the organisation communication strength or weakness. As such, organisational communication is an important driving force of ensuring business performance (Zlate, 2008; Gay, Mahoney & Graves, 2005; Mitrofan & Bulborea, 2013) as communication as it ensure that the organisational cooperative system is dynamic and links the organisational purpose to the participants. Furthermore, it also highlights the multiple interpretations that symbols might manifest as well as the impact of history and various organisational constituents on the communication process (Guffey, 2003; Jaradat & Sy, 2012).

There are three major sources of organisational communication. Downward communication consists of messages from superiors to subordinates. It describes the movement of the message from a person in a position of authority to a subordinate or subordinate group. Upward communication involves messages sent up the line from subordinates to managers/supervisors; from the lower organisational level to the higher levels of authority. Lastly, lateral/horizontal communication consists of the flow of information among peers across or within the departments. All these sources of communication sources are essential for the smooth flow of information within and across the organisation. (Ivanchevich, 2004; Jaradat & Sy, 2012).

Managers use different modes of communication in their work with each type plays a vital role in attaining managerial effectiveness. As compared to written communication, oral communication is preferred by most organisational members as it permits immediate feedback, i.e., one can comment, ask questions, or points can be clarified. Even though written communication are used less often, it still important as written messages can be disseminated to various members of the organisation at the same time in the form of emails, memos, and others. Lastly, non-verbal communication involves all messages that are non-language responses. This mode of communication should not be taken for granted; as hidden messages can influence the process and outcomes of face to face communication (Reilly, 2004; Ohair, 2005; Jaradat & Sy, 2012).

Creating efficient and effective organisation communication is not an easy process. Managers at different levels need to communicate goals and tasks to employees, while the employees need to understand their tasks so contribute to the achievement of the organisational objectives. This process are closely related to the subjectivity of those involved. In this context, employees and manager’s perceptions about the communication process must be considered, because what they think or feel affects how they interact and act with the organisational environment (Arnold, E. & Silva, N., 2011; Borca & Baesu, 2014).

Communication in organisational environment is usually stated as strategic communication as it is viewed as a production and distribution function where strategies and
decisions were made, and communication practitioners were given the task to produce internal or external messages and transmit them through different channels in ensuring attainment of the organisation objectives (Grunig, 1992; Grunig and Hunt, 1984; Falkheimer, 2014).

Strategic communication is largely information transfer controlled by the sender, whose messages are assumed to act as persuasive sources of motivation on passive audiences, in other words is about messaging for effects (Eyre & Littleton, 2012). Moreover, as advocated by Hallahan and et al (2007), strategic communication can be understood as ‘the purposeful use of communication by an organisation to fulfil its mission’ and it is used in different academic areas such as management, marketing, public relations, technical communications, and political communication (Bellou, 2014). Thus, the term strategic communication embraces various goal-oriented communication activities, signalling a managerial approach to the ways in which organisations off all kind communicate (Handbook, Communication, & York, 2015).

Zerfaß et al (2012) mention that strategic communication has become an important organisational asset, and in many cases, presume as a valued dimension of strategic management processes (Falkheimer, 2014). Thus, organisational leaders depend on communication strategists to make them better communicators (Edmondson, Gupte, Draman, & Oliver, 2009). Strategic communication is used by managers as it contributes to the organisation’s effectiveness, trust and legitimacy and efficiency. Strategic communications is used as a a tool for enforcing, enhancing or changing the organisation’s identity among employees and the organisational culture. Strategic communication is related to the importance of maintenance, change or strengthening organisation’s images among stakeholders (Carey, 1988; Alvesson 2011; Falkheimer, 2014).

Thus, various researchers argued the importance of strategic communication in organisation development. Managers are increasing demanded to be communicative leaders (Heide and Simonsson, 2011), i.e., to be strategic communicators of visions, values and goals as well as facilitators of organisational change. Moreover, constructing effective information and communication systems between management and co-workers, and also between organisations and their stakeholders, have become crucial for efficiency. Furthermore, learning from feedback have made managerial communication a core asset for contemporary organisations (Falkheimer, 2014).

The importance of strategic communication for organisational development is based on four interrelated arguments; First, strategic communication is often used by organisations because communication is considered as a contributor to the organisation’s effectiveness. Second, strategic communication is considered important to maintain also strengthening organisation’s images among stakeholders. Third, strategic communications is used by organisation as a tool for enforcing and enhancing the organisation’s identity and culture among employees. Fourth, strategic communications are justified that it may favour openness and transparency between members of the organisation, stakeholders and the public sphere (Falkheimer, 2014).

In this paper, strategic communication and its role in supporting the performance management system for R&D activities has been reflected and described through some arguments which is hope to be valuable in raising further empirical research.

3. Performance Management System for R&D Activities

Performance management system (PMS) is a dynamic and balanced system that facilitates support of decision-making processes by elaborating and analysing all relevant information. PMS, when used appropriately, can be used as an instrument to achieve better results as it build on creating a shared vision of what should be achieved and it also integrates performance with its corporate and functional strategies and objectives. The information from the PMS systems enable the managers, employees and stakeholders necessary to regularly plan, continuously monitor, periodically measure and review performance of an organisation and increases the likelihood of attaining both long term and short term objectives (Striteska, 2012) Wagnerova, 2011). Through the use of the PMS system, the managers and employee has the capability to improve their organisation’s direction, traction, also speed, and most important is to move it in the right direction. (Adkins, 2006).

Thus, the PMS system has the potential in supporting decision making, motivating employees, stimulating learning and improving organisational coordination and communication. In this case performance management can consider as the management processes and management uses/adopts to manage the performance of an organization and influences the behaviour of organisational members. Its consisting of specific steps and principles, which interact and work together in an interdependent way to achieve specified objectives (Taticchi, 2010). Thus, all the main activities, processes and functions within companies are the object of a performance management system (Neely, 2002; Chiesa, Frattini, Lazzarotti, & Manzini, 2008; Paolo Taticchi, Balachandran, & Tonelli, 2012).

Though considerable work were conducted to understand how performance management systems are developed within specific organisational contexts, but there is a lack of specific performance management systems develop that is suitable for R&D context, as R&D activities has been argued to be uncertain and unpredictable. In this paper, we draw on some several perspectives to analyse how performance management system work in R&D units and activities.

The purpose of research and development (R&D) activities mostly is to contribute new knowledge, wether these activities have specific commercial objectives or not. The R&D activities may include creating new or improved devices, products, process systems, and concepts (Silanen. & Williams., 2009). R&D activities usually leads to the development of new products, to the introduction of new machinery for processing and the adoption of new ways to reorganize management; product, process and organisational innovations that contribute to satisfy the demand of the consumer, help a
more efficient production and meet environmental regulation (Acosta, Coronado, & Romero, 2015).

The dispersion of R&D activities is studied in several ways, and at different levels of analysis. Network theorists study long-term relationships between companies, strategic relationships and long-term supplier cooperation. Thus, studies of how companies handle the dispersion of R&D activities have been studied at three different levels of analysis; a strategic (R&D strategy), an organisational (R&D organisation), and a project team level. It has been argued that a useful rule-of-thumb as to where to locate and perform R&D activities is as follows:

1. If the R&D activity is supporting the existing business it should be located in established divisions;
2. If the R&D activity is supporting new business it should initially be located in local laboratories, and later transferred to divisions for exploitation; and
3. If the R&D activity is supporting foreign production it should be located close to that foreign production and be concerned with adapting products and processes to local conditions (Tidd et al., 2001; Richtner & Rognes, 2008).

To be more specific, an R&D department has a role to fulfil two tasks: learning and innovating. Learning means the process or the effort of the management and organisation of the firm to increase their technical knowledge base and prospective technological competencies underlying the product and process innovations. Whereas innovating means is ultimately a practical construct or a respond to the competitive or institutional environment and to help the organisation cope with emerging external or internal contingencies by creating a new or developing the existing product, service, or process (Christensen, 2002; García-Valderrama, Mulero-Mendigorri, & Revuelta-Bordoy, 2008; Gils, Vissers, & Wit, 2009; Walker, Chen, & Aravind, 2015b).

As R&D activities for crucial for organisation to ensure survival in the competitive and dynamic environment, an appropriate PMS system is needed to ensure that those activities must be well-managed and well-controlled with the use of an appropriate performance management system.

However, managers as decision-makers faced into the problems of finding the right and suitable performance measures for R&D units or activities. Research also found that the measures of R&D performance can be utilised for multiple purposes: for strategic control, for justifying the existence of R&D, for providing information and improving activities, for motivating and for benchmarking. However, R&D performance measures selection may be difficult for a series of reasons (Ojanen, 2003); first, the special characteristics of R&D influence the R&D performance analysis problems.

Secondly, the above-mentioned characteristics and challenges bring forth the significance of the influencing factors and dimensions that need to be recognised in order to derive the selection criteria for measures and choose the right performance management system (Bigliardi & Dormio, 2010).

In highly uncertain and dynamic R&D environments, the performance management system serves the purpose of motivating people, particular cautions are required (Kerssen-van Drongelen and Cook, 1997). The main performance management system objective here is to diagnose R&D activities, it is necessary to choose standards to measure performance against that give the possibility to objectively judge the value of a specific indicator and to make comparisons over time, thus enlightening eventual improvement in R&D performance. At the same time, the frequency and the timing of the measurement must be chosen so that the performance management system is capable of gathering and transferring performance data to R&D and top managers timely and coherently with their informational needs. A performance management system is useful if it manages to monitor all of the critical performances that are assumed as dimensions of performance of the system itself (Chiesa et al., 2008).

The objectives for which the performance management system is adopted significantly influence the design of all its constituent elements, both in the contexts of general business and in case of R&D (Chiesa et al., 2008; Ojanen and Vuola, 2006). Defining standards for performance measurement is far more challenging in R&D than other business activities, because of the higher degree of uncertainty, isolation and secrecy that characterises firms’ innovative processes (Chiesa, Frattini, Lazzarotti, & Manzini, 2009). The best dimensions of performance and metrics to measure the performance of R&D depend on the goal and the characteristics of the R&D activity being measured; since applied projects, core technological developments and basic research activities pursue very different strategic objectives, the metric-based evaluation should be differently designed for each R&D type (Chiesa et al., 2009, p 33).

Ojanen and Vuola (2003) present the simplified system approach of selecting and developing performance measures and evaluation methods for R&D, were are such a dimensions as the strategic objectives, the purpose of measurement, the level of analysis, the type of R&D and others integrated and they determine the whole evaluation process of choosing the right set of organization-specific measures for R&D (Laliené & Sakalas, 2014b).

The response to this crisis in selecting the suitable performance management system for R&D department, is to recognise the need for better management of R&D activities; a need exists for R&D departments to render accounts of their activities, and for their operational objectives to be focused on supporting the strategy of the company, to enable the decision-makers to identify and justify the potential rewards from these activities. However, we certainly find a lack of homogeneity in the consideration of the indicators for R&D, since each company develops them in a different way, making it practically impossible to undertake any type of research that relates the advantages of the use of this technique with other parameters that could be available to the researcher (Garcia-Valderrama et al., 2008).

4. The Role of Strategic Communication in supporting Performance Management System for R&D Activities

Managing R&D is considered as vital for many organisations to compete in changing and unpredictable
environment. Hence, implementing a control system such performance management system to measure and manage the R&D performance become important. In these matters, managers as decision-makers have always been faced into the problems of finding the right performance measures for R&D, conducting and communicating it to R&D members because defining standards for performance measurement and management is far more challenging in R&D than other business activities, because of the higher degree of uncertainty, isolation and secrecy that characterises firms’ innovative processes (Chiesa et al., 2009). Managers depend on strategic communication to make them better communicators as organisational leaders. Strategic communication often address what should be communicated, when it should be communicated, and how it should be communicated (Adler et al., 2001; Dillard et al., 1999; Edmondson, Gupte, Draman, & Oliver, 2009).

It is argued that strategic communication became a systematic series of sustained and coherent activities, conducted across strategic, operational and tactical levels, that enables understanding of target audiences, identities effective conduits, and develops and promotes ideas and opinions through those conduits that promote and sustain particular types of behaviour. Regarding the role of strategic communication in supporting the performance management system practise, its help the organisation to presents and promotes the key performance indicators (KPIs) through the intentional actions of its leaders, employers, and communication practitioners. An integral part to this process is also the use of relationships building or networks (Tatham, 2008; cited in Techau, 2011; Bellou, 2014). As mentioned previously, that strategic communication is about messaging for effects. In so doing, when conducting and implementing performance management system, managers needs to develop some strategies to communicate the key performance indicators (KPIs) to the members of organisation.

It was stated by some researcher that conducting and implementing performance management system for R&D is rather more difficult considering the uncertainty and the dynamic of environment that faced during R&D activities. Some researchers recognise that different R&D programmes have different levels of risk. Some programmes are primarily aimed at incremental improvements, and tend to be low-risk: a larger investment leads to larger incremental returns with a great deal of certainty. Other programmes are aimed at achieving breakthroughs, and tend to be high risk: an increase in investment increases the probability of success (Baker & Adu-Bonnah, 2008, p. 2). Therefore while planning the KPI of R&D activity, it is important to keep in mind that it is impossible to predict precisely the target production level and quantify it accurately (Lalienne & Liepe, 2015a). In other words, planning, conducting and implement the KPIs as the part of performance management system become a very complex procedure. In so doing, a specific strategic communication would be needed. Leaders for R&D activities have to be more proactive, considering the uncertain and dynamic environment. The process of communicating the KPIs must be in no delay and in appropriate time so all members can continue and begin the activities sooner before any changes made caused by the dynamic change in environment and before facing another high degree of technological turbulence. It is common especially in highly uncertain and dynamic R&D environments, the performance measurement and management system serves the purpose of motivating people, particular cautions are required (Kerssen-van Drongelen and Cook, 1997). In the case of motivational purpose, the assumption is that by giving the right information and continue with providing feedback information about the performance of every members, people will be motivated to change their behaviour as expected by the organisation. In short, designing and then communicating a performance measurement and management system for R&D activities is a very critical but challenging task for supporting decision making and people motivation (Chiesa et al., 2008).

II. RESEARCH APPROACH

A systematic literature review was performed using the following databases ScienceDirect and Emerald with the following search term combinations: organisation communication, strategic communication, performance measurement system, performance management system, research and development, performance management system for R&D activities, strategic communication in implementing performance management system, strategic communication at R&D department A total of 278 of articles were found as a result, of which 32 were selected for more detailed analysis on the basis of their relevance. In addition, author searched and discovered some additional references by searching forward and backward referencing of the most relevant discovered articles. A handbook of managerial-organisational psychology, some books of organisational behavior and management, also some books of business communication were used as additional sources to extend the literature review to cover more about communication between managers and organisation members.

Research Gap

Through several decades of research on performance management system and practices, the measurement for R&D studies have produced some deal of data, but has not been discuss about how the performance measurement and management system for R&D activities being communicated to the members, how specifically the information and KPIs inform to the members considering the uncertainty and dynamic changes of environment surrounding R&D activities. Poolton and Barclay conclude that managers are still relying on gut feeling regarding “best practice” in R&D activities. Some research has tended to be theory-driven instead of being application-driven (Poolton & Barclay, 1998).

Moreover, literature shows that an effective performance measurement and management system for R&D needs an appropriate structure. Designing the structure of the performance measurement and management system for R&D means to identify the control objects whose performance have to be monitored and to select the specific dimensions of performance and indicators they are responsible for. In this case the role of leaders in conducting and communicating strategically in monitoring the performance management
system implementation, in evaluating the KPIs and also in decision making is considerably important (Poh et al., 2001; Sandstrom and Toivanen, 2002; Nixon, 1998; Schumann et al., 1995; Hauser, 1998; Bremser and Barsky, 2004).

Defining also communicating standards for performance measurement is far more challenging in R&D than other business activities, because of the higher degree of uncertainty, isolation and secrecy that characterises firms’ innovative processes. Considered the significant differences between Research and Development activities mentioned above, it is reasonable to expect that the design of the constitutive elements and the way that leaders conducting, communicating also evaluating should be differentiated according to the R&D type to which it is applied (Chiesa et al., 2009).

All those literature review conclude that there are no such appropriate strategic communication in conducting and implementing performance measurement and management system that might be fit for every R&D activities in every kind of industry and in such a different environment. Therefore, first, indicators within the R&D performance measurement and management system need to be modify to keep the overall R&D project within the expected goals.

Second, leaders need strategic communication to deliver every information related to KPIs and organisation’s objectives so the members can get precise understanding of their targets. Leaders through strategic communication will involved within each phase of the R&D activities to guides the team members in identifying their contributions in terms of achieving the overall goals. Further, strategic communication of the leaders will establish the allocation of roles and responsibilities to the correct personnel will ensure the right people are doing the right job thus enhancing the quality of work.

This situation opens up an opportunity for researcher and academicians to seek more information and develop some in depth review about proper strategic communication to support the performance measurement and management system specifically for R&D activities.

**Future Research Agenda**

The difficulties in selecting the suitable performance measurement and management system for R&D department, also the difficulties in conducting and selecting the proper strategic communication needed for better management of R&D activities has been argued by several researchers. However, this paper certainly find a lack of homogeneity in every information related to KPIs and organisation’s decision making is considerably important (Poh et al., 2001; Sandstrom and Toivanen, 2002; Nixon, 1998; Schumann et al., 1995; Hauser, 1998; Bremser and Barsky, 2004).

Hence, those things will enable the managers as decision-makers to identify and justify the suitable strategic communication for conducting and implementing performance management system for R&D activities.

As a conclusion, there is no such strategic communication in conducting, implementing and evaluating performance measurement and management system that work successfully for all projects or companies dealing with R&D activities. Every project, every product development and every research that concern innovations will need different forms of control and management and thus a different strategic communication. The literature review in this paper uncovers avenues for future research encompassing the following areas:

a. In-depth research on the specific model of strategic communication for management control system, performance measurement and management system specifically for R&D activities with high uncertainty. Research concerns should revolve around such questions as what kind of information needed and what kind of strategy in communicating the key performance indicator suitable for the R&D unit.

b. Research that emphasises strategic communication types, dimension and values along different types of R&D activities. This should enrich the existing literature about performance measurement and management system for R&D activities, which is currently limited.

c. In-depth research about the use of strategic communication in supporting performance management system for R&D activities.

d. How the strategic communication can support the performance management system and could help the decision making and learning process.

**References**


