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## PEOPLE STRATEGY: UNDERSTANDING VOLUNTARY TURNOVER IN ORGANIZATIONS USING AN ILLUSTRATIVE CASE STUDY

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### Abstract

Voluntary employee turnover has meaning for an organization. What that meaning is depends on the distinctive and complex milieu, culture, and context of a particular enterprise. This understanding is crucial if those responsible for human capital management are to evaluate employee turnover and make actionable recommendations that are positively aligned with organizational objectives. If organizational understanding about its voluntary employee turnover is unclear, misplaced, or absent, then crucial meaning is lost and valuable insight is wasted. In order to fully explore this theme, this article explores the topic of voluntary employee turnover using a systems thinking framework as a theoretical lens. First, a systems thinking perspective will be highlighted by integrating the theory with the subject of employee turnover. Then, an illustrative case study will be explicated, which examined the voluntary employee turnover within a unit of a global organization with offices in over 90 countries. The systems thinking lens presents interesting implications for those responsible for managing human capital, as this perspective is not often applied to the subject of voluntary employee turnover within an organization.

JEL Classification: J63, J01, J50

### INTRODUCTION

Voluntary employee turnover has meaning for an organization. What that meaning is depends on the distinctive and complex milieu, culture, and context of a particular

enterprise. This understanding is crucial if those responsible for human capital management are to evaluate employee turnover and make actionable recommendations that are positively aligned with organizational objectives. If organizational understanding about its voluntary employee turnover is unclear, misplaced, or absent, then crucial meaning is lost and valuable insight is wasted. Today, this reality has never been more critical, as organizations endeavor to leverage human capital and make the most of this crucial asset in obtaining sustained competitive advantage (Premalatha, 2011)

Yet, few companies strategically align efforts on retaining key talent and are often faced with turnover that offers little meaning for the strategic guidance of the enterprise. Although the topic of employee turnover has been researched and discussed in both practitioner and academic settings, it remains one of the most important issues for management today. It has particular significance to those responsible for mitigating increased operational expenses, containing productivity losses, controlling recruitment costs, and limiting the damage caused by the loss of key talent, all factors resultant of unexamined voluntary employee turnover (Kazi & Zadeh, 2011; Milbourn, 2012). "In an age when the job market moves toward and away from employers and employees' benefit, the need for analyzing voluntary turnover and retaining talent becomes imperative for most...organizations" (Premalatha, 2011, p.56).

Grounded in this context, the purpose of this article is to explore the topic of voluntary employee turnover using a systems thinking framework as a theoretical lens. To accomplish this aim, this article will first highlight the systems thinking perspective by integrating the theory with the subject of employee turnover. Then, an illustrative case study that was conducted in the spring of 2012 will be explicated, which examined the voluntary employee turnover within a unit of a global commercial and personal insurance company, with offices in over 90 countries. This explorative approach is a useful and appropriate research technique when describing a particular phenomenon, especially when the goal is to help in the interpretation of other data and the synthesis of research from different sources (Dörrenbächer & Gammelgaard, 2011; Mitra, Abubaker, & Sagagi, 2011). Senge's (1990a, 1990b) theory of systems thinking was applied to this topic as an analytical lens in order to provide a perspective that is not often applied to the subject of voluntary employee turnover within an organization.

## **VOLUNTARY TURNOVER AND THE APPLICATION OF SYSTEMS THINKING**

Systems thinking is "a discipline for seeing wholes" (Senge, 1990a, p.117) that allows organizations to understand interrelationships between all aspects of an enterprise, even when a linkage is not apparent. The essence of a systems thinking perspective lies in the notion of conscious recognition of interconnections within an organization, recognizing that key interrelationships influence behaviors and outcomes over time (Senge 1990b; Senge & Fulmer, 1993). This perspective allows individuals to see that everything is connected and problems exist in context and cannot be effectively addressed unless the issue is understood within the existing system. This has significant implications for employee turnover, which is defined as "the rotation of workers around the labor market; between firms, jobs and occupations; and between the states of employment and unemployment" (Kazi & Zadeh, 2011, p. 985).

Employee turnover is typically characterized as voluntary or involuntary. Involuntary turnover is considered beyond the control of management or the individual employee, such as when an employee retires, dies, has a long-term illness, must relocate, or is terminated by the

employer. On the other hand, voluntary turnover occurs when an employee personally decides to terminate current employment with an organization. This decision may often be mitigated through the actions of an organization's management team (Kazi & Zadeh, 2011). Voluntary turnover can then be delineated into functional or dysfunctional dimensions. "Dysfunctional turnover is often detrimental to an enterprise, since it frequently includes the departure of an organization's high performers or the departure of minority groups. The exit of either of these key groups causes the erosion of crucial organizational knowledge and diversity, which eventually leads to high replacement costs (Wilson, 2012). In contrast, functional turnover does not harm an organization and is part of the natural course of business if it includes the departure of employees that provide inconsequential or no positive benefit to the enterprise.

The most common type of employee turnover is voluntary (Wilson, 2012) and many organizations are satisfied with finding quick and temporary solutions to these occurrences, with many viewing this phenomenon as something to be simply tolerated (Senge, 1990b). This type of thinking leads to inefficiency, as the root of the problem is not identified and the issue is likely to reoccur over time. A systems thinking perspective can create meaning around turnover, seeking to understand the type of voluntary turnover (functional or dysfunction) and mitigating any deficiencies. This provides managers and leaders with understanding to the relationships, interconnections, and causes of dysfunctional turnover within an organization and to understand "the perception of reality from many different points instead of one" (Skarzauskiene, 2010, p. 50).

This has particular significance for professionals whose responsibility lies in the area of effective human capital management and strategic human resources, since systems thinking is associated with higher organizational performance (Senge, 1990a, 1990b). This is due to the ability of a systems thinking perspective to open the door for new meaning regarding the employee turnover, which allows an organization to continuously create new knowledge to sustain its competitive advantage (Paajanen, Kantola, Karwowski, & Vanharanta, 2010). This is rooted in the understanding that knowledge starts at the individual level and is then carried up through the company, through departments, divisions, and finally the whole organization. This is where real value creation exists (Paajanen et al, 2010; Ulrich, 1997).

Yet, the execution of this paradigm in practical terms is often elusive for organizations that wish to further the value created by its human capital. Skarzauskiene (2010) addresses this shortcoming by identifying three important tenets that are important for the realization of systems thinking within an organization. First, there must be an awareness of systems and the conscious perception and philosophy of systems at all levels of the enterprise. Within this context, those focused on human capital management must first understand the concept of systems thinking and fully comprehend the organizational environment, as well as communicate this concept to employees. Secondly, line managers and organizational leaders must adopt an attitude toward the organization as an open socio-cultural system that is capable of self-organization. "Socio-cultural systems are characterized by dynamic complexity that arises from the interactions of agents over time" (Skarzauskiene, 2010, p.51). Because organizations are complex, leaders must view them as ever-changing systems, which ultimately will change the leader's role within the organization. Leaders must not only be open to this change, but must serve as a change agent (Ulrich, 1997).

This results in organizational leaders taking on the new role of 'constructor' of the organization. This is a necessary element if a systems thinking perspective is to be realized

within an enterprise. "The best way to understand the system is to construct it, to get a handle on emergent properties, to understand the processes that produce them... and appreciating the parameters affecting the system's existence" (Skarzauskiene, 2010, p. 51). In other words, managers and organizational leaders will only have control over what they themselves create. If they choose to take only partial responsibility and control over their organization, then they cannot expect to obtain the results they desire.

Grounded in this perspective, voluntary employee turnover has been shown to include four distinctive determinants, including job satisfaction, organizational commitment, job involvement, and individual performance (Premalatha, 2011; Westover, 2012). Job satisfaction is often characterized by intrinsic and extrinsic factors, as follows:

Intrinsic factors, such as achievement, recognition, the work itself, responsibility, advancement and growth are related to job satisfaction and attributed to employees when they were satisfied with the job. When employees were dissatisfied, extrinsic factors such as company policy and administration, supervision, interpersonal relations and working conditions were quoted as reasons. (Premalatha 2011, p.57)

However, an employee's job satisfaction level and decision to terminate association with an employer are highly correlated to the state of the economy. This has particular significance today, where many organizations have downsized and employees have reported being increasingly overwhelmed with work, which ultimately causes further dissatisfaction. However, a consistent increase in turnover over time typically signifies trouble within a company. If management ignores these issues and simply re-hires, the turnover will likely continue over time (Yurtseven & Halici, 2012).

Organizational commitment is another key determinant in an employee's decision to terminate association with an employer. Commitment is an essential part of life, whether it is in work or personal relationships. However, employee commitment is generally defined in three ways. First, employee commitment can be characterized as one of *compliance*, which is a behavior designed to gain rewards. Secondly, employee commitment may be defined as a desire to remain with the organization due to its appealing values and goals. Finally, employee commitment can take the form of internalization, which is behavior driven by internal goals and values of the employee and their consistency with that of the organization. Using this framework, Premalatha (2011) found:

1. Identification and internalization commitment were negatively related to turnover intention and active turnover.
2. Organizations with strong career and reward systems had employees with higher levels compliance-based commitment
3. There was no relationship between organizational commitment and voluntary turnover among employees who had tenure less than one year. Employees tenured more than one year had an inverse relationship between commitment and turnover. This is an important relationship to remember as an organization must remain supportive and committed to their employees throughout their employment. An effective organization will constantly motivate their employees and enhance their goals and values to strengthen the organizational culture.

Job involvement, another key determinant in an employee's decision to terminate association with an employer, is closely aligned with organizational commitment. Job involvement is the

extent to which an employee identifies psychologically with his or her job; whereas, organizational commitment involves the employee's identification with the values and goals of the organization and desire to remain a part of that enterprise (Premalatha, 2011). The combination of both high organizational commitment and high job involvement in an employee designates that individual as an *institutional star*, defined as an employee who is least likely to leave the organization (Blau & Boal, 1987). On the other hand, *corporate citizens* are employees with low job involvement and high organizational commitment, and are less likely to leave an organization than those with high job involvement and low organizational commitment due to their strong organizational identification (Blau & Boal, 1987; Premalatha, 2011).

The relationship between turnover and employee performance is considered another key determinant of voluntary turnover; however, there is conflicting research concerning this dimension. Some studies indicate that employees with lower performance levels were more likely to leave their job than higher performers. On the other hand, other studies demonstrate that turnover was related to job performance, even for higher performing employees (Nyberg, 2010; Premalatha, 2011; Yurtseven & Halici, 2012). Nonetheless, "though the factors identified such as job satisfaction, organizational commitment, job involvement and performance, are stronger in accounting for voluntary turnover, it depends on individual's intentions to quit, which acts as an intermediate linkage between the variables and actual turnover" (Premalatha, 2011, p. 63). In the end, it is exceedingly difficult to predict an individual's intention to quit, as it is dependent on particular personality traits, an individual's intentions, and alternate employment opportunities.

#### **UNDERSTANDING EMPLOYEE RETENTION WITHIN A SYSTEMS PERSPECTIVE**

Sound organizational objectives should include strategies to decrease undesirable employee turnover, which in turn reduces training costs, recruitment expenses, and the loss of talent and organizational knowledge for the enterprise (Ananthan & Rao, 2011). These strategies have become more important than ever, especially since the effects of the global financial crisis in 2008 continue to linger in virtually every corner of the world. The truth is that companies can no longer afford to ignore dysfunctional turnover (Ortlieb & Sieben, 2012). Loss of high performers within an organization "leads not only to costs due to lost productivity, recruiting and training, but also to losses of institutional knowledge and leadership, both current and potential" (Nyberg, 2010, p.440). The retention of key performers should be part of an integrative and comprehensive system that is strategically aligned with the overall organization's mission and objectives.

Yet, how does an organization identify *high performing* employees and initiate a focused plan to retain these key individuals? The first step is to identify what *potential* means to the company and align that meaning with the corporate strategy. This meaning is going to be unique to each organization and will ultimately drive sustainability and competitive advantage for the firm. To accomplish this end, the management team and human resources must carefully review its objectives, define its goals, and set clear expectation. Within a systems perspective, this also includes deriving meaning from an individual's future performance, as well as the interactions of that individual with other employees, departments, units, and beyond. Only then can a company truly evaluate what *potential* means to that organization. "Best practice organizations start with a strategic focus but periodically re-examine their strategic priorities and refresh their pool of candidates" (Fernández-Aráoz, Groyberg, & Nohria, 2011, p. 80).

Once meaning is defined, an organization can begin the identification of the organization's top performers, which can be accomplished by a variety of methods. For example, one approach is to gather recommendations from management, which requires highly specific and targeted training that provides managers with the understanding and skills to accurately cultivate and select their high performers. Another method is to utilize the annual performance appraisal process to target key performers within an organization. However, the preferred manner is that appraisals are supplemented by a subjective view of the candidates in the form of supervisor recommendations and other measurable, highly-specific tools that are specific to the individual job, department, and organization (Fernández-Aráoz et al., 2011; Ortlieb, & Sieben, 2012).

During this process, HR and line managers need to work together when selecting top performers and the measurement strategies to help identify them (Cosack, Guthridge, & Lawson, 2010). Similarly, employees that don't fit the *top performer* category should not be overlooked nor undervalued during this process. In fact, management is encouraged to look in "less obvious places for more average performers whose skills or social networks may be critical" (p. 136). Once key employees have been properly identified, the next step is to identify valid assessments of measuring potential and future performance. The use of personality tests is not recommended for this measurement due to inadequate predictor accuracy and the instrument's general low validity. Instead, the use of multiple, diverse, and highly detailed references from others are suggested, as well as in-depth, behavioral interviews (Fernández-Aráoz et al., 2011).

Regardless of the strategy utilized to identify, retain, and develop key employees and high performers, organizations must be diligent to ensure that these methods are effective. This takes on particular significance given that 40% of internal job moves made by those identified as high-potentials end in failure and 12% of high potentials are actively searching for new jobs outside their organization (Martin & Schmidt, 2010). However, a study of over 20,000 high-potential employees over a six year period provides some insight into the most common errors companies make with regard to retention strategies of high performers, as well as suggestions on how to correct any deficiency. For example, Martin and Schmidt (2010) point out that when a company assumes that all selected high potentials are also highly engaged, then it has fallen victim to the first mistake. This research on high-potential employees has found:

One in four will leave the employer in one year, one in three admits to not putting all his effort into his job, one in five believes their personal aspirations are quite different from what the organization has planned and four out of ten have little confidence in their co-workers and even less confidence in the senior team. (p. 56).

These may be very surprising statistic to many organizations, as there is often a certain expectation of dedication and loyalty from top performers. After all, an organization and its management often spend precious time and resources to develop these individuals into shining stars. However, to prevent this lack of full-commitment from top performers is to drive their engagement by offering them: (1) autonomy and self-direction, (2) opportunity to develop self-mastery, (3) diverse professional development and leadership opportunities, and (4) opportunities to take on new roles within the organization (Martin & Schmidt, 2010; Rice, 2011).

Similarly, it is often problematic for organizations to follow the commonplace routine of delegating the development of top talent to mid-level managers. For example, organizations often give line managers full control of ensuring employee development because it is assumed that these managers are the most familiar with the strengths and weaknesses of top talent. However, Martin and Schmidt (2010) caution against this approach because managers of business units tend to select top talent candidates solely on recent performance and often provide very narrow development opportunities that are limited by the business units' current scope and needs. This prevents high potential employees from being fully developed and tested in a wide variety of business situations, especially those that pose significant challenges and risk.

Together with offering robust and diverse developmental opportunities, the retention of high performers is often maximized through a variety of financial incentives and non-monetary inducements. The value and dimensions of these incentives should be unique to the particular organization, thus a one-size-fits-all scheme is to be avoided. Within a systems thinking framework, these inducements can be understood as a key determinant that influence behaviors and outcomes over time. Although there may be disapproval by some to reward certain employees better than others, these incentives should be aligned with the individual's contributions and tied to the overall business strategy. This is accomplished by understanding how the high performing employee is rewarded in terms of individual contribution, as well as how that employee's performance affects other individuals, departments, and cross-functional operations of the enterprise. Finally, the success of this strategy is dependent on the ability of senior management to effectively communicate this scheme and fully share it with high potentials (Martin & Schmidt, 2010; Rice, 2011; Senge & Fulmer, 1993; Stone, 2010).

### **INTERNAL AND EXTERNAL ORGANIZATIONAL CONDITIONS**

Employees will likely consider both internal and external conditions when contemplating the decision to voluntarily leave a company's employment. Within a thinking systems perspective, these internal and external conditions are viewed in a holistic and integrative mode, especially in the manner in which these conditions impact the intrapersonal, interpersonal, and intergroup interactions of the organization and the respective employee (Laszlo & Krippner, 1998). These internal and external conditions are often referred to as *desirability of movement*, as they pertain to the factors that affect an employee's interest in leaving and organization and the ease of movement or alternate opportunities. These two dimensions create a complex web of interacting factors that work together with other relationships and interconnections that affect voluntary employee turnover (Laszlo & Krippner, 1998; Nyberg, 2010).

Within this context, high performers who are awarded for their accomplishments and understand the connection between their work and their rewards will likely aspire to stay with an organization that values their efforts and achievements. Conversely, top performers who are desirable to external companies and do not receive this recognition will be more likely to voluntarily leave. This notion is aligned with the theory that higher performers will often have greater access to external opportunities (Nyberg, 2010).

Similarly, Nyberg (2010) found other key factors that affect a top performing employee's decision to leave an organization, as follows:

- The higher the pay growth, the lower the desire to voluntarily leave, thus validating the use of recognition and rewards for high potentials.
- High performers require greater rewards than lower performers to feel the same satisfaction, which further expands the importance of contingent rewards.
- Promotions often increase the profile of top performing employees to external organizations; however, promotions may decrease the appeal of movement by increasing organizational attachment.
- Voluntary turnover of high performers often increases during periods of relevant high unemployment, since companies often decrease pay growth during these periods.

These factors illustrate that strategies to decrease voluntary turnover of higher performers must be tailored with a focus on the enterprise as a system, as well as the particular factors affecting the high performing employee. Analyzing performance levels in relation to the dimensions of the internal and external environment allows one to view the situation holistically and in an integrative manner. This process brings the possibility of new meaning of the rates of voluntary turnover among high performing employees, especially as it relates to pay growth and job progression of top talent. As a result, managers must remain mindful of the many complex and interrelated determinants of turnover (Laszlo & Krippner, 1998; Senge, 1990a)

#### **AN ILLUSTRATIVE CASE STUDY**

In June of 2011, an illustrative case study was conducted in order to explore the topic of voluntary employee turnover utilizing systems thinking as theoretical framework. The study site was a U.S. based business unit of an international organization, where a particular division was experiencing up to a 30% loss of its work force due to voluntary employee turnover. Information collection involved unstructured interviews with current divisional employees and managers, as well as four former employees who had quit. Data on performance ratings of former employees, recruitment costs, exit interview expenses, training costs, associated administration expenditures, and overtime expenses were also obtained from divisional management. The division defined a high performing employee as one who receives a performance rating of "1" or "2" out of a scale of 1 – 5, where "1" designated top performance and "5" indicated inadequate job performance. When actual expenses were not tracked by the organization, estimates were made by divisional management.

Using a systems perspective, it was determined that this divisional turnover likely contributed to additional employee turnover company-wide, causing the organization to experience an unprecedented overall turnover rate of 46% by year-end 2011. At the time of this study, the divisional management team was ill-prepared to keep-up with the turnover and was challenged to recruit and hire adequate replacements. As a result, remaining divisional employees within the study site reported low morale and described feelings of unease, especially as they anticipated the next turnover announcement from their fellow colleague.

As a result, remaining employees within the division reported feelings of frustration and strain as workload demands increased due to the loss of their skilled colleagues. The divisional management team was aware and understanding of these sentiments, as well as concerned that additional turnover would exacerbate these feelings. Descriptive data analysis revealed that 83% of those who quit were considered high performers, as measured by their annual performance evaluations. Although the management team took steps to replace

theses employees, 30% of new hires quit within the first three months (three out of 10 workers).

Former employees, who all were identified as higher-performers within the division under study, were asked: (1) what caused them to begin looking for new employment, (2) what confirmed their final decision to leave, and (3) what feedback they provided to the company during their exit interviews. Study results revealed that low job satisfaction was the main reason for seeking their new employment. All former employees attributed their decreased level of job satisfaction primarily to lack of job recognition. Because of their high performance ratings, they were given responsibilities for highly complex work; however, they felt they were not appreciated nor properly rewarded for the level of their efforts and commitment. For example, they reported being evaluated by the same standards as their lower performing counterparts, even though they consistently handled work that involved financial risk for the division and required excellent customer service.

Interviews with former employees also revealed that lack of leadership, as well as professional opportunities, were key factors in their decision to quit. For example, these high performers reported that the organization did not demonstrate the capacity or the commitment to provide opportunities for advancement, which stymied their ability to "grow within the company." Combined with the lack of recognition, this factor was a significant catalyst for their decision to leave. Similarly, former employees reported that their direct managers often had very poor communication skills, limited leadership acumen, and exhibited low levels of engagement. As a result, there was limited confidence in senior management and overall low morale of the division.

The organization conducted exit interviews with former employees through a telephone conference with a human resource representative, typically lasting approximately 15 minutes. Former employees were also asked to complete a questionnaire, which consisted of closed-ended questions with no room for feedback. Case study investigation regarding these exit interviews revealed that former employees perceived exit interviews as superficial and perfunctory, as the human resource representative managing the exit interview did not ask questions about their personal experiences, nor asked for recommendations. Overall, former employees believed that the information shared during their exit interview would not be used for organizational change and that made them "feel better about their decision to leave."

Case study interviews with current employees revealed similar sentiments and perceptions as those of former employees. Like those who quit, current employees were also considered high performers by the organization. These individuals have been employed at the study site for a minimum of three years and were asked their perceptions and opinions concerning the incidence of voluntary employee turnover within their unit. In the same way, these employees expressed low levels of job satisfaction, primarily due to the intense work demands as a result of the exodus of skilled colleagues from their unit as a result of voluntary turnover. Current employees believed that the organization has put its best efforts into replacement, recruitment, and re-staffing activities, such as weekly updates on recruitment initiatives. However, there has been a dearth of activities designed to retain existing employees and stave off continued unwanted turnover. However, none of the current employees reported plans to look for employment elsewhere.

A positive outcome from these circumstances is the development of new professional opportunities within the business unit for remaining high performing employees. These

individuals were given the opportunity to participate in a two year job rotation with counterparts in another unit in order to expand experience and expertise levels. There was also the creation of another management position within the unit, which was opened to both internal and external candidates. The interviews to staff that position were currently in process during the time of this study.

When measuring the true cost of volunteer employee turnover, all associated expenses must be considered, including costs involved in recruiting, interviewing, administrative associated with hiring, training, as well as overtime paid to employees who have to do the work of those who quit. As Kazi and Zadeh (2011) stated, "the result of an increasing job turnover rate increases the cost of the organization, which most of the time becomes a reason for their income statement bottom line number to experience a declining trend" (p. 985). Within a systems perspective, it extends beyond the individual department experiencing the turnover, and affects the ability of an organization to fulfill its organizational objectives overall. "Cost of turnover is usually categorized into four primary categories: (1) separation processing costs, (2) replacement hiring costs, (3) training new hire costs and (4) lost productivity or business costs" (Cost of Turnover, 2005). However, indirect costs are more difficult to measure, such as expenses associated with loss of productivity, loss of organizational expertise, and customer dissatisfaction. Although literature indicates that direct replacement costs can often reach as high as 50%-60% of an employee's annual salary, overall replacement costs associated with turnover can often range from 90% to 200% of an employee's annual salary (Wilson, 2012).

Human resource professionals play a crucial role in understanding the impact of this kind of turnover. By carefully analyzing turnover data, HR professionals are able to "view the aggregate cost of turnover for the entire organization and, when possible, learn its root causes and suggest possible solutions" (Cost of Turnover, 2005). However, it is crucial that HR effectively communicates this information to senior management. Providing real financial figures help senior management understand the urgency of the circumstance, as well as facilitate the need for a concerted strategy to address the turnover.

### **IMPLICATIONS FOR HUMAN CAPITAL MANAGEMENT**

This exploration illustrates the need for purposive retention and recruitment strategies that takes into account the implications on the entire system, particularly as it relates to an organization's most critical employees. In the case of the departure of high performing individuals, it is not sufficient to simply replace employees and hope for the best. Instead, management must take the time to conduct a thorough, enterprise-wide situational analysis to determine what circumstances led to the voluntary turnover, as well as inter-and intra-departmental impact. This process should always begin with the respective department's re-alignment with the overall organizational strategy, starting with a clear definition of all business goals.

Skarzauskiene (2010) clarifies this process by describing managers as *constructors* within their particular unit, with the success of the department dependent on their leadership. Once organizational goals are outlined, all levels of management must find ways to effectively communicate their strategy and create actionable steps for employees that are both efficient and effective. While the exact process will vary depending on the employee profile and culture of the particular organization, clearly communicating the course of action and expectations to employees helps facilitate the prescribed plan. Together with a

comprehensive socialization strategy, these steps are essential when helping the employee internalize and understand the organizations' values and culture (Wilson, 2012).

Within a systems thinking perspective, it is beneficial for the organization and respective functional areas to remain flexible and innovative. This allows all employees to take the time for reflection and thoughtful dialogue about the challenges that face them, particularly those in leadership positions (Skarzauskiene, 2010). In the case of dysfunctional voluntary turnover, this may involve providing technical training to line managers to address the crucial issues occurring in their departments. Training can take the form of one-on-one mentoring, targeted leadership development classes, tutorials on effective communication, and professional development in the area of retention of high performers.

This aligns with the recommendations of Hrebiniak (2005), who explains that leaders often lack these very basic skills. "The problem is that managers know more about strategy formulation than implementation. They are trained to plan and not execute" (p. 5). This becomes most apparent when an organization faces challenges or critical changes, as most senior managers turn to strategy formulation yet fail to fully execute their plans. This often occurs because senior managers believe that strategy execution is to be handled by lower-level management (Hrebiniak, 2005). This often leads to a fundamental lack of confidence in organizational leaders by front line and lower level employees.

In contrast, high performing organizations with strong retention schemes had a different leadership approach, which involved defining clear behaviors that employees must exhibit in order to achieve departmental and organizational strategic objectives. The formulation and communication of these behavioral guidelines were not delegated to other levels of management. Furthermore, the guidelines were directly aligned with the capabilities and talents of respective employees, with managers offering consistent direction that helps promote the desired behaviors and performance (Jamrog, Vickers, Overholt, & Morrison, 2008; McGuire & Rhodes, 2011).

Once strategic priorities are clearly defined and performance behaviors are properly measured, an employee turnover analysis should be initiated. An effective analysis asks three key questions: 1) What is the turnover rate? 2) Who is leaving? 3) What are the costs of current turnover? (Wilson, 2012). However, these questions are only the first piece of the puzzle. Using a systems thinking perspective, there should also be a targeted turnover analysis that addresses current employee feedback, as well as exit interviews with former employees. Current employee feedback should include individuals inside and outside the affected unit, as well as feedback from external organizational stakeholders. Often, feedback results in restructuring to ensure that the underlying arrangement of a department or enterprise is appropriate and can effect change within the system. Sometimes, this restructuring can have transformative effects, both within the affected unit and throughout the entire organization (Senge, 1990a).

## **CONCLUSION**

A well-developed strategy and its execution are critical to organizational success. Therefore, it is important that those responsible for human resource management (as well as those responsible for an organization's human capital) adopt the role of *strategic partner*. Ulrich (1997) describes as "the primary action of a strategic human resource manager is to translate business strategies into HR strategies" (p. 27). Organizations dependent on the

quality of internal and external customer service must be diligent to attract and retain high performing employees. Depending on the size of the enterprise, HR and human capital managers must implement a retention plan that is specific to each unit's strategic goals. They must meticulously monitor who is exiting the organization, especially high performing individuals. They must closely measure how many employees are leaving and the trends associated with these departures. Finally, the unit-specific and organizational-wide costs associated with this voluntary turnover must be assiduously measured and evaluated. This includes both financial and non-fiscal costs and impacts.

The implications for economic policy also becomes a crucial issue when the real cost of voluntary employee turnover is considered. These real costs extend beyond the organizational context and are broader than the direct and indirect impact to an organization's bottom line. For example, decreased productivity, reduced employee commitment, negative customer sentiment, and increased human capital costs (recruiting, interviewing, and training costs) have direct economic consequences that extend beyond a company's balance sheet. Most importantly, involuntary turnover frequently provides insight into overall consumer confidence, since employee behavior of this kind tends to increase during times of economic optimism. This kind of insight can be a useful policy guide for both organizations and government policy-makers.

Similarly, economies that follow a strategy of knowledge-sharing to drive innovation must closely monitor involuntary employee turnover and its cyclicity. Voluntary turnover erodes the ability to share tangible and intangible organizational knowledge. This diminished ability can extend beyond the confines of an organization and hamper the capacity of an entire sector. For example, a robust 21st century economy is fueled by continually evolving technology and innovation. This demands open channels of communication, where organizations create a vibrant community of repeated and frequent information sharing. The internal organizational challenges faced by involuntary turnover, especially in the area of knowledge-sharing, often impedes the external communication and community building among organizations necessary to generate active and meaningful innovation and growth.

These global issues make it vital for HR professionals to take a leadership position in the development of an efficient and effective exit interview process that properly collects all feedback and translates the information into meaningful and measurable changes. Since retention of high performers is especially important, HR must champion targeted pay-for-performance and talent management programs within appropriate departments. Research has shown that high performers react favorably to pay growth and opportunities for personal and financial advancement (Cosack, Guthridge, & Lawson, 2010). However, it is also crucial that HR develops deliverables with each implementation as measurable results will ensure their role as a strategic partner.

These types of initiatives, together with the challenge of unwelcome employee turnover, almost always bring organizational change. As change agents, HR professionals must identify and analyze problems, create solutions, and fulfill actions plans (Ulrich, 1997). Management training and other professional development programs help address these issues so that specific plans can be aligned to the goals of the organization. On a systems level, HR must strive to develop a culture that allows employees of all levels to thrive, since "organizational culture holds your organization's aspirations and the spirit of the place" (McGuire and Rhodes, 2011, p. 36). As a systems lens illustrates, these elements affect the functioning and utility of the entire organization.

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## CREATING BEST PRACTICES IN SAUDI ARABIA

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### Abstract

This paper investigates identification of best practices (BPs) in Saudi Arabia. We adopted an established theoretical framework as a basis for developing questions and conducting the study. Interviews were held with selected informants at a number of large organizations. The analysis of interview results showed that organizations are not acquainted with the formal BP framework. They linked identification of BP to documented practices, to communities of knowledge, or to specific publications. However, Saudi Arabia's attempts at sharing BPs can be viewed as a positive step forward. We suggested that a BP team is needed to obtain some direction toward evaluating and sharing BP. Our study revealed the need for having a clear working template for creation and documentation procedures of BP. Also, we suggested that a contribution from an online network of BPs is a recommended, and most useful, approach for supporting the collaboration between business enterprises in terms of sharing BP.

Keywords: Information System, Knowledge Management; Knowledge Creation; Best Practices; Saudi Arabia

JEL Classification: D83, D80, L25

### I. INTRODUCTION

Much work has been done on information system (IS) strategy since its inception in Kriebel (1968) and McFarlan (1971). Various approaches and models include strategic data planning, long-range planning; business-driven approaches, business process analysis and the proactive use of information technology (IT) for competitive advantage (e.g., Porter & Millar,

1985; Hammer, 1990). Recently, e-business and knowledge management (KM) have been considered in isolation from IS strategy and organizational learning (Swan et al, 1999) which hinders the achievement of the performance goals of an organization (Larsen, 2000). To address that problem, organizations have begun to re-examine and reorganize their structures, business processes, culture, and information technologies from a knowledge perspective by implementing KM (Prusak & Matson, 2006), and expect to gain the ability to manage their knowledge more efficiently and achieve superior performance.

In agreement with Baker and McKenzie (2008), we believe that the primary differences between countries are based upon organizations' structural bases. Despite the increased awareness of interest in KM in SA, the context is surrounded by a wide range of incoherent views and perceptions. To the best of our knowledge there are few empirical studies that investigate the current state of best practice (BP) in a variety of public and private organizations, which intend to implement BPs in Saudi Arabia (SA). In many organizations it is still unclear how the organization initiates and implements KM projects and exactly how sharing BPs can contribute to business growth and development. The current need for a well-defined view of the subject and the lack of available empirical experiences of how it should be done have motivated us to conduct this study of KM-related issues in SA (Al-Shammari, 2008; Bontis, 2002; Hutchings & Weir, 2006). The main objective of this study is to carry out an investigation of the state of creating BP and the industrial perceptions on KM among government and non-government organizations in SA. The purpose of this paper is therefore to identify BPs for developing organizational KM capability in organizations in SA. Particularly, the focus of this study is to investigate how BP can be organized and indexed in order to be easily applicable in the culture of SA.

The structure of the rest of the paper is as follows. Section II provides a brief literature review and Section III reveals the theoretical model and research question. Section IV explains the research design and Section V presents the results. The findings of the study are explained in Section VI and the discussion is given in Section VII, followed by conclusion in Section VIII.

## **II. LITERATURE REVIEW**

Identifying and sharing BPs can affect a company's performance in a number of ways such as return on investment, the value added per employee and customer satisfaction (Goodman & Goldman, 2007; Harrington, 2004; Pfeffer & Sutton, 2006; Gold et al, 2001). Therefore, many decisions about BPs are strategic and require substantial resources to improve a firm's performance (Schendel & Hitt, 2007). Hence, the identification stage of BP is an essential process for gaining competitive and collaborative advantages. Smith et al (2010) observed that when there is a supportive culture, an adaptive foundation prior to implantation and social networking between managers to evaluate risk, the benefits of BP could be felt. Holton (2004) and Short (2006) suggested that there is a need for reliable research to ensure that BPs cover both practical and theoretically aspects. This has encouraged us to look at BP from a creative perspective.

Barrett and Stanley (1999) argued that there are several situations when the implementation of BP fails to produce a satisfactory result for some of the parties involved. This failure can be regarded as the result of concentration on providing a competitive edge and ignoring the issues of why and how the practices are successfully implemented. During the implementation of BPs, it is not sufficient to focus on the emulation of the success of key

players. BPs should also be implemented to suit the environment in which the firm is operating (Davies & Kochhar, 2000).

The successes of the USA and Japan are commonly cited as leading examples in terms of the adoption of BPs to achieve manufacturing performance. In particular, much interest has been paid to the role of Japanese plants operating overseas in diffusing manufacturing BPs associated with world-class performance (Voss & Blackmon, 1996). Japanese practices therefore serve as BP models for local firms and as a means of emulating success to aid the successful transfer of practices (Davies & Kochhar, 2000). We argue that the manner in which BP is adopted can provide examples of the diffusion of BP approaches in other sectors and countries.

Based on a comprehensive literature review, a set of models and frameworks that can be used for identification and usage of BPs are identified and analyzed to enable selection of the most suitable assessment model. Shull and Turner's Handling Process model (2005) is based on a deep study of all previous efforts at identifying BPs. The approach has been applied in the context of the US Department of Defense's BPs Clearinghouse (Dangle et al, 2005). This approach provides analyses of several BPs that range from theoretical practices to practices for which experimental data are not readily available. It provides a BP repository in an initial phase and then the approach undergoes evaluation before being opened up to the user community. Also, the approach analyzes lessons learned and then reports on them in the near future.

### **III. THEORETICAL MODEL AND RESEARCH QUESTION**

We have used prominent literature to investigate the processes used to identify BPs. To conduct this study, we first examined how companies, institutions and governmental organizations identify their BPs in SA. To that end, we used the handling process for BP developed by Shull and Turner (2005). The model was chosen because it reveals in clear steps how to identify, qualify, analyze, validate and disseminate BPs. This model distills information about the practices into a particular form that is easy to work with and understand. Our study is supported by the adopted theoretical framework presented above which puts emphasis on the identification process of BP inside organizations. The five phases in the model show that the resulting guidelines are a relevant methodology that can be used to understand KM practices. An integrated framework reveals different components in each phase.

Shull and Turner (2005) identified five primary phases of the BP handling process. For each phase a set of components are identified to show how each phase can be operated. We employed content analysis to examine the model and define components for each phase. These components are based on the description found in Shull and Turner's paper and served as the basis for developing the semi-structured interview questions used in this study. The identified phases and their corresponding components are presented in Table 1.

Table 1: Creating a process for best practice (Shull & Tuner, 2005)

Phases of each process	Components of each of the phases described in the left-hand column
Identification	1- Collect ideas from users: Collect ideas, experiences and suggestions about important content that is currently missing. 2- Review potential candidates: Review the practices, which are collected from users, to select potential ideas, experiences and/or suggestions. 3- Categorize: Group similar potential candidates to classify the suggestions and group ideas. 4- Consolidate: Combine the more relevant practices. 5- Prioritize: Rank the practice according to the need to be developed.
Quantification & Qualification	6- Investigate practices: The highest priority practice is investigated to develop a set of representative evidence sources. 7- Literature search for new results: Collect evidence for the practice from the literature. 8- Interview practitioners for new results: Collect evidence for the practice from interviews with practitioners.
Characterization	9- Check for agreement: The summarizer, an expert in the practice area, decides whether all of the evidence sources accord with the agreement. 10- Summarize: Create a summary of what is known about the practice to describe the expected result based on the collected evidence.
Validation	11- Panel review: A panel of experts on the topic reviews the collection of evidence sources and their summary. 12- Use special criteria: Each member of the panel uses a specific set of perspective-based focus questions to review different aspects of the material. 13- Sufficiency of validity: Reviewing result in sufficient quality for the practice.
Packaging & Dissemination	14- Publish BP: The validated BP is published within the company. 15- Develop guidance: Develop simplified implementation guidance. 16- Connect users with information: Information about the BP may be communicated to potential users via a wide range of media and creating and designing communities of practice or meeting places.

As discussed earlier, in this study we focus on the experiences and general practical practices among Saudi companies, institutions and government organizations. The framework for creating BPs derived from the literature provides this study with references that are used in interpreting collected data about how the BPs can be used. Our research question is therefore an investigation of the extent to which SA's BPs satisfy the quality criteria of the Shull and Turner model.

#### **IV. RESEARCH DESIGN**

To investigate the identification and usage process of BPs across organization, institutions and the private sector in SA, we used content analysis procedures to explore participant responses. We decided to guide our proposed categorization using a priori variables based on the adopted framework for this study. Myers advocates that content analysis should be used to complement previous quantitative research results to investigate new facets of the studied phenomenon (Insch et al, 1997). This allowed us to study the characteristics of

communication and make inferences about the consequences of practices (Bryman & Cramer, 2001). Furthermore, we acquired data from the interviewed managers, as recommended in "content analysis" (Neuendorf 2002), by using a list of specific follow-up questions concerning: 1) who were responsible for designing the descriptions of BPs, 2) for who was the stored BPs intended, 3) why was the process designed in this specific way, 4) what were the expected effects of this design, and 5) to what extent did it have the desired effects. The content analysis also included direct participant observation, observing other institutions during visits, and attending several key meetings. Also, during our research we were allowed access to a number of documents, which were also interpreted from the perspective of content analysis as described above. We regard the philosophical perspective adopted in this study as interpretative rather than critical: that is, we aim to understand the current situation instead of analyzing abilities. We also acknowledge that such a perspective impacts on both the way in which research is conducted and our research findings (Howcroft & Trauth, 2008).

The interview questions were inspired by Shull and Turner (2005), and were formulated in order to explore the identification of BP in regard to organizations' structural variables and core management practices. Another aim of the interviews was to test the relevance of the BP phases, which were presented above in Table 1, by studying to what extent they can be applied to different organizations. The semi-structured questions concerned familiarity with the five phases of handling BPs, which are identification, quantification & qualification, characterization, validation and dissemination, and also management of practices in the participants' organizations. These questions allowed participants to add qualitative information that could indicate the identification and usage of BP.

The purpose with the interviews were to make the informants to provide relevant information about the use of BP and from these answers we intended to find indications of possible applications systems, for handling the administration of BPs, that could be designed to support managers. The interview started with general questions regarding the methods that were used to share knowledge, the problem solving techniques and the approaches for using BPs in the organization. Our interview questions were posed in semi-structured interviews based on the theoretical foundation extracted from from our literature study. The phases of handling BPs and their components served as a basis for formulating questions: i.e., one question was formulated for each component of each phase that were described in Table 2. This allowed us to add important insights that arose during conversation (Insch et al, 1997). Then, participants were asked to evaluate how the organization creates BPs by using a Likert scale with values ranging from 5 to 0. For each of the 16 components for creating BPs, we formulated a scalar question.

The general purpose of asking the scalar questions was to arrive at some evidence concerning the quality of the companies working methods for acquiring data when designing descriptions of BPs. Please find the result of these 16 questions further on in the result section. We examined the managers' evaluation and incomplete answers by cross-referencing their responses with their answers during the interview. The intention behind the questions was obviously to find out how BPs were created and used in SA. Each interview lasted between 60 to 90 minutes and was recorded and transcribed later. Interviews were conducted over a six months period.

Seventeen major SA government, semi-government and non-government organizations were investigated in order to gain an overview of the diversity across the three sectors. The

central criteria for selecting the organizations for the studies were to find the organizations that already used BPs to some extent. Government organizations, also called the public sector, are fully funded by the government and administratively controlled by the Minister, whereas semi-government organizations, or simply institutions, are financed by the government but administratively controlled by independent stakeholders. In our selection of organizations we focused on organizations, which already have IT infrastructure that supports the use of BPs. The public sector includes the Ministry of Health and Ministry of Education. The Ministry of Health was chosen because recently it announced a plan for upgrading its IT infrastructure to enhance its performance. Investments in information technology are increasingly important for the Ministry of Health, and success will depend on the organization's ability to integrate information technologies in most routines. This makes the Ministry of Health a good candidate for our study because findings pertaining to this organization can contribute to the upgrading plan that is presently being designed by the Ministry.

The institutions include the King Fahad Medical City and the King Saud Medical City. By focusing on and reviewing some of these health institutions as well as the Ministry of Health, we can claim that any KM issues regarding sharing BPs in these examples are a reflection of the whole healthcare sector. The non-government organizations, or simply the private sector, include two banks and three telecom service providers. The Saudi Telecom Company (STC), Zain and Mobily are the only three-telecom service providers in SA with a total customer base of more than 15 million. Also, the telecom market in SA is regarded as the fastest developing market and one of the most important markets for handling information and knowledge. By covering this market, we can claim that all KM issues regarding BP that other markets face can be covered.

The participants (in total 17) are purposely selected and the interviewed subjects held different positions, i.e. they either held the job title of CIO (65%) or IT manager (35%). These participants belonged to the government organizations, institutions, and private sector mentioned above and they should be IT managers. The interviews were aimed at providing an overview of each organization's mechanism to identify BPs. The participants received the questions at least one week prior to the interview to enhance an understanding of the questions and they all allowed the meetings to be recorded.

## **V. RESULTS**

In this section the results for the major Saudi institutions and government where BPs were collected are discussed. In the first column of Table 2 we present all components that were used to ask questions with scalar answers concerning to which extent the company had reached satisfactory results from implementing the approach described in the component. In the second column we present the evaluation assessment scale average of each component for the public sector that includes six Ministries. The assessment scale average from six institutions is presented in the third column. The fourth column presents the scale average of the private sector (five companies). Based on the answers of the interviews and their evaluation assessment, the values of the variables were calculated on a scale from *zero* to *five*. A value of *zero* indicates that the variable is not supported by the organization, whereas a value of *five* indicates that the variable is fully supported in the organization. When it was obvious that they had implemented the process that the variable describes, we scored the value as *five* and if it was not implemented we scored the value as *zero*. The mean values of each sector (government, semi-government and private) are presented below in Table 2.

Table 2: Public, institutional and private scale average regarding the adopted framework

<b>To what extend did your organization?</b>	<b>Public</b>	<b>Institutions</b>	<b>Private</b>
1- Collect ideas from users	0.83	1.5	2.33
2- Review potential candidates of descriptions	0.33	1	1.08
3- Categorize ideas from similar candidates	0	0.42	0.92
4- Consolidate: Combine the more relevant practices	0	0	0.08
5- Prioritize: Rank the practice according to the need to be developed	0.08	0	0.08
6- Investigate practice: To develop a set of representative evidence sources	0.33	0.5	0.83
7- Literature search for new result: Collect evidence for the practice from the literature	0.08	0.17	0.17
8- Interview with practitioners for new result: Collect evidence for the practice from interviews with practioners	0.92	0.75	1.58
9- Check for agreement with an expert of the area	0.17	0.17	0.5
10-Summarization: Create a summary of what is known about the practice	0.92	1	1.5
11-Use a panel of experts to review the quality of the BP's	0.58	0.5	0.67
12-Using focus questions to review special aspects of quality	0.08	0.17	0.17
13-Sufficient validity: Reviewing result in sufficient quality for the practice	0.08	0.17	0.17
14-Publish best practice: check if the validated BP is published within the company	1.42	1.58	1.92
15-Develop guidance: Develop simplified implementation guidance	0.25	0.33	0.42
16-Connect users with the descriptions of BPs	0	0	0

From Table 2, we note that organizations documented their BPs in the summarization component. The component did not last long, however, as it was not based on previous components. This indicates that reading the description does not provide employees with the accurate information they need and presents the expected result. We found that the BPs are often documented in an informal manner, i.e., a format procedure for defining and collecting BP is not defined. Also, the descriptions of BPs are shared via a web-based forum or shared folder or document with employees and these practices have only circumstantial justification

especially in private sectors. The average scale for developing guidance for the published BP is low in all sectors.

We note that none of the public sectors, institutions and private sectors use any kind of media to communicate with users about information regarding published practice. The packaging and dissemination phases of the practices are considered as relevant and are consulted only by practitioners in their day-to-day activities. They are developed autonomously and maintained voluntarily by an individual within the organization or firm, however. This makes the practices difficult to explore and it makes it difficult for practitioners to find relevant descriptions of BPs.

Figure 1: The average scale for public sectors, institutions and private sectors

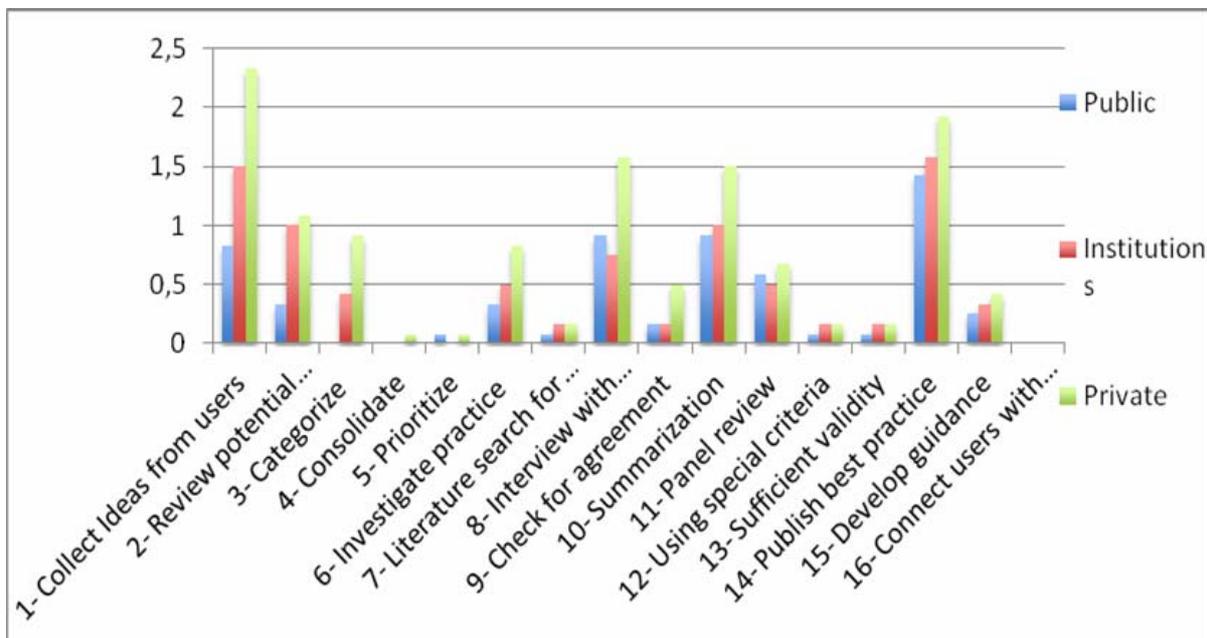


Figure 1 shows that most values are very low. The private sector are keen to collect ideas, experiences and practice as the discovered average was 2.33 and it was also found that these organizations make little effort to review these practices, with an average of 1.08. The effort made by private sectors to collect evidence for new ideas or practices can be seen as a rise in the chart above. From the figure it can be observed that the average values of components related to the initial components (collect ideas from users and review potential candidates) are high, but these values decrease as we proceed to the next five components (categorize, consolidate, prioritize, investigate practices and search the literature for new results) until the component which describes how they interview practitioners is reached: i.e., there is an increase to 1.58 in the average value of the component interview with practitioners for new results. The values of the next five components (check for agreement, summarization, panel review, using special criteria, sufficient validity) are not very until till publishing BPs, whose average values are 1.92. The values of all components are very low for public sector organizations, as they need to focus on all components and follow clear steps until they publish BPs; they show an average value of 1.42.

## **VI. FINDINGS**

Our study reveals a better use of technology in organizations compared with what was reported some years ago by Al- Shammari (2008). The interviews provided general information regarding the structure and general procedures of each organization. When we ask participants how do they view their organizations approach to using BP, they had some concerns about how the BP should be abstracted in order to be of general use. They also had some concerns about how the BPs should be implemented in the workflow of the organization. BP creation and distribution through the organization might success but it needs support from higher management.

We noted that there was generally no well-structured mechanism for creating BP in the organizations where we interviewed managers. Some organizations are adopting an existing framework to create and share BP such as Microsoft Operation Framework and Microsoft Solutions Framework. However, these frameworks are not commonly used and are not well understood by employees, as they need to be educated in how to use the frameworks, while other employees, who even if they are using the framework, do not follow the work and procedures on how the framework should be used. The organizations are trying to broadcast their best knowledge to transfer it to other people and organizations. This can facilitate moving the organizations from being reactive to proactive in order to solve the problem before the user noticed it. We explicitly asked to what extent there were any formalized routines for creating BP and we found that they did not exist. In five organizations the design of BP was considered as a voluntary work, which was not formalized. Our interpretation of the results of the interviews showed that CIOs and managers were not well acquainted with the use of a formal BP framework when they wanted to create BP inside their organizations. Many of them related the identification of BP to documented practices, to communities of knowledge, or to specific publications. Of interest was our observation that the managers considered the priority of the BP framework to be improving internal practices. Surprisingly all the managers and CIOs (in total 17) stated that their organizations lacked such a framework to create BP and stated the importance of having BP in their organizations.

The characterization and validation phases were not conducted, as they should be. Thus we could not test how it was done and hence these interviews did not last for long. It was common to see BPs that were considered as valid for a certain limited time before they disappeared. Therefore it appears that organizations are not linking the creation of a BP framework with a coherent organizational learning scheme. In the findings we noted that there is no formal framework adopted in the organizations that we studied.

Identifying BPs in some private, institutional and public sectors can be viewed as a representation of recommended way of accomplishing tasks. This increased the concern to establish awareness of dissemination of BPs. We noticed that participants viewed some practices as BPs just because they progressed over time and then became accepted as BP. When companies have well-identified practices, there will be a positive impact on their operations. When low collected ideas rates exist, especially in the private sector, it means that these ideas will disappear and therefore be dismissed. According to our results the levels of identifying BPs were marginally higher in the private sector than in the institutions and in the public organizations. A majority of private sector organizations collected ideas from their employees. We found that some firms in private sectors that they were explicitly concerned to help employees to learn how to apply the BPs. Private sectors have a distinctive way of sharing their BP. The Saudi Telecom Company for instance studied the

initial impact and applied the result to formulate and identify their BPs for fourth-generation mobile technology where high-speed Internet is available via smart phones. This is because fourth-generation technology is new to the market and there are no documented BPs corresponding to the adaptation and use of this technology. They were more concerned with adopting the creation process of BPs, especially the identification phase, but they seemed to be misguided about the quantification qualification and on the characterization phase. They did not follow the structured sequence of events in the identification components as recommended.

The investigation reveals that participants appear to have a better conceptual grasp of BPs than of the more abstract concept of knowledge and information. Currently, most organizations have yet to formulate or adopt a formal agenda for identifying BPs. The three most important factors that facilitate identification of BP are: having a BP team to supervise sharing BPs, a mechanism to identify BP, and the right organizational culture. For instance, one of the telecom companies, who have subsidiaries in Bahrain, Kuwait and Egypt, faces some issues related to cultural differences when implementing BPs from the subsidiaries. The cause of the cultural difference was that some employees from these subsidiaries came to Saudi with BPs that had been designed in another cultural context. They worked well when they were applied in the subsidiaries but they did not work well in Saudi Arabia because of the culture environment and different markets needs and demands. Also, we noted increased interest and support on the part of CIOs and top management that could be an ideal foundation for sharing BP. From our analysis we found that organizations have yet to fully appreciate the point of sharing BPs and still lack a focused strategic vision and plan for doing so. Hence, there is no framework for sharing the BPs.

We found that five organizations articulated the importance of having a BP team to help employees develop and exercise BPs during their work. We also found two companies who positioned a BP team either as an independent functional unit or located it within their IT department. A BP team's activity has significant effects in terms of encouraging employees to share BP. Managers should pay particular attention to the identification phase to ensure that experience is captured in a feedback loop to help avoid similar mistakes in future decisions. In addition, the identification stage of BP in an organization was found to have a significant and positive effect on BP team activity. Our findings suggest, however, that the role of a BP team can be increased when the BP identification phase matures. Of course, as an organization moves to a more mature process of identifying BP, the focus may need to shift from a centralized knowledge repository consisting of mostly internal knowledge to a more flexible organizational structure that is designed for creating and sharing knowledge both inside and outside the organization. The assistance or service of a BP team should be continuously provided for connecting BP initiatives to business processes (Lee & Kim, 2001).

## **VII. DISCUSSION**

The study reveals that the Saudi organizations did not follow an accurate strategy to identify BP especially after collecting ideas. When the identification phase is violated, risk and cost can increase failure of effort besides failing to identify the appropriate practice. The identification phase of practices must be followed as a sequence of events. If there is a social context, it will be easy to facilitate these components of the identification phase, i.e., (1) Collection, (2) Reviewing, (3) Categorizing, (4) Consolidating and (5) Prioritizing. This leads us to argue for the need to develop an online model for sharing BP. Such a model

could, for instance, be designed to present successful business processes, which could then even be transferred from one business entity to another.

Quantification & qualification and characterization phases are important not only for organizational learning and collaborative work but also for competitive advantage and for employee motivation. In all organizations that were studied there was a neutral or positive perception regarding the need for interviewing practitioners in order to find new results and summaries of practices. The idea of publishing BP in organizations was rated higher by the interview subjects than were other components, because both CIOs and managers indicated that they wanted to share information in order to generate organizational improvements. One participant stated, "In our organization we are aware of the problems related to losing an expert and thus. We always prefer to have every BP written in the form of an advice so the BPs can be used as reference for other employees." A final component concerned with connecting users with information by having them participate in meetings and informal gatherings is ignored by SA organizations, which further hinders the collection and usage of BPs. This indicates that a structured approach for sharing BPs in private sectors, institutions and public sectors is not adopted, i.e., the phases of the organization do not support knowledge sharing. It could be argued that collaboration environments such as forums (which allow informal, non-structured interaction and knowledge sharing between employees) may provide a practical option for BP processes.

Overall results indicate low levels of interest in investing more in the creation process of descriptions of BP in SA organizations. The study is conducted in organizations from only one country, which reduces the generalizability of the results obtained. The study also shows that the creation process of BP in Saudi organizations is not followed in a structured manner; this is inferred from the lower values in the graph, and also reduces the representativeness of practices. Thus, our study shows that the creation process of BPs in the region is sparse. BPs in the organizations studied should not be underestimated although directors and managers are not always aware that they are managing them. The research revealed that the BPs in SA were not measured with an additive model based on the tested components. Although composite measure methods have been widely used in KM literature (e.g., Matzkin, 2008; Salojärvi et al, 2005), Saudi organizations are not aware of them yet.

## **VIII. CONCLUSION**

The primary goal of creating BPs is to support organizational competitive and collaborative perspectives. This has made researchers view BPs as the encapsulation of experience (Goodman & Goldman, 2007). Presently some of the preliminary efforts to share BPs in SA can be viewed as a positive step forward, but SA still has some way to go. We suggest that the use of information technologies could offer effective solutions to current difficulties in structuring and contextualizing the sharing of BP content, and also in facilitating the conversion of knowledge from tacit to explicit forms.

To meet the challenge of identifying BP in SA, an organization should be able to assess its preconditions for successful BP initiatives and their impacts on KM performance (Gold et al, 2001). The paper also shows that a BP team can obtain some direction toward evaluating and sharing BP. If developing a BP system is a necessary condition, organizing and operating an active BP team may be deemed as a sufficient condition for a successful BP effort. Nevertheless there is a strong need for top management support in identifying the existence of a BP. We conclude that if organizational members are not motivated to share their

knowledge, a BP initiative is doomed. A conscientious BP team, which seeks to help, share and not dictate to organizational members in terms of sharing knowledge critical to their problem-solving, seems essential for obtaining organizational members' satisfaction with the BP initiative.

The result of this work is an overview of how institutions and the public and private sectors perform in terms of creating and managing their BPs. It shows that despite their active interest in managing organizational knowledge, most organizations in the region of SA do not yet understand the challenges involved in identifying and managing BP initiatives. This paper depicts an actual situation in most organizations where the process of creating BPs is not well formalized, resulting in complications and misunderstanding of the chosen practices. In the findings we noticed that no formal framework was adopted in any of the organizations in our case studies. To enhance innovation within Saudi organizations, they first need to adopt a clear mechanism or framework to create BPs. This will serve to increase communication and collaboration. Our study revealed the need for having a clear working template for documentation procedures of BPs. This can be regarded as a road map, a user guide, and an operation guide that can serve to decrease the common mistakes associated with designing BPs without considering all quality aspects in the design process. Based on years of experience and discussions with domain experts, we recommend a BP team to be aware of the quality aspects of BPs that we have described in this paper.

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## THE EFFECT OF SUBSIDIES ON CONSUMER'S SURPLUS

Caroline Buts and Marc Jegers<sup>1</sup>

### Abstract

The EU policy with regard to State aid is a regularly debated topic in multiple branches of the academic literature. Interest in the subject is growing and techniques used by the European Commission to assess its effects have evolved over time. However, too little is known about the economic impact of State aid measures. In addition, questions are being raised about the welfare standard used when evaluating aid proposals made by Member States. More specifically, a shift from a focus on producers and markets towards a broader welfare measure, including the effect on consumers, is called for. In response, this paper models the effect of subsidies on consumer's surplus. A duopoly in Bertrand competition is studied. The effect of granting a subsidy to either one or both duopolists is calculated and compared to a situation without aid. In both cases, consumer's surplus increases compared to the situation without aid. In this way, the effect on consumer's surplus can be quantified and should in a case analysis later be compared to effects on producer's surplus and government cost. The quantified effect on consumers can also be seen as a measure for how well a market failure is targeted, i.e. it allows us to measure the usefulness of an aid by looking at the value for the end-user of a product or service.

Key Words: State aid, welfare, consumer's surplus, microeconomics

Topic Groups: microeconomics, industrial organization, politics and business

JEL Classification: D12, D00, D04

### 1. INTRODUCTION

From time to time, governments intervene in the market in order to stimulate domestic industries or to correct a market failure. Especially within a single market-multi country economy such as the European Union, where goods and services can move freely between countries, this can have serious consequences for firms competing across borders, including wasteful spending when a subsidy race between governments arises. The notion of State aid was already embedded in the founding Treaties of the European Union. In a nutshell, any measure that grants an advantage to an undertaking, is selective, puts a burden on state

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resources, distorts competition and affects trade between Member States is forbidden, with some exceptions confirming the rule. The system applied by the EU to assess proposed State aid measures has been evolving since the beginning, with other approaches, better evaluation techniques and more transparency. As mentioned by Buelens et al. (2007), this kind of State aid control only exists in the EU and the EFTA. Moreover, from Blauburger (2009) we learn that EU State aid control even goes beyond the mere prohibition originally incorporated in the Treaties. The European Commission has successfully used it as a policy tool to shape or direct State aid policies of Member States by promoting the image of what they consider 'good' aid and at the same time discouraging 'bad' aid.

The extent of the legislative and guiding framework with regard to State aid that is currently in place within the European Union proves that it is considered important to constrain governments in their aid policies towards industry. Some basic rules such as the general prohibition and possible exceptions as well as an understanding of the concept of State aid are clear. However, there is still a substantial part to be studied with regard to the economic impact of State aid and the preferred manner of investigating a notified State aid as becomes clear from the questions raised amongst others by Buelens et al. (2007). Martin and Strasse (2005) make a plea for more attention towards the effects of State aid on consumer's surplus. The move towards the utilization of a social welfare standard in State aid analysis (instead of only looking at an effect on rival undertakings), proposed by Nitsche and Heidhues (2006), emphasises even more the relevance of knowledge about the effect of State aid on consumers, knowledge which is lacking. More generally, "the impact of public support policies remains seriously under-researched and more research is crucially needed to draw firm conclusions" (Buigues and Sekkat, 2011, p.1). With this paper, we try to fit one more piece into the puzzle by contributing to a better understanding of the effects of State aid, looking at changes in consumer's surplus caused by subsidies to firms. The findings are policy relevant, mainly in two ways. First, the effects on consumers can by means of the model be taken into account when evaluating State aid measures by comparing them to effects on producer's surplus and government cost under the condition that the necessary data are available or can be estimated. The model can be adapted to fit specific industries and aid measures. Second, the model studies changes in consumer's surplus implying that it can be used by policy makers and designers of aid measures as a means to calculate the impact of an aid on the end-users of a product or service.

The paper is organized as follows: the next section discusses literature on welfare effects of State aid as well as on competition effects. The third section builds on existing theory to further develop a model explaining the effect of State aid on consumers by looking at changes in consumer's surplus. We briefly discuss situations of monopoly and quasi-perfect competition and then move to a more frequently observed market structure, oligopoly. Here, we compare the situation where no aid is granted to the one where a subsidy is given to one or both firms of a duopoly. The fourth section concludes.

## **2. LITERATURE**

Economic literature covers a variety of aspects with regard to State aid. Studies try to bring clarity over effectiveness, motives and effects on competition and welfare. The topic is studied in light of strategic trade policy, where State aid is considered to be avoided, or it can be seen as a part of competition between governments, to come to an efficient allocation of public resources. Often, aid for one specific objective is studied such as aid for rescue and restructuring, or aid for research and development. This tends to be the case in

effectiveness and efficiency studies. This is understandable as effectiveness is measured differently depending on the objective. Moreover, studies are mostly country and time specific, sometimes resulting in contradictory findings. This paper focuses on the welfare and competition effects of State aid and has a broader scope than just aid for one specific objective. We study one form of aid, i.e. subsidies, but do not specify the objective or industry. The general framework proposed in section 3 can in principle be adapted to fit any kind of subsidy or industry. The literature review below thus focuses on welfare effects of State aid in general. The other and more extensive lines of literature with regard to State aid fall outside the scope of this paper.

### **2.1. Discussion on the most appropriate welfare standard**

Defining welfare effects of State aid requires first of all an agreement on the definition of the concept welfare itself. What exactly should be included in a welfare calculation is frequently a point of discussion. Depending on the policy, welfare analysis can study effects on consumers, but might also include changes in producer's surplus. This exactly pinpoints an important difference between methodologies of State aid control and that of other parts of competition policy. Indeed, in merger and antitrust policies consumer welfare is the primary focus when making a case analysis. State aid policy was designed to avoid wasteful subsidy races and is primarily concerned about competition distortions. Discussion is however ongoing to move towards a broader welfare standard for State aid evaluations. Martin and Strasse (2005) as well as Friederiszick et al. (2006) state that a proper welfare analysis should include effects on consumers. The aid granting authority of course looks at the interest of local producers. The European Commission focuses on the effect on foreign producers. This unilateral focus on producers asks for a countervailing focus on effects on consumers. Nitsche and Heidhues (2006) suggest a social welfare standard that includes also equity effects. Consumer's and producer's surpluses can be compared to the cost of the policy. The benefit of consumers may not always go together with the benefit of producers just as an intended national gain does not necessarily entail beneficial effects at the international scene. From Friederiszick et al. (2006) we learn that State aid can try to increase welfare mainly in two ways. It can target efficiency and aim to shift the welfare frontier outwards, or it can have equity rationales and thus cause shifts along the welfare frontier. A discussion or evaluation on efficiency is often easier than one on redistribution. Nevertheless, both are essential in a complete study of welfare.

### **2.2. Welfare effects of State aid**

As mentioned, welfare studies focus on different types of aid. We try to provide an insightful and structured overview of this literature.

According to Fumagalli (2003), aid to attract foreign direct investment can have welfare increasing effects. This can only be the case when the loss of domestic firms due to increased competition does not outweigh the benefit of the investment that was attracted and the benefit stemming from increased competition itself. It will thus depend on the relative sizes of both effects whether the aid turns out to be beneficial or detrimental to (local) welfare. Chor (2009) also studies aid to attract investment, but differentiates between State aid targeted at variable costs and State aid targeted at fixed costs. He finds that small subsidies are welfare increasing for the host economy. Furthermore, this increase in welfare is larger when the subsidy aims to lower variable costs than when affecting fixed costs. While studying an integrated market, Collie (2000, b) explains that the effect of prohibiting State aid depends on the trade-off between an increased deadweight loss from oligopoly

power and a reduction of deadweight loss due to distortionary taxation (used to finance the aid). As the latter more than compensates the former, a reduction or prohibition of State aid will raise overall welfare. To that end, Collie pleads for a gradual reduction of State aid by setting ceilings and gradually lowering them. In a similar study on the WTO Agreement on Subsidies and Countervailing measures, Collie (2000, a) concludes that global welfare with a prohibition in place is higher compared to the Nash equilibrium where a given level of subsidies exists. Martin and Valbonesi (2008) study market dynamics of integration and find that the number of firms in equilibrium goes down with economic integration. This is due to increased efficiency as more firms compete. Governments then try to help national firms through this process. Subsidising is here an equilibrium outcome, but at the same time reduces welfare in the market concerned.

Bertsch et al. (2010) focus on a more indirect welfare effect of State aid. They show that providing rescue aid on a regular basis, in an industry with negative idiosyncratic shocks, makes it easier for firms to (tacitly) collude. Where this happens, State aid will always have a harmful impact on consumer welfare. Katsoulakos (2005) studies State aid specifically targeted to R&D and lists four components that need to be included when directly assessing welfare within one country: the effect on innovations, the effect on prices and outcome, other efficiency gains and other distortions. In addition, possible welfare effects as a result of a changed level of competition, changes in allocative efficiency and altered R&D performance can also be included. Also, a case study on Airbus by Neven and Seabright (1995) points to welfare losses related to State aid as the consumer benefit created by the entry of Airbus was smaller than the negative effects for the incumbent firm, Boeing.

Literature on effectiveness and efficiency of subsidies or other forms of State aid is closely related to the studies on welfare effects. Often both are discussed.

Next to the direct welfare effects, subsidies can also have indirect welfare effects when the programme turns out to be inefficient. Every public support policy contains an opportunity cost. Resources spent on wasteful subsidies could have been used for other projects that might have a positive impact on welfare. For this reason, it is interesting to study which percentage of subsidies was well spent. However, going into detail on this extensive line of literature would lead us too far. Nevertheless, some general remarks and conclusions are noteworthy. As mentioned above, these kind of efficiency studies are mostly objective-, time-, country-, and industry specific. Results are often contradictory. Overall, it can be concluded that local conditions play an important role in determining the real effect of an aid measure. Nevertheless, Buigues and Sekkat (2011) observe a trend. They distinguish between two types of policies to implement public support programmes: a decentralized policy versus a centralized policy. The former works considerably better than the latter. For support policies to have the best effects, it is thus important to have lower amounts of aid, but a focus on advise, partnerships and sharing of knowledge instead of high subsidies and a central approach. Moreover, a central approach makes it more difficult to have timely controls of the subsidy use in place in order to adjust or stop the projects that are not working.

Comino and Manenti (2005) compare several techniques to promote open source software and conclude that the use of subsidies is always welfare reducing, whereas other options such as mandated adoption may benefit welfare. This touches upon an important evaluation point, i.e. to take into account other options than subsidies. While evaluating a proposed State aid measure, it should always be checked whether there are no alternative policy

actions possible. These can then be compared both on the level of competition distortion and welfare effects.

### 3. MODELLING THE EFFECTS OF STATE AID

Our focus is on extending the understanding of the effects of State aid on consumer's surplus. The results are useful in the sense proposed by Corley and Gioa (2011): we aim to contribute for further theoretical model building but moreover proposes several practically relevant methods of calculation. As mentioned above, we concentrate on one specific form of State aid, namely subsidies to local firms. The reason for this is that most other forms of intervention can be modelled as a subsidy with equivalent effects. An important distinction has to be made between aid targeted at reducing variable costs and fixed costs reducing aid. The Commission's approach is more in favour to fixed cost aid. This was very obvious in the Ryanair case.<sup>2</sup> The aid granted for the opening up of new air routes was approved. However, the operational aid granting Ryan air favourable landing rights was prohibited. In fact, we observe most subsidies in the form of a lump sum.

#### 3.1. Subsidies in monopolistic markets and perfectly competitive markets

In case of monopoly, a subsidy to the monopolist will not distort competition as there are no (potential) competitors. There can be an effect when there is a potential entrant. A subsidy to the incumbent firm can refrain the other one from entering as it cannot compete anymore with the subsidised firm. A subsidy to the entrant can bring another player into the market and thus increase competition. Of course, in both cases there can be other effects, such as on consumers and government.

In case of perfect competition, the competition effect depends on the design of the subsidy (Jegers and Buts, 2011). In case of a lump sum to one firm, there will normally not be an effect on the levels of price and output (as the fixed cost term disappears once the derivative of the profit function is taken). Here, the recipient firm will just cash in the subsidy, at least when one confines the analysis to be static. In a dynamic model, one might allow the subsidy to be that large that it enables the firm to invest considerably more than its competitors, in for example, production techniques or quality of the product. When this is the case, the firm will be able to produce more efficiently, will eventually decrease its costs or increase quality and will therefore gain the entire market as rational consumers will only buy from this firm. In case of a subsidy that reduces variable costs going to one of the firms, the effect will be the same: the firm will gain a competitive advantage over its rivals and will be able to monopolise the market (again assuming that consumers are rational).

#### 3.2. Duopoly

We concentrate on the simplest oligopoly, a duopoly. Decisions are taken simultaneously, and are analysed in a Bertrand game. We study three situations. The first one is the base case where no subsidy is given. As a second step, we consider the case where a subsidy is awarded to one of the duopolists. In the third situation, the same subsidies are awarded to both firms.

##### 3.2.1. *Situation 1: no subsidy*

We study a duopoly consisting of firm  $i$  and firm  $j$ . Both firms have the same cost function:

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<sup>2</sup> Case C76/2002. Decision published in the Official Journal JOCE L/137/2004.

$$C(q_i) = f + gq_i + hq_i^2$$

They face the following demand functions:

$$q_i = A - Bp_i + \theta Bp_j$$

$$q_j = A - Bp_j + \theta Bp_i$$

$$(0 \leq \theta < 1)$$

As is shown by Jegers and Buts (2011), the Bertrand market equilibrium is reached for the following prices and quantities:

$$p_i = p_j = \frac{(A + (1 - \theta)B(g + 2hA))}{2(1 - \theta)B(1 + h(1 - \theta)B)}$$

and

$$q_i = q_j = \frac{(A - (1 - \theta)Bg)}{2(1 + h(1 - \theta)B)}$$

The consumer's surplus is:

$$CS_i = \frac{\left(\frac{A}{B} + \theta p_j - p_i\right)q_i}{2}$$

After substituting price and quantity and rewriting, we obtain the following consumer's surplus for one firm:

$$CS_i = \frac{(A - Bg(1 - \theta))^2}{8B(1 + hB(1 - \theta))^2}$$

So the total consumer's surplus in the duopoly is:

$$CS = \frac{(A - Bg(1 - \theta))^2}{4B(1 + hB(1 - \theta))^2}$$

### **3.2.2. Situation 2: subsidy to one firm**

The government decides to grant a subsidy to firm i. This subsidy is assumed to change the recipient firm's cost function as follows:

$$C(q_i) = (f - \sigma_f) + (g - \sigma_g)q_i + hq_i^2$$

Firm j does not receive this aid and thus faces the same cost function as before.

Market equilibrium is obviously not affected by the fixed cost subsidy (Jegers and Buts, 2011):

$$p_{i,s} = \frac{\beta(\alpha - \sigma_g) + \alpha\gamma}{\beta^2 - \gamma^2}$$

$$p_{j,s} = \frac{\alpha\beta + \gamma(\alpha - \sigma_g)}{\beta^2 - \gamma^2}$$

(With:  $\alpha = \frac{A}{B} + g + 2hA$ ,  $\beta = 2(1 + hB)$  and  $\gamma = \theta(1 + 2hB)$  )

We calculate aggregate consumer's surplus to compare it with the situation where no aid is granted:

$$\begin{aligned} CS_s &= \frac{\left(\frac{A}{B} + \theta p_{j,s} - p_{i,s}\right)q_{i,s}}{2} + \frac{\left(\frac{A}{B} + \theta p_{i,s} - p_{j,s}\right)q_{j,s}}{2} \\ &= \frac{1}{2B(\beta^2 - \gamma^2)^2} \left( A\beta^2 - A\gamma^2 + \theta B\alpha\beta + \theta B\alpha\gamma - \theta B\gamma\sigma_g - B\alpha\beta \right. \\ &\quad \left. + B\beta\sigma_g - B\alpha\gamma \right)^2 + \frac{1}{2B(\beta^2 - \gamma^2)^2} \left( A\beta^2 - A\gamma^2 + \theta B\alpha\beta \right. \\ &\quad \left. - \theta B\beta\sigma_g + \theta B\alpha\gamma - B\alpha\beta - B\alpha\gamma + B\gamma\sigma_g \right)^2 \end{aligned}$$

Or with  $\Lambda = A\beta^2 - A\gamma^2 + \theta B\alpha\beta + \theta B\alpha\gamma - B\alpha\beta - B\alpha\gamma$ :

$$CS_s = \frac{(\Lambda - B\sigma_g(\theta\gamma - \beta))^2}{2B(\beta^2 - \gamma^2)^2} + \frac{(\Lambda - B\sigma_g(\theta\beta - \gamma))^2}{2B(\beta^2 - \gamma^2)^2}$$

Compared to the first situation, consumer's surplus has increased. The proof of this can be found in Appendix 2. Granting a variable cost subsidy to one duopolist thus increases consumer welfare judging from the increase of consumer's surplus. Granting a fixed cost subsidy has no effect (in a static sense) on consumer welfare.

### **3.2.3. Situation 3: same subsidies to both firms**

As in situation 2, the subsidy is modelled to alter the cost function. However, at this point, both firms receive the same subsidy:

$$C(q_i) = (f - \sigma_f) + (g - \sigma_g)q_i + hq_i^2$$

$$C(q_j) = (f - \sigma_f) + (g - \sigma_g)q_j + hq_j^2$$

Again, we derive market equilibrium in a Bertrand game and find following prices and outputs:

$$p_{i,s,s} = p_{j,s,s} = \frac{(A + (1 - \theta)B(g - \sigma_g + 2hA))}{2(1 - \theta)B(1 + h(1 - \theta)B)}$$

and

$$q_{i,s,s} = q_{j,s,s} = \frac{1}{2} \frac{A - (1 - \theta)B(g - \sigma_g)}{1 + h(1 - \theta)B}$$

We calculate consumer's surplus for one firm:

$$CS_{i,s,s} = \frac{(A - Bg + B\sigma_g + Bg\theta - B\theta\sigma_g)^2}{8B(1 + hB(1 - \theta))^2}$$

Leading to the total consumer's surplus:

$$CS_{s,s} = \frac{(A - Bg + B\sigma_g + Bg\theta - B\theta\sigma_g)^2}{4B(1 + hB(1 - \theta))^2}$$

Total consumer's surplus is now higher compared to the situation where no subsidies are granted (Appendix 3). Granting the same variable cost subsidy to both duopolists thus increases consumer's surplus.

We can also compare consumer's surplus when aid is granted to both duopolists to consumer's surplus when aid is granted to one duopolist. This relationship depends on the parameters used. Numerical examples can be found both for which  $CS_{s,s}$  is larger than  $CS_s$  and the other way around.

#### 4. CONCLUSION

To date, there are clear gaps in the understanding of the effects of State aid. We contribute to a better comprehension of the mechanism behind subsidies by modelling its effects from a rather neglected point of view, namely consumers. As mentioned in the introduction, Martin and Strasse (2005) and Nitsche and Heidhues (2006) call for a broadening of the welfare standard used in evaluating State aid cases. More specifically, explicit attention should also be paid to the effects of an aid measure on consumer welfare. In response to this, we model the effects of subsidies, one specific but frequently used form of State aid, on consumer's surplus, contributing on a policy level to the development of more economic analysis when examining proposed State aid measures and adding to the academic literature on the economics of State aid. We compare situations where no aid is granted to those where a subsidy is granted to one firm and where equal subsidies are given to both firms in a duopoly. Consumer's surplus rises in both cases. This means that providing one or both firms of a duopoly with subsidies, improves consumer welfare (keeping to the assumptions of the model). Numerical examples can be used to show that the relation between consumer's surplus when granting State aid to one or both duopolists depends on the parameters used. To get a more complete picture when assessing a proposed State aid measure, we remind that it is of course important to weigh changes in consumer's surplus against government costs and the effects on producers.

Although being very theoretical, this paper is of high practical relevance. Over the past decade, economic analysis has gradually taken a more and more prominent role in State aid control as is clear from, for example, the State Aid Action Plan, the economic framework proposed by Friederiszick et al (2006), recent modernization initiatives and several guidelines that were issued for specific types of aid. Modelling the effects of subsidies on consumer's surplus constitutes one more step towards a broad economic analysis towards including all stakeholders. The model we propose is quite general, but can be fitted to several types of subsidies and industries. It is possible to distinguish between different types of subsidies by changing the impact on the cost function. Specific industries can be modelled by changing the cost and demand functions. This enables a quantification of welfare changes for consumers, which can be used in an analysis next to the effect on producers and government cost. When policy makers do not explicitly wish to include the effect on consumers, the model can be used for quantification of the correction of the targeted market failure. It measures to what extent the subsidy is able to improve the market failure by looking at the impact it had on the end-user of a product or service.

Future work calls for specific and more extended forms of this model to be able to more carefully construct criteria such as the de minimis rule, excluding low amounts of aid from notification. Also, several basic forms of the model could be designed to facilitate the use for those who evaluate cases as including more firms for example significantly complicates calculations. It is clear that this model thus provides a first insight into the effects of State aid on consumers with possibly high practical relevance in the future. However, more steps need to be taken in order to broaden the picture and to one day arrive at a better scientifically founded evaluation system of all State aid measures.

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**APPENDIX 1: COMPARING CONSUMER'S SURPLUS: NO AID VERSUS SUBSIDY TO ONE FIRM)**

We compare consumer's surplus in a situation where no aid is granted to consumer's surplus in a situation where a subsidy is given to firm i and not to firm j:

$$CS = \frac{(A - Bg(1 - \theta))^2}{4B(1 + hB(1 - \theta))^2}$$

$$CS_s = \frac{(\Lambda - B\sigma_g(\theta\gamma - \beta))^2}{2B(\beta^2 - \gamma^2)^2} + \frac{(\Lambda - B\sigma_g(\theta\beta - \gamma))^2}{2B(\beta^2 - \gamma^2)^2}$$

with:  $\Lambda = A\beta^2 - A\gamma^2 + \theta B\alpha\beta + \theta B\alpha\gamma - B\alpha\beta - B\alpha\gamma$ ,  $\alpha = \frac{A}{B} + g + 2hA$ ,  $\beta = 2(1 + hB)$  and  $\gamma = \theta(1 + 2hB)$

The proof that  $CS_s$  is larger than  $CS$  consists of four steps. First, it is shown that  $-B\sigma_g(\theta\gamma - \beta)$  is positive and that  $-B\sigma_g(\theta\beta - \gamma)$  is negative. Then, these two terms are verified further to discover that the absolute value of the former is larger than the absolute value of the latter. So, what is added to  $\Lambda$  in the numerator of the first term of  $CS_s$  is larger than what is deducted from  $\Lambda$  in the second term of  $CS_s$ . Third, we prove that  $\Lambda$  as well as the denominator are positive. This implies that  $CS_s > \frac{\Lambda^2}{B(\beta^2 - \gamma^2)^2} = CS_{s, ll}$  where  $CS_{s, ll}$  is a lower limit of  $CS_s$  for  $\sigma_g \rightarrow 0$ . Fourth, we compare  $CS_{s, ll}$  with  $CS$  and establish that  $CS_{s, ll} \geq CS$ , from which  $CS_s > CS$ .

**Step 1: Proof:**  $-B\sigma_g(\theta\gamma - \beta) > 0$  and  $-B\sigma_g(\theta\beta - \gamma) < 0$   
 $\theta\gamma - \beta$  is negative as  $\beta > \gamma$  and  $0 \leq \theta < 1$ . Therefore,  $-B\sigma_g(\theta\gamma - \beta)$  is positive.

$\theta\beta - \gamma = \theta$  and is thus positive. Therefore,  $-B\sigma_g(\theta\beta - \gamma)$  is negative.

**Step 2: Proof:**  $-B\sigma_g(\theta\gamma - \beta) > B\sigma_g(\theta\beta - \gamma)$

As  $\theta\beta - \gamma = \theta$ , we have to compare with  $-B\sigma_g(\theta\gamma - \beta)$  with  $B\sigma_g\theta$ .

Substituting the parameters in  $-B\sigma_g(\theta\gamma - \beta)$  leads to:  $2B\sigma_g - B\sigma_g\theta^2 + 2hB^2\sigma_g - 2hB^2\sigma_g\theta^2$

The difference between the first two terms is positive as well as the difference between the last two terms as  $0 \leq \theta < 1$ . Thus, if the difference between the first two terms is already larger than  $B\sigma_g\theta$ , the proof is established.

This is indeed the case:  $2B\sigma_g - B\sigma_g\theta^2 = B\sigma_g(2 - \theta^2) > B\sigma_g > B\sigma_g\theta$  as  $0 \leq \theta < 1$ .

It thus follows that what is added to  $\Lambda$  in the numerator of the first term of  $CS_s$  is larger than what is deducted from  $\Lambda$  in the second term of  $CS_s$ . The denominator being positive, this implies that  $CS_s > \frac{\Lambda^2}{B(\beta^2 - \gamma^2)^2}$  if  $\Lambda > 0$ , which will be proved in the following step.

**Step 3: Proof:**  $\Lambda > 0$

$$\Lambda = A\beta^2 - A\gamma^2 + \theta B\alpha\beta + \theta B\alpha\gamma - B\alpha\beta - B\alpha\gamma$$

with  $\alpha = \frac{A}{B} + g + 2 \cdot h \cdot A$ ,  $\beta = 2 \cdot (1 + h \cdot B)$  and  $\gamma = \theta \cdot (1 + 2 \cdot h \cdot B)$

Substituting the parameters leads, after some calculations, to:

$$\Lambda = 2A + 2hAB + A\theta + 2hAB\theta + Bg\theta + Bg\theta^2 + 2hB^2g\theta^2 - 2Bg - 2hB^2g$$

We know that  $A - Bg + Bg\theta > 0$  as prices should be larger than the variable cost  $g$ , and for all practical purposes result in positive quantities traded.

$$A > Bg - Bg\theta$$

Then as

$$\Lambda > 2(Bg - Bg\theta) + 2h(Bg - Bg\theta)B + (Bg - Bg\theta)\theta + 2h(Bg - Bg\theta)B\theta + Bg\theta + Bg\theta^2 + 2hB^2g\theta^2 - 2Bg - 2hB^2g = 0$$

**Step 4: Proof:**  $CS_{s,II} > C_s$

At last, we have to prove that  $\frac{\Lambda^2}{B(\beta^2 - \gamma^2)^2} \geq \frac{(A - Bg(1 - \theta))^2}{4B(1 + hB(1 - \theta))^2}$

In order to compare the two, we substitute  $\Lambda$ ,  $\beta$  and  $\gamma$  by their defining expressions to obtain

for the left hand side:  $\frac{(A - Bg(1 - \theta))^2}{B(2\theta hB - 2hB + \theta - 2)^2}$

Now we can compare  $\frac{(A - Bg(1 - \theta))^2}{4B(1 + hB(1 - \theta))^2}$  and  $\frac{(A - Bg(1 - \theta))^2}{B(2\theta hB - 2hB + \theta - 2)^2}$

The numerators are equal. It thus suffices to compare the denominators (clearly positive):

$4B(1 + hB(1 - \theta))^2$  and  $B(2\theta hB - 2hB + \theta - 2)^2$

After some calculations we arrive at:  $4B\theta - B\theta^2 + 4hB^2\theta - 4hB^2\theta^2 \geq 0$ , as  $0 \leq \theta < 1$

### **APPENDIX 2: COMPARING CONSUMER'S SURPLUS: NO AID VERSUS THE SAME SUBSIDY TO TWO FIRMS**

We compare consumer's surplus in a situation where no aid is granted with consumer's surplus in a situation where an equal subsidy is given to both duopolists:

$$CS = \frac{(A - Bg(1 - \theta))^2}{4B(1 + hB(1 - \theta))^2}$$

$$CS_{s,s} = \frac{(A - Bg + B\sigma_g + Bg\theta - B\theta\sigma_g)^2}{4B(1 + hB(1 - \theta))^2}$$

We will establish that  $CS_{s,s} > CS$

*Proof:*

The difference between these two levels of consumer's surplus stems from differences in the numerator:  $B\sigma_g - B\theta\sigma_g$ . This difference is positive as  $0 \leq \theta < 1$ . This means that if  $A - Bg + Bg\theta$  is positive, consumer's surplus is higher in the situation a subsidy is given to both duopolists. This is indeed the case (Appendix 1, step3).



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## GENDER BIAS IN PROMOTION: IS IT REAL?

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### **Abstract**

The present study uses a nationwide longitudinal database to analyze the Portuguese workforce searching for gender differences in promotion. The database presents longitudinal data from employees in eight different professions across the country. The research examines individual dimensions such as age, tenure and education looking for their impact over promotion and possible cumulative gender effects. Results seem to indicate considerable gender dissimilarities regarding promotion rates, consistent with previous literature, but also reports differences, namely by questioning the glass escalator effect, the impact of tenure and the influence of education over promotion. The paper contributes to the body of knowledge on gender issues and career related impacts.

Keywords: Gender studies; Professions; Promotion, Field study

Topic Groups: Gender, diversity and social issues; Human resource management and career development

JEL Classification: M51, J16, M50

### **INTRODUCTION**

Due to relative scarcity of women in top management positions it might be questioned if gender affects progression in firms, so it's appealing to study gender influence in professional promotion (Steinberg, Haignere, Chertos 1990; Lyness and Heilman 2006) and the barriers women have to face along their careers (Lyness and Thompson 2000;

Wellington, Kropft, and Gerkovich 2003). The interest concerning the existence of gender discrimination related to professional promotion has motivated studies in several countries (Judge *et al.* 1995; Stephen 1990; Cobb-Clark and Dunlop 1999; Cabral, Ferber and Green 1981; Lewis 1986; Olson and Becker 1983; Dencker 2008; Metz and Harzing 2009; Hoobler, Wayne and Lemmon 2009). The shorter rate of women progressing in organizations is frequently associated with the occupational segregation in which women usually occupy the lowest management levels at firms, basically being held up to get to higher levels in the hierarchy and better rewarded posts (Adams 2007; Agars 2004, Cassirer and Reskin, 2000; Morrison and von Glinow 1990; Maume 1999; Kirchmeyer 1998; Hymowitz 2004; Lyness and Thompson 2000; Tharenou 1999; Spencer and Stuart 2006). Women who desire to go up in the hierarchy need to adopt a male role model, or following male standardized behaviors, in order to guarantee the possibility to reach an upper level in the organization (Still 1994). Women feel there are barriers holding them from achieving top management levels and as a result being misrepresented in command positions (Maume 2004; Powell & Butterfield 1994). According to Peiss (1998) only in four business sectors women seem to exceed such barrier; the consumer marketing advertising, the cosmetic industry, the small local businesses and the education, being that in the educational area the post of school director tends to be occupied by a woman. The scarcity of gender studies addressing promotion issues in Portugal and the relevancy of the issue in political and entrepreneurial debates present an opportunity to fill in a research gap. In addition, Portugal being a Latin cultural country where traditionally women are not seen as leaders or considered primarily for promotion, serves as an adequate setting for such study. The paper addresses only formal promotion sequences not exploring any type of effect on payment increase related to each promotion.

## **THEORY**

### **The European and Portuguese Landscape**

In 2005 women represented 51.6 percent of the total Portuguese population. In the period from 1998 to 2006 women increased their participation in the work force passing from 51,8 percent to 55,8 percent, while men participation remained around 69 percent (INE 2005). Gender equality in all areas of life is a fundamental right and a value proclaimed by the European Union enshrined in its policy since the Treaty of Rome in 1957. Nevertheless, the European Commission's 2009 Report on Equality between Women and Men (EC 2009 REWM) indicates that the Central Banks of all member states were led by a male governor. The same European Commission's 2007 Report indicated that, on average, the highest decision-making bodies of EU central banks include five men for every woman. At European level, all three of the financial institutions (European Central Bank, European Investment Bank and European Investment Fund) are led by men and women account only for 16 percent of the highest decision-making bodies of these institutions. Given this background, the Portuguese reality in EU regarding women's head of boards is controversial; in a study (Community Labour Force Survey 2007) covering 15 countries none of the Portuguese companies covered in the sample were led by a woman. In the same study, regarding to board membership, women account for less than 5 percent. On the other hand, according to Portuguese domestic statistics (INE 2011), little over half (55,3 percent) of firms have women participating in management jobs and 30,1 percent of management jobs are held by women in Portugal. The same statistics report top management figures, showing that 12 percent of board heads are women. Regarding gender diversity in the Portuguese firms' management teams' composition is as follows: 45 percent are mixed, 45 percent have exclusively male members and 10 percent have exclusively female members. Given such conflicting reports, it

seems critical to further develop research and cumulate evidence in order to fill the gap exposed. The paper addresses the topic of women participating in the work force by exploring the phenomenon of promotion at firms.

### **Bases of promotion**

Promotion stands for an upward hierarchical movement from one position to another, in which the employee ascends to a higher level of responsibility and complexity of duties and obligations receiving as counterpart a more rewarding set of benefits. Promotion involves much more (Seibert, Kraimer & Liden 2001) it also includes a change in the daily work. In the past, women's promotions were not a synonym of increased responsibility and a matching higher hierarchic level as it happened with the men (Stewart and Gudykunst 1982). According to literature, studies presenting similar proportions of both gender promotions show that the raise in responsibility and hierarchic level differs among genders (Eddleston 2004). Extent literature support that women present lower promotion rates (Judge *et al.* 1995; Stephen 1990; Cobb-Clark and Dunlop 1999; Cabral, Ferber and Green 1981; Lewis 1986; Olson and Becker 1983; Dencker 2008; Metz and Harzing 2009; Hoobler, Wayne and Lemmon 2009) than men in similar situations - which means men under the same circumstances and chances are more likely to receive a promotion to progress in the career (Cabral, Ferber and Green 1981; Cannings 1988; Cobb-Clark 2001; McCue 1996; Olson and Becker 1983; Ransom and Oaxaca 2005; Spurr 1990). Although the main trend is strongly sustained in literature, there is also contrary evidence supporting research studies that present men's promotion rate of being lower than women's (Barnett, Baron and Stuart 2000; Gerhart and Milkovich 1989; Spilerman and Petersen 1999; Stewart and Gudykandt 1982). Kaestner (1994) study shows that women in higher levels in the hierarchy have similar and sometimes even superior promotion rates than men, alongside with reports of similar promotion rates among different genders and studies that find no significant differences in men's and women's promotion's rates (Giulano, Levine and Leonard 2005, Hartmann 1987; Lewis 1986; Paulin and Mellor 1996; Powell and Butterfield 1994; Seibert et. 2001; Sheridan, Slocum, Buddha, and Thompson 1990). Carol and Heaton (2003) discloses that the career's development differ between genders; since men receive more internal promotions than women and the latter tend to progress in the career moving to another organization. Considering Lazear and Rosen (1990) studies, men and women receive equal treatment at the work place but preferential treatment is given to men when referring to promotion. Women have lower probabilities of getting a promotion for better rewarded positions when compared to men with similar individual characteristics. Firms prefer to promote men because they assume men will remain in the firm longer than women. In spite of these results little evidence exists regarding gender differences in capabilities and skills (Hind and Baruch 1997). Considering previous literature and the gap regarding Portuguese evidence on promotion, the study addresses visible aspects of the phenomenon at nationwide scale. Thus, the following hypotheses test the gender effect on promotions in Portugal:

#### ***Hypothesis 1 – Male promotion rates are similar to female promotion rates***

When men do women's work a phenomenon might occur: the Glass Escalator (Williams, 1995) traducing in men consistently being promoted faster over women, even when they are numerically a minority (Budig 2002; Taylor 2010; Williams 1992; 1995). Considering that gender segregation in promotion seams to create different patterns of evolution for men and women (Henson and Rogers 2001; Charles and Grusky 2004) and having present the previous notion about feminine professions (Cassier & Reskin, 2000) the following hypothesis emerge:

***Hypothesis 2 – Regarding feminine professions men’s promotion rates are higher than women’s***

Some personal effort promotes knowledge, abilities and credibility for those who want to assume top management positions (Tharenou et al. 1994; Spurr 1990; Lyness and Heilman 2006; Metz and Harzing 2009), but evidence seems to suggest that there is a gender bias. Considering literature reports minor top management occupancy levels by women, in spite of women presenting higher education levels than men (Fagenson and Jackson 1994). Melamed (1995) findings support that skill certification benefits more the women’s careers than the men’s. In an opposite way Tharenou et al. (1994) find that skill certification benefits more men’s than women’s careers. Thus, it is hypothesized:

***Hypothesis 3: Educational levels have a higher impact on promoted women’s than men’s***

Tenure is also considered critical for human capital value enlarging the abilities’ span of individuals (Nordhaug 1993) influencing promotion probabilities. Long term at the firm is seen as a sign of experience, knowledge and productivity (Chase and Aquiliano 1981), being a criterion to consider in the promotion decision making. As firms prefer to promote employees who present greater probability to stay in the firm, it is reasonable that they promote the most tenured. According to Konrad and Cannings (1997) and Kirchmeyer (2002) the effect caused by tenure differs between genders; it contributes positively for career progression in the case of men and negatively for women. Thus a two folded hypothesis arises:

***Hypothesis 4a: Tenure impacts positively on men’s promotion***

***Hypothesis 4b: Tenure impacts negativity on women’s promotion***

**METHODS**

The paper uses a nationwide database (Ministry of the Work and Social Solidarity) that gathers information from all the firms established in Portugal, between the years 2002 to 2005. Participation is mandatory; once a year firms are called to contribute, allowing the Ministry to gather information on employees’ gender; state profession’s classification; tenure status; age; latest promotion date; education. Data analysis was run after it has been cleaned from all its inconsistencies; incomplete registers and registers for which it was not possible to guarantee beyond any doubt its traceability over the period covered by the study. Such procedure resulted in the elimination of over 30.000 registers from the original database when considering the period covered. The study considers a set of 8 professions selected as the ones where gender segregation in promotion is expected to be more visible (Cassirer and Reskin 2000; Morrison and von Gilnow 1990; Maume 1999; Kirchmeyer 1998). Four of the eight professions in the study might be considered as feminine professions - women’s professions according to Wingfield (2009). Professions P22, P23, P24 and P41 that present higher rates of employed women against men, these professions are associated to lower levels of authority (based on span of control analysis) consistent with feminine professions’ profile according to literature.

Table 1: Employee by profession and gender at the beginning of the period (2002)

<b>Professions</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>%</b>
P11 - Public administration top and middle management	336	194	530	0,40%
P12 - Top Firm Managers	32.213	10.265	42.478	30,40%
P13 - Small firm managers	43.751	17.100	60.851	43,50%
P21 - Exact sciences specialists	6.195	1.892	8.087	5,80%

P 22 - Health specialists	1.448	2.913	4.361	3,10%
P23 - Teachers and professors	1.560	2.647	4.207	3,00%
P24 - Other Sciences specialists	5.280	6.078	11.358	8,10%
P41 - Administrative personnel	1.371	6.631	8.002	5,70%
Total	92.154	47.720	139.874	
Average age (years)	43	40	42	
Average tenure (years)	8	8	8	
School education (years)	10	12	11	

Source: MTSS, 2008

Considering the total 139.874 observations over the period, 34.12 percent respect to women, the total average age of employees is 42 years old. Employees covered in the study have on average 11 years of education at school and an average tenure of 8 years at the beginning of the period covered by the study. For promotion rates see table 2, For promotion each employees has been track throughout the periods studied independently the firm where he or she were working for, and if a change in the rank position was reported a promotion was counted.

Table 2: Employee promotions (2002-2005)

Period	Number of Employees promoted	% Employees promoted	% Male	% Female
2002-2003	17,738	12.7%	63.3%	36.7%
2003-2004	14,997	10.7%	62.3%	37.7%
2004-2005	594	9%	62.1%	37.9%

Source: MTSS, 2008

## FINDINGS

When analyzing promotions over the considered period; 2002 to 2003, 2003 to 2004 and 2004 to 2005, results are illustrative (Table 3). Regarding Public administration, top and middle management positions (P11) the equality hypothesis is not rejected over the three periods of promotion considered, meaning it can be assumed to exist no gender bias. Addressing top firm managers (P12), small firm managers (P13) and to exact sciences specialists (P21), in the three periods of promotion considered the equality hypothesis 1 is rejected, meaning it can be assumed to exist gender bias, visible in a highest promotion rate of men over women regarding these jobs. Hypothesis 1 is also rejected when considering health specialists (P22), teachers and professors (P23), other sciences specialists (P24) and administrative personnel (P41), but in this case results show a lower promotion rate of men compared to women, generating a contrary gender bias from (P12; P13; P21). Results lead to the partial rejection of the hypothesis 1 on the majority of professions, apart from Public administration, top and middle management positions (P11) (Table 3).

Table 3: Statistical test results for equality of promotion rates between genders

	Profession	n	Test for gender equality of promotion		Test for men's promotion rates higher than women's		p-value
			p=0,5	p-value	p<k		
Period 2002-2003	P11	76	Not reject	0.135			
	P12	5527	Reject	0	k=0,75	Not reject	0.221
	P13	6221	Reject	0	k=0,72	Not reject	0.293
	P21	1267	Reject	0	k=0,75	Not reject	0.478
	P22	833	Reject	0	k=0,31	Not reject	0.48
	P23	592	Reject	0	k=0,38	Not reject	0.514
	P24	2079	Reject	0	k=0,45	Not reject	0.379
	P41	1143	Reject	0	k=0,17	Not reject	0.398
Period 2003-2004	P11	59	Not reject	0.435			
	P12	4390	Reject	0	k=0,74	Not reject	0.368
	P13	5131	Reject	0	k=0,72	Not reject	0.342
	P21	1088	Reject	0	k=0,74	Not reject	0.437
	P22	714	Reject	0	k=0,29	Not reject	0.419
	P23	514	Reject	0	k=0,39	Not reject	0.429
	P24	2082	Reject	0	k=0,45	Not reject	0.472
	P41	1143	Reject	0	k=0,18	Not reject	0.429
Period 2004-2005	P11	45	Not reject	0.551			
	P12	3557	Reject	0	k=0,74	Not reject	0.341
	P13	4159	Reject	0	k=0,73	Not reject	0.449
	P21	1011	Reject	0	k=0,78	Not reject	0.435
	P22	543	Reject	0	k=0,33	Not reject	0.450
	P23	602	Reject	0	k=0,36	Not reject	0.427
	P24	1728	Reject	0	k=0,45	Not reject	0.498
	P41	948	Reject	0	k=0,19	Not reject	0.516

k – Men's promotion proportion; Sig level < 0.05

According to literature professions P22, P23, P24 and P41 may be considered as feminine professions as data show higher rates of employed women against men and are associated to lower levels of authority. These professions are related to education and health care (Table 3). Regarding hypothesis 2 (on promotion rates difference) statistical results show that over the three periods of promotion considered the hypothesis is rejected, as well as the equality hypothesis, leading to admit a gender bias in favor of women (Table 3). Concerning hypothesis 3 (addressing the impact of education over promotion) a logistic non linear regression model is proposed:

$$Y_i = a + \beta_1 X_{1i} + \xi_i$$

$Y_i$  – (i = 1) Promotion; (i = 0) no promotion

$\beta_1$  – estimates of parameters for variables 1

$X_{1i}$  – # education years for subject I

$\xi_i$  – residual value

Table 4: Education effect statistical results

	<i>Period 2002-2003</i>		<i>Period 2003-2004</i>		<i>Period 2004-2005</i>	
	$\beta$	<i>p- value</i>	$\beta$	<i>p- value</i>	$\beta$	<i>p- value</i>
Total promotions	0.038	0	0.052	0	0.062	0
Male promotions	0.033	0	0.046	0	0.055	0
Female promotions	0.044	0	0.060	0	0.073	0

Sig level < .05

Results show that education contributes positively for promotion gender regardless in the three promotion periods considered. However, promoted women's benefit from higher impact of education level than men in all the three promotion periods covered in the study, tenure and age effects controlled. Based on such results hypothesis 3 is not rejected (Table 4). Regarding hypotheses 4a and 4b (questioning the impact of tenure over promotion) a similar logistic non linear model was used, where  $X_{i_i}$  represents the tenure of the subject  $i$ .

Table 5: Tenure effect statistical results

	<i>Period 2002-2003</i>		<i>Period 2003-2004</i>		<i>Period 2004-2005</i>	
	$\beta$	<i>p- value</i>	$\beta$	<i>p- value</i>	$\beta$	<i>p- value</i>
Total promotions	-0,01	0	-0,005	0	-0,006	0
Male promotions	-0,009	0	-0,004	0	-0,006	0
Female promotions	-0,011	0	-0,005	0	-0,005	0

Sig level < .05

Results show employee's tenure affects marginally and negatively promotion at all promotion periods considered. Both genders' promotions are similarly negatively influenced by tenure. Based on such results hypothesis 4a is rejected and hypothesis 4b is not rejected (Table 5). When controlling for the impact of the employee's age the results show that age affects negatively promotion at all promotion periods considered, gender regardless.

## DISCUSSION

The study used a longitudinal (2002-2005) nationwide data base from Portugal covering eight professions was used, half of those respect requisites from literature on being feminine professions. Considering the large scope of the database it's reasonable to accept that

displayed results are expressive. Higher percentage of men in professions like Public administration, top and middle management and top firm managers in the data base is consistent with the literature (Maume 2004; Powell and Butterfield 1994; Aguinis and Adams 1998; Uren 1999). On the other hand, the higher number of women in Health specialists, teachers and professors, other sciences specialists and the administrative personnel follows the proposed concept of feminine professions (Maume 1999; Cassier and Redskin 2000; Equal Opportunities Commission 2002; Wingfield 2009). Rejecting equality of promotion rates among men and women (H:1) in seven out of eight listed professions is in accordance to the main trend sustained in literature, although a Kaestner (1994) reported otherwise. Results concerning profession P11 (Public administration positions) don't reject equality of promotion rates among men and women, possibly due to the equal opportunities policy implemented in Portuguese Public Administration. For the three promotion periods considered the study reports a lower proportion of men's promoted when considering feminine professions (H:2), leading to hypothesis rejection, challenging the Glass Escalator phenomenon (Budig 2002; Taylor, 2010; Williams 1992; 1995). Although the main trend in literature strongly sustains the hypothesis, there is also previous contrary evidence from research studies that present men's promotion rate being lower than women's (Barnett, Baron and Stuart, 2000; Gerhart and Milkovich 1989; Spilerman and Petersen 1999; Stewart and Gudykandt 1982) similar to results achieved in the study. Not rejecting H: 2 seem to be reasonable due to Latin cultural practices where men tend to avoid undertake feminine professions (*e.g.* Ann M. Pescatello 1979). However, caution should apply when analyzing this result since only 19.90 percent of responses in the study come from people working in feminine professions. The study does not reject H:3 on education contribution for promotion for the three periods considered agreeing with human capital theory when arguing that individuals that make large personal investments in skills training and development, will achieve better professional results when compared to other that made less intensive investments (Becker, 1993; Nordhaug 1993; Wayne, Lieden, Kraimer and Graf 1999). Investing in skills and knowledge tends to foster professional progression (Judge et al. 1995; Kirchmeyer 1998; Melamed 1995) attracting better job proposals and greater probability of achieving success (Gattiker and Larwood 1990; Judge et al. 1995; Cox and Harquail 1991; Melamed 1996). Evidence from the study seems to suggest that there is a gender bias, promoted women seems to benefit from higher impact of education level on promotion than men, similar to skill certification impact effect found by Melamed (1995). When addressing employee's tenure, evidence identifies a marginal and negative effect on promotion at all periods considered, no gender bias was found (H:4a and H:4b), both men and women's promotions are similarly negatively influenced by tenure. The tenure effect on promotion found is minimal, questioning previous research (Chase and Aquilano 1981; Nordhaug 1993) and does not reveal gender bias, contradicting the works of Konrad and Cannings (1997) and Kirchmeyer (2002). Considering results found when addressing men's tenure impact on promotion, it does not impact positively (H: 4a) refuting the literature (Konrad and Cannings 1997; Kirchmeyer 2002). Regarding women's promotion evidence, the study is consistent with previous reported results where tenure contributes negatively for career progression (H:4b) (Konrad and Cannings 1997; Kirchmeyer 2002). Evidence on this study may suffer the influence of demographic data; low average employee's age (42 years – in the first half of their working lives) and consequently low average tenure (8 years).

## **CONCLUSIONS AND IMPLICATIONS**

The study explored differences in promotion rates between men and women and the contribution of several variables to the attainment of promotion. Main results follow the

literature and comfort authors regarding the suitability of the sample for the study's purposes. Results questioning previous works may be explained by particular cultural setting. Regarding equality of promotion rates tested, Portuguese evidence observes general literature trend and rejects its existence in the majority of professions in the study. Results regarding the age effect are consistent with literature, although tested in a specific cultural setting and using a nationwide data set. Considering the education level impact over promotions, there is a difference between genders, as extensively found in previous research. Within educational impact analysis, women's education level creates a higher contribution on promotion rates than men's, presenting a result not often reported in literature. Although the existing literature points out different results with respect to tenure as a synonym of experience, the study shows that tenure has a negative effect over promotion in both genders, presenting a stronger impact when considering women, thus Portuguese evidence doesn't denote a gender bias respecting tenure effect. Considering the Glass Escalator effect is not unanimous in literature, the Portuguese reality adds to the trend rejecting its existence. Results show age affects negatively promotion at all promotion periods considered, gender regardless. Contributions in the study are strongly supported by the use of a nationwide database, covering several years, across different activity sectors and addressing several audiences (public and private) in a specific cultural setting. Concerning practitioners the study results suggests for changes in promotion practices in order to remove the gender bias in promotion rates. Another important issue that may concern the practitioners is the facts that women are on average more educated, younger, and they are slowly taking the lead in top key jobs, therefore as the time goes by they will naturally substitute their male counterparts. So the quest to prepare the next generation of women to take control relies on preparation and proactiveness to guarantee organizational sustainability. Regarding governmental policies, the study endorses the need for a better and more rational use of public expenditures on education considering its impact on career progression. To Academia, a major contribution of the study is indeed the richness added to literature on gender and career stream. The strength of results comes from the use of a large and reliable Nationwide database, providing a longitudinal approach to promotion issues in a specific Latin European country. The fact that it was not possible to identify individual and organizational motivations for promotion constitutes a limitation to the study. Not knowing the real cause for promotion inhibits a more accurate conclusion. Another constraint comes from the nature of the database, being a governmental State database imposes a limitation on the amount of the data assessed, namely on the scope of professions that could be used in the study. Also by not knowing the type of increase on responsibility or payment related to each promotion move constitutes a limitation to the study. Concerning future studies, an invitation to researchers to complement the study is left for upcoming research to overcome the limitations presented. The effect of family dimension and composition of employees should also be explored by subsequent research to address their influence over promotion. Exploring family biographic relation to promotion events, considering variables as the existence and number of children or the marriage status, will clearly expand present findings.

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## LINKING TWO DIMENSIONS OF ORGANIZATIONAL CREATIVITY TO FIRM PERFORMANCE: THE MEDIATING ROLE OF CORPORATE ENTREPRENEURSHIP AND THE MODERATING ROLE OF ENVIRONMENT<sup>1</sup>

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### **Abstract**

This paper applies a corporate entrepreneurship research to explore boundary conditions for traditional assumption of the creativity literature, the notion that increase in novel and useful idea generation will increase the likelihood of firm performance. Based on the assumption that organizational creativity is two-dimensional construct – We attempt to answer the following research question: What is the strategic role of creativity in entrepreneurial organizations within dynamic, hostile, and complex environment? Despite the impressive body of research on creativity in organizations, this important question remains relatively neglected or unexamined entirely. We explicate the mediating role of a corporate entrepreneurship, as well as the moderating role of environment and conclude with the discussion of the implications for future organizational creativity research.

**Key Words:** Organizational creativity, corporate entrepreneurship, firm performance

**Topic Group:** Entrepreneurship

**JEL Classification:** L26, L25, L20

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## **INTRODUCTION**

Despite the central role of creativity as the basis of competitive advantage and a primary source of firm growth, our understanding of organizational creativity representing a strategic asset remains limited. Creativity scholars have created a vast body of literature regarding a large number of contextual and individual factors, which can enable or inhibit the generation of creative ideas (Mumford, 2012; Runco, 2012; Runco & Pritkzer, 2011). Unfortunately, little is known about the strategic role of creativity in entrepreneurial organizations within dynamic, hostile, and complex environment. Moreover, while most previous studies considered micro-level characteristics of creativity, examining this phenomenon on organization-level performance can holistically increase the understanding of creativity. To address this needs, a corporate entrepreneurship and strategic management theory will be applied to examine the assumption that increased organizational creativity promotes firm performance.

Our focus is on the role of creative capability in the shaping of entrepreneurship strategy, and in consequence in firm performance. Given that a considerable rhetoric surrounds creativity in organizations it is perhaps surprising that organizational creativity has received comparatively little attention from mainstream business and management researchers. In this study we developed a research framework, which integrated organizational creativity and corporate entrepreneurship, and explored the relationship between these variables, environment and performance of small – to medium - sized enterprises. The interaction between organizational creativity, as a firm level variable, corporate entrepreneurship, and the environment conditions in which the firm operates has not been investigated, to the best of our knowledge.

Starting with organizational creativity as dynamic capability, we summarize our study into a preliminary substantive theory of the creativity in organization and discuss dominant in the literature relationships between organizational creativity, firm performance, corporate entrepreneurship and environment. Proposed conceptual model outlines the development of high performance via organizational creativity and corporate entrepreneurship. Additionally, the model provides the sound foundation for uncovering environmental conditions of creativity in entrepreneurial organizations. This framework and the propositions it suggests offer several potential contributions to the field of organizational creativity.

## **THEORETICAL FRAMEWORK**

Organizational theory on creativity has been extensively developed in recent years, but no current comprehensive model explains the organizational creativity in strategic context. The critical review of different theoretical lenses used to analyse creativity in organizations show two dominant paths (James & Drown, 2012). On the one hand, there are researches describing the nature of creativity – performance relationship, which are oriented on identifying mediating and moderating variables and aimed at building a broad theoretical background. On the other hand, there is a whole range of empirical studies testing fragmental theoretical models. Drawing primarily from the pathbreaking works we develop conceptual model making organizational creativity the basis of a dynamic theory of the high – performance organization and building research agenda.

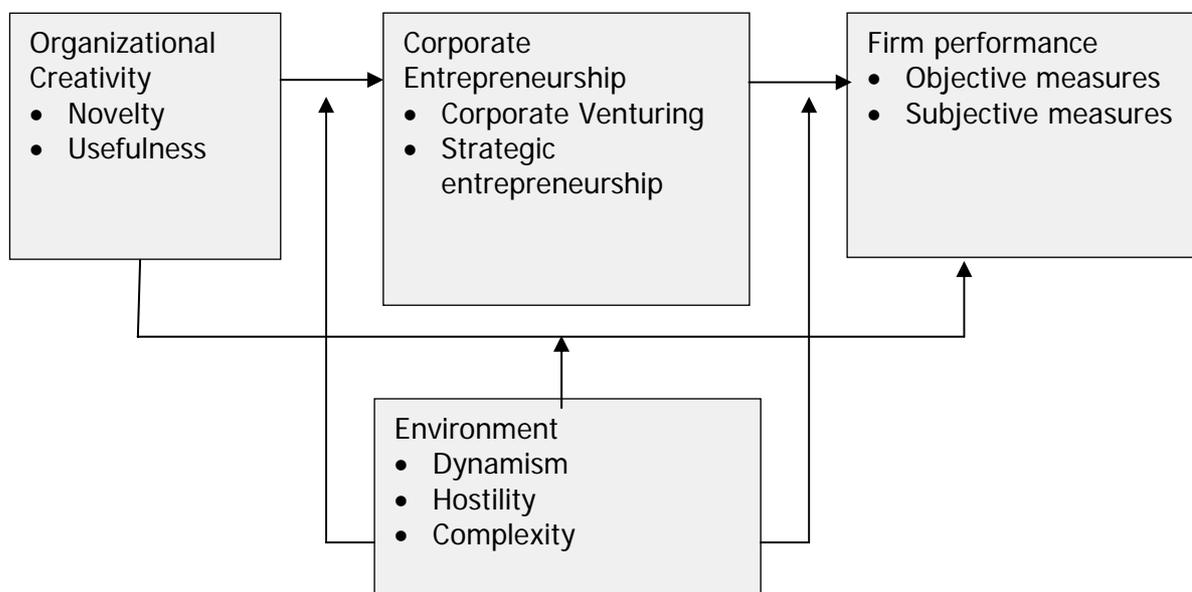
Figure 1 outlines the four main constructs: organizational creativity, corporate entrepreneurship, firm performance, and environment. This framework suggests that firm performance derives from certain level of entrepreneurial behaviour, which in turns depends

on the level of organizational creativity. The directional arrows from environment to relationships between organizational creativity, corporate entrepreneurship, and firm performance indicate that in dynamic, hostile, and complex environment organizations will be likely to engage in creative strategy. In conclusion, Figure 1 portrays the organizational configurations, including various elements, which leads to fundamentally different conception of organizational creativity which are commonly found in literature on creativity theory and practice.

### Creativity as multidimensional construct

Several significant studies have shaped the construct of creativity. Recently, creativity is defined as “the production of high quality, original, and elegant solutions to problems” (Mumford, Hester, & Robledo, 2012: 4). Woodman, Sawyer and Griffin define organizational creativity “as the creation of valuable, useful new product, service, idea, procedure, or process by individuals working together in complex social systems” (1993: 293). Guided by Harrington’s (1990) framework, Liu, Bai, & Zhang (2011) point out that definition of organizational creativity includes four components: creative environmental establishment, creative output generation, member’s creative participation, organization’s creative integration. Furthermore, Weinzimmer, Michel, & Franczak (2011) suggest the firm’s ability to enact creativity at the main level of firm-level performance. In this vein, Sminia (2011) describes creative dynamic capability as consisting of firm’s potential to initiate and create frame breaking change.

Figure 1: Organizational creativity and corporate entrepreneurship in the environmental context. Research model



Barreto (2010) suggests a conceptualization of dynamic capability as consisting of firm’s potential to systematically solve problems based on propensity to sense opportunities and threats, making timely and market-oriented decisions, and changing its resource base. These insights from dynamic capabilities theory open up a way towards a processual understanding of organizational creativity. That is dynamic capabilities, which explicitly rest on the ability to repeatedly creative solutions to business problems. In consequence, drawing on the past

research on creativity in organizations and dynamic capabilities, we suggest the following definition of organizational creativity that accommodates suggestions discussed above: Organizational creativity is the firm's ability to generate new and useful ideas to address rapidly changing opportunities and threats by making timely and market-oriented decisions, and to frame breaking changes in its resource base.

Most operationalizations of creativity treat creativity as a unitary construct (Kozbelt, Beghetto, & Runco, 2010; Shin & Zhou, 2007). Creativity is often measured as a combination of novelty and usefulness melted into a single scale. Interestingly, it is increasingly recognized that creative solutions require both the generation of alternatives and the selection of which alternative to pursue. Sue-Chan & Hempel (2010) developed a new operationalization of creativity based on treatment of novelty and usefulness as two separate dimensions. Similarly, Choi (2004) and Juillerat (2011) maintained that there are differences in both antecedents to, and consequences of, novelty and usefulness. Moreover, the different dimensions of creativity are likely to be differentially influenced by individual's task and organizational elements. Hence, we consider the novelty and usefulness as two distinct dimensions of organizational creativity.

In sum, if organization lacks the resources to implement the idea, its performance would be unaffected by novelty. In somewhat different tone, organization may be highly skilled at implementing novel ideas, but if it has nothing to implement, its performance would be unaffected. This view is expressed in the following proposition:

Proposition 1: Novelty and usefulness are distinct dimensions of organizational creativity.

### **Creativity and performance**

The most important relationship in organizational creativity field is perhaps the one between creativity and performance. Researchers have shown confidence in the compulsory and direct link between organizational creativity and performance. Creativity is crucial for organizational innovation and survival (Amabile, 1988; Oldham & Cummings, 1996; Vaccaro, Jansen, Van Den Bosch, & Volberda, 2010; Augsdorfer, Bessant & Moeslein, 2012). At the level of organization, creativity is essential factor for high performance (Wang & Cheng, 2010), reconciling management paradoxes (Low & Purser, 2011), developing new behaviours in surprising situations (Bechky & Ockhuysen, 2011), and for high level of financial performance (Weinzimmer, Michel, & Franczak, 2011). Contrary, established bases of evidence from several researches also seem to counter the notion that creativity will seamlessly increase performance (George, 2007; Litchfield, 2008; Shalley & Gilson, 2004). Nevertheless, despite widespread beliefs in its benefits there has been relatively little empirical examination of its consequences in an organizational setting (Gong, Huang, & Farh, 2009). Thus, according to earlier suggestions (Poon, Ainuddin, & Unit, 2006), and recent findings (Simsek & Heavey, 2011), the foregoing arguments suggest the following:

Proposition 2: Organizational creativity is associated with higher level of firm's performance.

### **Organizational creativity and corporate entrepreneurship**

Creativity and entrepreneurship are independent constructs, but they also have complementary qualities (Henry & LeBruin, 2011; Hitt & Ireland, 2011; Schumpeter, 1934; Whiting, 1988). In fact, creativity is characteristic or capability of entrepreneurs and their activities (Baker & Nelson, 2005; Cesinger, Gelleri, Winter, & Putsch, 2010; Ogilvy, 2011),

more specifically socio-cognitive networks (Belussi & Staber, 2011; Shalley & Perry-Smith, 2008) and, perhaps most importantly, in the production of entrepreneurial opportunity (Alvarez, Young, & Wooley, 2011; Hansen, Lumpkin, & Hills, 2011; Venkatraman, Sarasvathy, Dew, & Forster, 2012; Wood & McKinley, 2010). Along the similarity lines Perry-Smith and Coff (2011) stated the role of generating and selecting entrepreneurial ideas in the developments of new ventures and argue that entrepreneurial creativity is the capacity to identify novel and useful solutions to problems in the form of new products and services. Simply being creative is not sufficient. Rather it is the firm's ability to take entrepreneurial action that may determine the extent to which creativity impacts firm performance. This is particularly true for interaction of organizational creativity - as dynamic capability - with other dynamic and operating capabilities to enable entrepreneurship (Newey & Zahra, 2009). This discussion suggests the following summary proposition:

Proposition 3: Organizational creativity and corporate entrepreneurship have a positive relationship.

### **Corporate entrepreneurship and performance**

The notion that corporate entrepreneurship increases the level of organization performance has been added to the growing body of research on entrepreneurial orientation vein (Rauch, Wiklund, Lumpkin & Frese, 2009; Zahra, Jennings, & Kuratko, 1999). This is true, but only to a limited extent, because it may also be that entrepreneurial orientation is only predisposition to different corporate entrepreneurship activities (Dess & Lumpkin, 2005; Miller, 2011; Short, Broberg, Cogliser, & Brigham, 2009). Entrepreneurial orientation is the key construct in the entrepreneurship literature (George, 2011). This construct has its roots in the work of Covin and Slevin (1989) who theorized that the three dimensions – innovation, proactiveness, and risk-taking – act together to comprise a basic strategic orientation. The point is that the high performance almost certainly arises as function of the corporate venturing (bringing new business to corporation through internal corporate venturing, cooperative corporate venturing, and external corporate venturing) and strategic entrepreneurship (innovating in the pursuit of competitive advantage manifested in firm's strategy, product offerings, served markets, internal organization, and business model) as various forms that corporate entrepreneurship can take (Morris, Kuratko, & Covin, 2011). These arguments suggest that organization with higher level of corporate entrepreneurship are more likely to be effective, leading to the following proposition. In sum, we propose:

Proposition 4: Organizational creativity has a positive indirect relationship with firm performance through the corporate entrepreneurship: organizational creativity is positively related to corporate entrepreneurship and corporate entrepreneurship is positively related to firm performance.

### **The role of organizational environment**

Although most research within the organizational creativity field has not paid due attention to bounding assumptions, one ongoing debate regarding boundaries of this perspective bear mentioning – this related to environmental conditions. In this vein, Ford (1996) summarise evidence that institutional environment plays an important role in shaping creative activities. Manimala (2009) argue that both general and task environment are important to entrepreneurship, and they are, in fact, in interaction with entrepreneurial individuals. Overall, in terms of environmental characteristics the literature shows that turbulent

environment enables creativity (Sternberg, 2005) amplifies the effects of dynamic capabilities (Wilden, 2010), and positively affects the relationship between entrepreneurial orientation and performance (Wei, Wu, & Yang, 2009).

A careful review of entrepreneurship literature suggests that a dynamic context fosters the relationship between entrepreneurial orientation and performance (Van Doorn & Volberda, 2009; Frank & Kessler, 2010). Similarly, Baron and Tang (2011) observed encouraging moderating role of environmental dynamism in creativity-firm innovation relationship. Uncertainty of environment promotes speed of strategic change, and in consequence strategic performance (Su, Li, Lui, & Li, 2009), is positively associated with growth of SME (Small and Medium Scaled Enterprises) (Pett & Wolff, 2009). Intense competition exerts more pressure on the firm, hence a variety of interactions (capability, entrepreneurial orientation and market conditions) are associated with small firm growth (Chaston & Sadler-Smith, 2012). Under intense market conditions firms with low entrepreneurial orientation and low capability show lowest growth rate, whereas firms with high entrepreneurial orientation and high capability show highest levels of growth. Additionally, the level of environmental complexity is likely to affect the proactive strategic efforts (Oliver & Holzinger, 2008) The degree to which hostility is present in environment is positively associated with entrepreneurial behaviours (Ding, Malleret, & Vekamuri, 2009), and in interaction with technological sophistication positively influencing entrepreneurial processes and behaviours (Kreiser, Kuratko, Covin, & House, 2011). Further, interaction of hostility and turbulence increases the positive effect of entrepreneurship strategy on performance (Wiklund & Shepherd, 2005).

Viewed together, these research findings indicate that environment influences several aspects of entrepreneurial behaviours, simultaneously, important elements of corporate entrepreneurship. From the previous analysis, it is also apparent that environment studies designed at the organizational level of creativity are relatively rare. Due to lack of creativity and environment research at present, we extend the entrepreneurship and environment findings to organizational creativity. The following three propositions capture these moderation effects:

Proposition 5a: Environment would moderate the relationship between organizational creativity and firm performance, that high level of dynamic, hostile, and complex environment would be associated with a stronger relationship between organizational creativity and performance.

Proposition 5b: Environment would moderate the relationship between organizational creativity and corporate entrepreneurship, so that high level of dynamic, hostile, and complex environment would be associated with a stronger relationship between organizational creativity and corporate entrepreneurship.

Proposition 5c: Environment would moderate the relationship between corporate entrepreneurship and performance, so that high level of dynamic, hostile, and complex environment would be associated with a stronger relationship between corporate entrepreneurship and performance.

## **DISCUSSION AND CONCLUSIONS**

For research purpose, this study addresses the various theoretical challenges that await those seeking to apply strategic management and corporate entrepreneurship theory to the nascent field of organizational creativity. Our efforts contribute to the literature in the following ways. First, and foremost, the present research examined assumption within the creativity literature by proposing boundary conditions in which organizational creativity might positively impact firm performance. The research extends organizational creativity theory by exploring the mediating role of corporate entrepreneurship, and moderating role of the environment. In other words, the study contributes to the creativity and entrepreneurship literatures by identifying relationship between organizational creativity, corporate entrepreneurship, and firm performance, and making more explicit theoretical bases of its constituent arguments. In addition, our study suggests that these relationships require special attention from environment perspective.

Second, the insights developed here advance creativity literature by operationalizing organizational creativity as dynamic capability. Our general idea is to build a strategic management organization theory concept of creativity referring to whole organization, not forgetting about individuals as a source of creativity, which is the main focus of psychology, and where the traditional reference of creativity comes from. In these sense our perspective is more comprehensive than approaches used in prior studies mostly carried out from psychological and social viewpoint, while the lenses of strategic management and corporate entrepreneurship were largely ignored.

For practitioners, this paper has a very clear message: organizational creativity matters. A major implications of this discussion that is helpful to characterize organizational creativity in terms of dynamic relationship with corporate entrepreneurship, performance and environment. This family of concepts are related to significant issues required for success: defying the scope activities through the lenses of novelty and usefulness of ideas, using corporate entrepreneurship to strengthen the process of organizational creativity, activating the forces of firm performance by creative and entrepreneurial means, joining organization growth with evolutionary and revolutionary changes in environment, and finally overcoming inertia from the success earned so far.

This research offers several key contributions, however, there are also a number of limitations and most of them highlight opportunities for further inquiry. While this paper has attempted to portray the issues surrounding the theoretical model of organizational creativity and corporate entrepreneurship in dynamic, hostile, and complex environment, it should be noted that there are additional issues that also need to be addressed before we can hope to build a solid body of research in this area. Perhaps a larger problem is the lack of consistency in measuring firm performance. In the related vein, questions is raising regarding the definition and the measurement of organizational creativity. Operationalizing organizational creativity remains the case today and highlights fruitful area for future research. Next, the idea of corporate entrepreneurship forms should be further developed. Special attention should be given to the assumption about relationship between entrepreneurial orientation and corporate entrepreneurship forms.

The concepts of organizational creativity, corporate entrepreneurship, and environment are quite broad and involve multiple dimensions. The current study crossing these three domains only selects a representative set of the categories for characterising each of the domains. Nevertheless, the study is quite comprehensive in that that it is one of only a handful to

simultaneously include measures of the organizational creativity, corporate entrepreneurship, and environment related to performance. Nonetheless, additional work is needed to understand how such configurations influence organizations strategic efforts.

A possible limitation of our research is that we selected variables that have been previously found to be related to creativity. Thus, the theoretical contribution of our research may be questioned. To further increase the generalizability of our findings regarding organizational creativity, however, other individual differences and more contextual variables should be examined in future research. Of particular interest should be power and organizational politics (Bouquet & Birkinshaw, 2008), managerial mind sets (Miller & Tsang, 2010), and action orientation (Weinzimmer, Michel, & Franczak, 2011). We also believe that it is important to attempt organizational creativity in the context of more macro-level influences affecting industries, including changes in institutional logics that are often historically variant and shaped by economic and social structures (e.g., Greenwood & Suddaby, 2006), because these forces may influence the structure and content of organizational creativity as it evolves over time.

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## EXPLORING THE DIGITAL DIVIDE ISSUES AFFECTING HOTEL FRONTLINERS

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### Abstract

In tourism and hospitality industry, many cases demonstrate that future direction and competitive advantage of the organization does not really depend on organization size, but on the innovativeness of its ICT, supported by highly competent human resource i.e. those willing to adopt and take leverage on the needed technology. In the case of hotels, ICT competency and attitude of frontliners is crucial as they have to deal directly with customers. Guided by the Theory of Planned Behavior, this study focuses on the gap of ICT access, attitude, utilization and literacy of ICT particularly among frontliners of a service industry - specifically, in different hotel grades in Penang, Malaysia. The findings indicate significant differences between workers of different hotel grade in terms of ICT access, utilization, attitude and literacy. The report concludes by providing several implications of the findings and suggestion for future research.

Keywords: tourism industry, hotel frontliners, ICT (Information & Communication Technology), digital divide, Penang

Topic groups: Organizational information and communication systems; Human resource management and career development; Industry, area or region specific studies

JEL Classification: L83, M31, M10

## **INTRODUCTION**

A recent study by Sirirak, Islam and Khang (2011) has shown empirical evidence on the positive relationship between ICT adoption and hotel performance. Within 3 star hotels, this relationship is found to have influenced operational productivity. In other words, ICT adoption is very important in the operation of this hotel category. Given this importance, the findings of this study, as will be explained further throughout the paper, give important information about how ICT is being adopted in 3 star hotels. The study looks at the 3 star frontliners' access, utilization, attitude and literacy. The study is within the context of an island tourism destination in Malaysia.

According to Kong & Baum (2006), employees working in front office undertake an important task in building up a hotel's image and reputation. The important tasks of the front office are such as processing the guests' reservations and rooms' assignments, handling guests and house mail and providing guests' information. They are also responsible for controlling costs, overseeing payroll and supplies, controlling reservations and coordinating information on rooms' availability.

In order to perform their tasks effectively, ICT has been seen as an important element that will lead to an improvement in operating efficiencies among the frontliners of hotels in Malaysia and reach their customer service levels. The ICT based products and processes help the hotels to enhance the operating efficiency, improve the service experience as well as provide a means to access markets on global basis (Hoontrakul & Sahadev, 2007). As stressed by Hotel News Resource, (2005) and Frumkin, (2002), services that are more technologically oriented related to front office, housekeeping, engineering, concierge and food and beverage operations in hotels are more efficient and effective.

Chathoth (2006) states that full service hotel firms would benefit from the use of new technology as it can help decrease possibilities of service errors and the related recovery costs. In turn, this gives managers a peace of mind because recovery costs has been the single most important concern of managers who deal with the service intangibilities on a day-to-day basis. Firms that adopt advanced information technology will be better able to meet customer expectations in terms of ensuring customer satisfaction through reliability, responsiveness, assurance, and empathy of service provision.

According to Sahadev & Islam (2005), the main advantages that the Internet provides as a marketing medium for travel and tourism sector are:

- i. the global market reach
- ii. the customers who access the websites are much more interested rather than in a conventional marketing communication where the message is targeted indiscriminately
- iii. the websites are not affected by capacity constraints
- iv. the possibility of two-way communication offered by the Internet.

Compared to firms with low levels of ICT adoption, workers in hotels which have high levels of ICT adoption are expected to be more interested and more capable of utilizing the possibilities presented by the Internet in communicating and transacting with the potential customers.

In Malaysia, the rapid development and commercialization of ICT has prompted hotels and other enterprises in this sector increasingly to adopt these technologies. The need for quality information about the firm's activities, the market in which it interrelates makes the possession of that information a key factor in improving competitiveness in the hotel sector. For example, the functional area of front office, with its role of reception and marketing as well as acting as the centre for liaison and communication within the operating business, plays the role of the "brain" in the hotel. Espino-Rodriguez and Gil-Padilla (2005), believe that the choice of the proper information system/ information technology resources can help firms to act faster, thus giving them greater flexibility.

### **PROBLEM STATEMENT**

Even if effective adoption of several ICT technologies requires a substantial investment of resources (Hoontrakul & Sahadev, 2007), as Dabas & Manaktola (2007) has warned, failure to develop electronic commerce capabilities will lead to strategic vulnerability and a competitive disadvantage. Frontliners that do not have the ICT products and know how to can help them perform their tasks efficiently will not be able to be productive workers to their organization. This may cause long term negative impact on organizational performance and customer service satisfaction. It turn, frontliners attitude toward ICT that used to perform their tasks may be negatively affected. The systems may be seen as badly designed, overly technical and inflexible and complicates rather than simplifies hospitality operations and management. The problem is graver if workers have poor IT understanding and skills to begin with.

Sahadev & Islam (2005) stress that possible influencers of ICT adoption in the travel and tourism sector can be classified into three major groups: i) the location related factors; ii) the firm-related factors; and iii) the technological resources of the firm. Location related factors include access to the necessary infrastructure for the setting up of technology particularly internet connection, the speed of the connection etc. Thus, the closer a premise is to urban areas, the easier it would be to adopt ICT. Firm related factors refer to size, type of business, target market and years of operation. For example, big hotels have more propensity to adopt advance ICT compared to small ones; high rating hotels would be more driven to use ICT compared to lower rated hotels; hotels that target high end consumers are more likely to dwell on advance systems compared to those that target mass or budget travelers (Wei *et al.*, 2001); and newer hotels are more likely to be equipped with the latest technology compared to older ones. This study explores whether Wei et al (2001) conclusion on the influence hotel size also applies in the context of Malaysia. In this study, size is denoted by star rating. While Wei *et al.* (2001) study focuses mainly on the use of internet e-mails, this study looks at issues such as ICT accessibility, utilization, attitudes, and literacy among hotel frontliners.

### **The attitude and aptitude of workers**

The attitude and aptitude of workers in ICT adoption will also determine a hotel's successful adoption of ICT infrastructures. Workers primary responsibility is to ensure customer satisfaction can do so well, via the aid of a good, efficient and reliable technology. In other

words, the more capable they are at using the technology, the better job they will perform in satisfying consumer. According to Davis *et al.* (1989), capability is preceded by a positive attitude towards the technology. He proposed that the shorter time it takes for a worker to master a technology, the more they will see how the technology can help them be more efficient and the better their attitude towards it.

The compatibility of software of technologies should be match to the hospitality industry so that the frontliners of hotel can make a realistic estimate of what their specific information and perform their tasks efficiently. According to Adeyoyin (2005), at the very least, workers should have core skills i.e. understanding of basic knowledge of the computer - how it functions, inputting and retrieval of information from it, the keyboard, how to navigate the screen. Nevertheless, not all workers will embrace a new technology (Ross *et al.*, 1996). The reasons identified include lack of readiness, aptitude towards technology and support from the management.

### **ICT accessibility, utilization, attitudes and literacy**

According to the U.K. government (Pilling & Boeltzig, 2007), the biggest barriers to accessing ICT are interest and motivation, followed by lack of perceived need. Interest and motivation are closely linked with the purpose of use. As found by Pilling & Boeltzig (2007), the primary reason people are attracted to the computer was being able to communicate with family members and relatives.

According to Madigan *et al.* (2007), utilization is also a factor to consider as there are different uses of internet to people of different background. One example the authors looked at is gender. They believe that both women and men use computer differently. Women use the Internet "as an additional communication medium" while men tend to use the Internet as a source of "fun, enjoyment and pleasure". The men and women are employing computer technology for different tasks. Women prefer interaction with computers that provide help or make a connection with someone, while men see computers as extensions of power.

Meanwhile, ICT literacy refers to a broad concept that includes critical cognitive skills and the application of technical skills and knowledge for problem-solving (Serim, 2004). ICT literacy can be defined as how best and capable a person is in order to perform a task or operate a technology application. For those people who have the skill on information technology will be referred to people who have literacy in ICT. This type of people can operate well in ICT and can perform their tasks with using ICT in a higher standard. Information technology skills enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. Ideally, "fluency with technology" focuses on understanding technology and becoming more skilled through continued use.

### **RELATED THEORIES**

It is quite well accepted that providing technology access is not the panacea to solving digital divide. In fact, providing access and encouraging initial use is only one of many factors that influence digital adoption. Since then, many other studies have proposed various other possible answers to understanding digital inequality. Jung *et al.* (2001) for example, proposed that socio-economic factors such as income and education could determine use and nonuse of ICT. These factors, also termed as 'life factors' by Williams (1990) tend to influence in manners that are unfavorable to the socio-economically disadvantaged. This in

turn could shape experiences and opportunities, living and working conditions, status in society and ultimately, one's view of the world (Williams, 1990). Agarwal & Prasad (1997) and Bhattacharjee (2001) also brush aside the importance of focusing on access and proposed 'user acceptance' as an important factor to understand instead.

The Theory of Planned Behavior is one of the three main psychological theories commonly used to understand technology acceptance. While dwelling in detail on each of the theory is beyond the scope of this report, it needs to be mentioned that Theory of Planned Behavior is found to be useful because it stipulates that attitudes, subjective norms, and perceived behavioral control will influence individual's behavioral intention and subsequently individual's behavior. In other words, unlike the other two theories, it captures social and behavioral control factors necessary to understand digital inequality (Taylor & Todd, 1995; Kvasny & Keil, 2002).

For this study, it is assumed that, for reasons already explained above, theories developed for understanding digital divide between the socio-economically advantaged and the socio-economically disadvantaged can also be applied to the context of workers in different hotel grad. Thus, the Theory of Planned Behavior can be the best framework to guide this study.

## **METHODOLOGY**

A quantitative research methodology is used for this study. The quantitative aspect of the research delves into the analysis of variables that relate to accessibility, utilization and attitudes toward ICT as well as ICT literacy among the frontliners of the hotel sector. The study was conducted through a questionnaire survey consisting of part 1 and part 2 which was distributed to the frontliners of the hotel in the city of Penang, Malaysia. Part 1 of the questionnaire uses four point Likert scale ranging from 1 = never to 4 = always for questions on Accessibility; 1= strongly disagree to 4 = strongly agree for questions on Utilization, Attitudes and Literacy; and 1 = very unfamiliar to 4 = very familiar for questions on several computer applications that can be accessed at home or at work. Part 2 of the questionnaire sought socio-demographic background of respondent. Two enumerators assisted with the data collection process. They were previously trained on the objectives of the study, the content of the questionnaire and the proper way to approach a potential respondent. At pilot stage, the instrument was tested for clarity and conciseness of questions.

To determine internal consistency, Cronbach's alpha was used to show how well the items in a scale correlate with one another. According to Santos (1999), the reliability of the scale is the extent to which repeated use of the scale at different times under the same conditions will lead to the same results. Hence, in this instance, reliability is related to whether the dimensions will yield the same result each time if used repeatedly. If a scale is not reliable, it cannot be valid, because it is not properly measuring anything at all, let alone measuring the right thing.

Cronbach's alpha was calculated for all dimensions. In deciding on an acceptable Cronbach's alpha value, it should be remembered that there are no exact rules and the research purpose should be kept in mind. As Sekaran (1992) demonstrated, acceptable values have ranged from 0.6 to higher in standardized tests, where 1 is the ultimate value. A lower case of reliability is proven when the Cronbach's alpha reliability yields values of lower than 0.6 (Sekaran, 1992). Cronbach's alpha reliability coefficients were computed and the results for all dimensions in the current study showed acceptable levels of reliability of 0.7192.

## **Population**

The population of this research is the frontliners of the hotel sector in Penang, Malaysia. The overall sampling frame only includes the frontliners of the 3 star hotels and 5 star hotels in Penang, Malaysia. There are five 5 star hotels and two 3 star hotels in Penang. Frontliners from 5 star and 3 star hotels are chosen as unit of analysis because of the (assumed) difference yet similar nature of both categories of hotels. For example, comparing 3 star hotels with 5 star hotels is assumed to generate a clearer findings than comparing 4 star and 5 star hotels (as they are quite similar in terms of facilities and services provided), or comparing 2 star and 5 star hotels (as they are very different in terms of facilities and services provided) .

## **Sampling and data collection approach**

The respondents of the study were chosen through a simple purposive sampling. As according to Hair *et al.* (2007), simple purposive sampling is a straightforward method that targets a particular group of people (in this case, hotel frontliners in all four departments of a hotel i.e. front office, Food and Beverage (F&B) services, Housekeeping as well as Sales). Frontliners were not segregated based on departments primarily because based on personal conversations with hotel personnel, the following conclusions can be made about the participating hotels: 1) hotel workers are often rotated among department; and 2) computer is used in every department, albeit with task specific software. Solicitation of participation began with a letter sent to general managers for consent to involve their staff in the survey. This is followed by a telephone call to confirm the consent. Negotiations generated 15 willing respondents from two 3 star rated hotels (N = 45) and 30 from three 5 star rated hotels (N = 91). This means the sample size for 3 star respondents is 33 percent while that for 5 star is 36 percent.

## **Questionnaire design**

The questionnaire was divided into two part based on the objectives in this research study. The questionnaire was to measure the ICT access, attitude, utilization and literacy among the frontliners of the three and five star rated hotel in the city of Penang, Malaysia.

In the first part of the questionnaire, there are four sections which consist of 20 questions where the respondents were asked to indicate the level of perceptions in terms of attitude towards ICT (five questions), access to ICT resources and infrastructures (five questions), utilization of ICT (five questions) and literacy on ICT (5 questions) using the Likert scale statements provided. An open-ended question asking ICT related qualification of respondent is also provide to add depth to the survey. In the second part, there are 6 socio-demographic questions for profiling purposes.

## **DATA ANALYSIS**

To establish the reliability of the questionnaires, Cronbach alpha feature of the Statistical Package for the Social Science (SPSS) was used. The validity of the research tools was determined through factor analysis. To determine any statically significant differences in ICT access, utilization, attitude, and literacy among the frontliners of the three and five star hotels, the independent sample T Test is used.

## **Findings**

Mean values are analyzed to provide description of the data gathered. The findings on *accessibility to ICT* indicate that frontliners of 3 star hotel do not have as much access to computer at home (mean = 2.2) compared frontliners in 5 star hotels (mean = 2.8). The mean for the access to computer at work among the frontliners for 3 star hotels was also lower (mean = 1.8), compared to 5 star hotels (mean = 3.6).

Three star hotel's frontliners also do not have access to internet (mean = 2) compared to their 5 star counterparts (mean = 3.6). This may be due to the lack of need to have ICT in performing tasks assigned to them (mean = 1.6), compared to their colleagues in 5 star hotels (mean = 2.8).

To see if there is a significant difference between 3 star frontliners and 5 star frontliners, Independent samples T Tests were performed on the data. The findings indicate that there is no significant difference between the two groups in terms of access to computer at home ( $p > 0.05$ ). However, they are significantly different in terms of access to computer at work ( $p < 0.05$ ). On the other hand, there is no significant difference between the two groups in relation to access to internet while at work. This means that despite difference in hotel size, frontliners still can have access to internet. When it comes to the need for ICT to accomplish their tasks, the two groups are significantly different. There is a lesser need for ICT among 3 star hotels' frontliners when at work compared to 5 star's. This denotes hotel management's lack of emphasis on ICT use in their respective operations.

Eight people from the 3 star hotels and 2 from the 5 star categories do not have computer access at work. These people were asked to answer question 5 about the reasons for the lack of access. From the answers, the ones from 3 star hotels don't need ICT to perform the tasks assigned to them (mean = 3.50). Similarly, more from the 3 star hotel category do not know how to use the internet (mean = 3.25). However, both categories concur that they do not have enough training in ICT (mean = 3.00) to have more access to computer at work. To confirm the descriptive data, T Test is again performed on the data and the two groups are found to be statistically different in terms of ICT needs in daily job ( $p < 0.05$ ) and their skill to use the internet ( $p < 0.05$ ).

Looking at the *utilization of ICT* among the frontliners in hotel sector, it can be observed that frontliners from 3 star hotels do not really agree that they use ICT on a daily basis (mean = 2.7). On the other hand, frontliners of 5 star hotels is more agreeable that they do use it daily (mean = 3.3). In addition, more 5 star hotel frontliners (mean = 3.1) compared to 3 star frontliners (mean = 2.3) agree their respective hotels train them on ICT. The frontliners of 3 star hotels do not agree that ICT provided is helpful to them in accomplishing their daily task (mean = 1.7). In contrast, more of the 5 star frontliners agree about the usefulness of ICT provided to them (mean = 3.5). Consistent to this is the next finding that less of the 3 star hotel frontliners use and subscribe to emails (mean = 1.7) compared to their 5 star counterparts (mean = 3.1). Finally, the findings indicate that 3 star hotel frontliners do not always use ICT in communicating with guests (mean = 1.7). However, more 5 star hotel frontliners admit to have always used ICT in communicating with guests.

T Tests conducted on the above variables indicate that there is no significant difference between the two groups in terms of daily utilization of ICT at their respective hotels ( $p > 0.05$ ). Similarly, there is no significant difference in terms of perception on ICT training the get from hotels (even though more 5 star hotel frontliners agree to being trained by their

hotels). However, they do differ significantly on perception about the usefulness of ICT provided to them ( $p < 0.05$ ). They also differ significantly in terms of using and subscribing to emails to communicate with colleagues ( $p < 0.05$ ). Finally, the two groups differ significantly in terms of the use of ICT in communicating with guests.

In terms of frontliners' attitudes towards ICT, analyses show that overall, 5 star hotel frontliners have more positive attitude towards ICT compared to their 3 star counterparts. Specifically, in contrast to the 5 star hotel frontliners, 3 star hotel frontliners disagree that ICT enhances their work efficiency (mean = 1.6), and that there are enough ICT resources at their workplace (mean = 1.6). They almost agree that ICT complicates their work instead (mean = 2.8). Thus, they do not accept ICT system at their work place (mean = 1.8), do not enjoy using ICT to perform their work (mean = 1.6) and do not agree too much that learning ICT is compulsory.

T Test on the same attributes indicate a significant difference between the two groups in terms of perceptions on whether ICT enhances their work efficiency or not ( $p < 0.05$ ). The two groups also differ significantly in terms of perceptions on the adequacy of ICT resources at their respective work place. Significant difference is also evident in their perceptions on whether ICT use complicates their work, on their receptiveness of ICT at their respective hotels, on their feelings of joy when using ICT in performing their work, and on the importance of learning ICT.

In terms of literacy among the frontliners, analyses show that 3 star hotel frontliners do not know ICT too well to perform their tasks (mean = 2.0) and always face problems when using ICT (mean = 2.6). T Test shown in Table 4.10 below indicates that there are significant differences between the two groups in relation to the attributes mentioned.

The mean values shows the level of frontliners' familiarization on selected office software such as Microsoft Office Word, Excel, Publisher, Front Page and Power Point indicate that comparatively speaking, 3 star hotel frontliners are less familiar with Microsoft Office Word (mean = 1.8) and Microsoft Office Excel (mean = 1.8), equal to their 5 star hotel counterparts in terms of familiarity on Microsoft Office Publisher (mean = 1.6) and Microsoft Office Front Page (mean = 1.6) and less familiar with Microsoft Office Power Point (mean = 1.8).

Analyses using T Test indicate that there is a significant difference between 3 star hotel frontliners and 5 star hotel frontliners in terms of familiarization in the Microsoft Office Word and Microsoft Office Power Point. However, there is no significant difference between the two groups in terms of familiarity with Microsoft Office Publisher, Microsoft Office Front Page or Microsoft Office Power Point.

Analysis on the mean level of familiarization of the internet access such as downloading, find information, watching online movie, chatting with friends, video conferencing, e-mailing, e-voice, e-commerce, e-purse, online shopping and online banking among the frontliners of 3 star hotels and 5 star hotels indicate that, 5 star hotel frontliners are more familiar with downloading (mean = 3.4) and information search (mean = 3.7) and email (mean = 3.4). To a lesser degree, they are more familiar with online movie (mean = 2.9), online chatting (mean = 2.5), and video conferencing (mean = 2.6). However, both 3 and 5 star hotel frontliners are not very familiar with other online features such as E Voice, E Commerce, E Purse, Online Shopping, and Online Banking.

T Test conducted on the same attributes show that there is a significant difference between the two groups ( $<0.05$ ) in terms of familiarity with downloading, searching information online, ability to watch movie online, chatting online, and video conferencing and emailing. As predicted, there is no significant difference between the two groups ( $p>0.05$ ) in terms of familiarity with e-voice, e-commerce, e-purse, online shopping, and online banking.

## **DISCUSSION AND CONCLUSIONS**

From the analysis, it is evident that significant differences do exist between workers of different hotel grade in terms of ICT access, utilization, attitude and literacy. There is a 'divide' or 'inequality' in workers' access, utilization, attitude and literacy in the two types of hotels. Specifically, it is clear that 3 star hotel frontliners do not have as much access to computer while at work, except for the internet, to which they have adequate access. This shows that despite shortage of computers, 3 star hotels do invest in internet access to ensure that their staff can handle some important tasks such as dealing with online bookings, communicating online with potential or previous guests etc.

The findings also indicate 3 star hotels are not really as updated as 5 star hotels in their ICT requirement. These findings are consistent with Hoontrakul & Sahadev (2007) conclusion that ICT investment is largely the priority of big hotels. While cost concern could explain this situation, it cannot conclusively explain why 3 star hotel have lesser need for ICT to get their jobs done compared to their 5 star counterparts when the job description is about the same. More information is also needed as to why 3 star hotels are content to doing things the old way, when their competitiveness may depend on better adoption of ICT. As Chathoth (2006) proposes, new technology can reduce service errors possibilities and consequently the costs of such errors. Frequent occurrence of such errors can negatively affect guest satisfaction and ultimately the marketability of hotels to future customers.

In terms of utilization of ICT, the findings indicate that both categories of hotels use ICT daily and do train their staff on ICT applications. However, frontliners of 5 star hotels are more positive on the usefulness of ICT to them. They communicate daily with their colleagues using emails. They also make full use of ICT when communicating with guests. Similar utilization pattern is not evident as far as 3 star hotel frontliners. Their attitudes towards ICT are also generally pessimistic. The attitude of 3 star hotel frontliners explains the lack of ICT use in daily communication. They are more negative about the use of ICT in enhancing their work efficiency compared to their 5 star counterparts. They feel that ICT resources at their respective workplace are lacking. To them, using the ICT resources that are available at their work premises will only complicates their work. They don't really accept the ICT resources available at their workplace and do not enjoy using the ICT resources available. They also do not fully agree that learning ICT should be made compulsory (as shown by their mean value of 2.4 on this attribute). All the above shows that 3 star hotel frontliners have an overall negative attitude towards ICT compared to 5 star hotel frontliners.

There is also significant difference between the two groups in terms of ICT literacy. 5 star hotels' frontliners are confident with their ICT skills in performing their tasks. On the other hand, 3 star hotel frontliners agree that they faced problem while using ICT to perform their tasks. The two groups also differ significantly in their working knowledge on Microsoft Office Word and Excel – basic softwares used in many professions including tourism and hospitality. As the mean values indicate, 3 star hotel frontliners need more training on these two basic softwares compared to their 5 star counterparts. The 3 star hotel frontliners are

also not very literate in searching for information online and downloading the information for their use, as well as utilizing online movie, video conferencing and e-mailing facilities. Except for online movie and video conferencing, the other facilities are basic but very useful applications for a frontliner. Therefore, the lack of literacy in these basic applications is a reason for concern.

The theoretical contribution of this study is that it shows that menagerie's lack of appreciation of ICT's usefulness can influence the perception of the workers on the same issue. Therefore, top management commitment is an antecedent to workers' ICT access, attitude and literacy. Without it, negative perceptions about ICT will prevail and this could in turn affect work culture and will pose problem for the hotel management should the hotel decide to upgrade its ICT priorities in the future. As observed by Marks (2006) even if all managers were given access to technology, there is no guarantee that they will have equal ability to utilize it because an existing gap in knowledge (literacy) in technology could detriment the prospects of a successful and efficient employment of more advanced technology in the future. On the other hand, Davis *et al.* (1989) proposition that capability is preceded by a positive attitude towards the technology is also important. If the frontliners are not enthusiastic about ICT to begin with, as demonstrated in the findings of this study, then any attempt to adopt ICT infrastructures would be futile. This is perhaps the biggest barrier for a medium sized hotel in ICT adoption.

Other barriers that could explain 3 star hotel's lack of enthusiasm in adopting ICT may also be linked to Espino-Rodriguez and Gil-Padilla's (2005) observation that only large companies can survive the cost and technicality involved in ICT adoption. Therefore, the need for support in terms of ICT funding and training for hotels of this grade cannot be ruled out.

In conclusion, as far as the Penang hotel sector in concerned, there is an evident gap between 3 star hotel and 5 star hotel frontliners in relation to the issues of access, utilization, attitude and literacy in ICT. Frontliners in 3 star hotels lag behind their 5 star counterparts in terms of access to computer at work, hardly utilize ICT in their daily work, have negative attitude towards ICT and lack the basic skills in ICT. But as found in this study, the problem is not only firm size, costs or technicality but also top management commitment. As the hotel sector is highly competitive, this gap is not going to help 3 star hotels in the long run. Hotel owners and trade associations must therefore step up effort to correct the situation. This needs to begin with changing the attitude of workers towards the importance of ICT, providing them with adequate and user friendly technology to work with, training them on the importance of ICT and enhancing their ICT skills and redesigning the job specification to take advantage of ICT to enhance their work efficiency.

The managerial implication of the study findings is that top management of medium sized hotels needs more awareness and understanding about the benefits of ICT. Of course, support in terms of cost and technicality of adopting ICT will also be useful. Trade association and related government agencies can assist in providing such support to ensure that such hotels are more capable of providing reliable, responsive, and assuring services to tourists.

In the light of increasing global tourism and tourist arrivals to many destinations, the efficiency of a hotel regardless of size will contribute to the overall tourist satisfaction about their stay. For example, if a hotel's target market is the international travelers, they need to have a very good website with speedy connection to facilitate international bookings,

inquiries etc. As the market is used to high technology in their countries of origin, it is only natural for them to expect the same standard. If a hotel fails to meet this expectation, it will lose its clients to its more technologically advanced competitors. This could have positive long term implication on the hotel's image, and improve the hotel's competitiveness.

### **SUGGESTIONS FOR FUTURE RESEARCH**

This exploratory research has managed to highlight the divide that exists between 3 star hotel and 5 star hotel frontliners in ICT within the context of Penang. Future researchers interested in this area are advised to focus more specifically on the issue by 1) zeroing on frontliners on specific departments only as opposed to all four departments; and 2) asking questions on more specific hospitality software used by all hotels being compared. They also may need to consider bigger sample (perhaps a nationwide survey) and longer time field time. Another area worth investigating is why there is a lesser need for ICT among 3 star hotels' frontliners when at work compared to 5 star's when the nature of work is almost similar. A qualitative research may be able to uncover the reason for this scenario.

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## READING THROUGH THE LANGUAGE OF THE ECONOMIST: AN APPROACH TO ANALYSE INTERSEMIOTIC COMPLEMENTARITY IN MULTIMODAL DISCOURSE

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### Abstract

The purpose of this paper is to examine how the visual and the verbal modes co-occur in text-based multimodal discourse. M. A. K. Halliday's Systemic Functional Linguistics Theory (1978, 1985, 1994) and Kress and Van Leeuwen's socio-semiotic approach to develop a grammar of visual communication (1996/2006) provide the theoretical and descriptive framework which I will apply to the analysis of a multimodal text from the *Leaders* section of *The Economist* magazine. It will be my main concern to investigate how the visual mode is used by the British magazine as a tool to introduce and comment on the verbal counterpart, which, by developing and elucidating what the image suggested, nurtures intersemiotic complementarity in discourse.

JEL Classification: M10, Z00, M00

### INTRODUCTION

If, in the last century, the analysis of language in terms of a socially-based semiotic system, as developed by Halliday's Systemic Functional Linguistic Theory (hereafter SFL), initially focussed primarily on linguistic (spoken and written) communication, late in the twentieth century, researchers increased their interest in the analysis of other forms of communication besides language, and visual communication developed as pivotal in multimodal discourse analysis. New media have stimulated scholars' curiosity and concern about images and image-text relations. Socio-semioticians such as Kress and Van Leeuwen (1996/2006), the forerunners of multimodal discourse analysis, applied SFL to visual communication and provided a relevant framework to read images, and examine to which extent the image appears semantically integrated with the text.

In the exploration of multimodal scientific language, Lemke (1998) produced a detailed analysis of how an image and a text interact, but he did not systematize his examination by producing a framework of verbo-visual intersemiotic relations.

O'Halloran (1999), contributed to the analysis of a multimodal approach to image-text interaction in mathematics, by using Halliday's functional grammar system; she produced a framework to underline how, in the process of translation from the verbal to the visual language of mathematics, new elements are introduced and a new semiotic scenario is given shape. This process of semantic shift which occurs when functional elements are reconstructed in another semiotics was called semiotic metaphor.

In their investigation of image-text relations, Martinec and Salway (2005) illustrated a generalized framework which they expected would be "useful for distinguishing between image-text relations in new and old media. Their framework adapts Halliday's clause relation status of dependency and independency to the status of image and text relation as equal or unequal. Unequal status implies interdependency and subordination, whether the image is dependent on the text or whether the text is dependent on the image. Image subordination occurs when the image relates to a part of the text, while text subordination implies that only a part of it relates to the image. According to the principle of equality the whole image relates to the whole text. This status of equality is further divided into independency and complementarity; if independency does not imply any sort of modification, when image and text modify one another they are complementary. Martinec and Salway also investigated the nature of semantic linkage between image and text, thus applying Halliday's system of interclausal relations, by which the way clauses are semantically linked may be defined as elaboration<sup>1</sup>, extension<sup>2</sup>, and enhancement<sup>3</sup>.

Finally, in his approach to analyse visual-verbal synergy, Royce (1998, 2002, 2007) developed a framework which he used to explain the co-occurrence of image and language in texts. He substantiated his inspection by applying his framework to multimodal scientific, economic, and financial discourse. Following Halliday's SFL metafunctional model, Royce demonstrated where and how the ideational, interpersonal and textual aspects of the image and text intersemiotically relate.

## **1. IMAGE-TEXT RELATION: MEANINGFUL THEORIES FOR A FRAMEWORK OF INTERSEMIOTIC ANALYSIS**

As image-text relations are the core of this paper, it will be my prime concern to provide exhaustive details of the theoretical scenario which lies behind the established assumption that semiotic systems interrelate.

It is widely acknowledged that Barthes' essay *The Rhetoric of the Image* (1964/1986) may be considered a fundamental step towards the analysis of cross-modal interaction. Barthes made crucial remarks, relevant to the analysis of how visual representations interact with verbal expressions, which appear to be part of the visual message. He assumed that what images mean is closely related to what the verbal text accompanying them states, claiming that "it is not the image which comes to elucidate or realize the text, but the latter which comes to sublimate, patheticize or rationalize the image" (1977: 25). In his study on advertisements, Barthes depicted the viewer's reception as being either a linguistic, a denoted, or a connoted message, depending on the three different messages advertisements may convey. The linguistic message relates with the verbal occurrences in and outside the

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<sup>1</sup> Elaboration occurs when a clause clarifies another clause.

<sup>2</sup> Extension occurs when one clause adds information to another clause.

<sup>3</sup> Enhancement occurs when a clause completes information to another clause by giving details of how, when, where, and why.

image, while the denoted and the connoted refer to the image itself. The linguistic message, which includes any expression of language (text, caption, headline) relating to the visual form, may function as anchorage and relay. In its relaying function, language and image are "in a complementary relation" (1986:30), with language giving pivotal information which the image does not portray. In its anchoring function, language is aimed at triggering the identification and the interpretation of the pictorial elements in the image:

The text directs the reader among various signifieds of the image, causes him to avoid some and to accept others; through an often subtle dispatching, it teleguides him toward a meaning selected in advance. In all these cases of anchoring, language obviously has a function of elucidation, but such elucidation is selective; it is a matter of a metalanguage applied not to the whole of the iconic message but only to certain of its signs (1986:29).

The connoted and the denoted functions refer to what the image communicates. While the former relates to what both the single components that shape the image and the image as a whole symbolize; the latter, conversely, expresses the literal meaning of the illustration, which has been removed from the suggested signs depicted in the symbolic depiction. Literal and symbolic messages cannot be conceived separately, they both contribute to outlining the functions the image has.

Turning to the evidence of Royce's findings, there are valid reasons to espouse the view of effective interaction between different semiotic systems. Taking his studies as valuable examples, this paper aims at identifying and substantiating crossmodal links between visual and verbal semantic units in terms of the degree of connection and disconnection between image-text based multimodal discourse. In his approach to multimodal discourse analysis Royce presented a framework (see *Appendix 1*) to analyse the level of semantic co-operation between visual and verbal modes in a page-based multimodal text. This framework took inspiration from Halliday's metafunctional approach to verbal communication (1978, 1985, 1994) and from Kress and Van Leeuwen's approach to visual analysis (1996/2006).

Following Halliday's perspective of language as a functional socio-semiotic system, which makes meanings and exchanges them in a socio-cultural context, Royce built his framework on Halliday's three metafunctions (ideational, interpersonal, textual)<sup>4</sup>, which he considered the structural and organizational core of all modes of meaning.

Halliday's SFL approach to language as metafunctional and as a social construct meaning in a context, was taken as an example by Kress and Van Leeuwen, who developed a framework designed to read images and to visualise the variety of meanings which they offer. With their grammar for interpreting visuals they sought to find a connection between the producer, the socio-cultural context of depiction and the visual meanings in the image. Borrowing Halliday's metafunctional view of communication, the two scholars focussed on the ideational function to examine what the represented participants<sup>5</sup> do, in terms of which actions they perform, by

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<sup>4</sup> The ideational function reveals who the represented participants are, what actions they perform under what circumstances. The interpersonal function underlines the mood and the modality of the text. The textual function analyses the degree of coherence in a text, in terms of distribution of information in a text.

<sup>5</sup> Represented participants are people, places, things depicted in the image.

processing<sup>6</sup> acts of doing, sensing, being, behaving, saying, reacting, interacting, under certain circumstances<sup>7</sup>. The interpersonal function focussed on how the visual representation involves and interacts with the viewer, in terms of gaze<sup>8</sup>, distance<sup>9</sup>, and perspective<sup>10</sup>. The textual function enabled the viewer to examine the degree of cohesion and coherence of the represented message/s<sup>11</sup>.

## 2. TOOLS TO ANALYSE INTERSEMIOTIC COMPLEMENTARITY: A FRAMEWORK

As this paper aims at examining how and to which extent the sections of a page-image based multimodal text interacts in terms of intersemiotic relations, both Halliday's metafunctional approach to language analysis and Kress and Van Leeuwen's framework to read visuals will be used to determine image and text interrelatedness.

Reading/viewing a multimodal text implies the simultaneous interaction of the three metafunctions, the ideational, the interpersonal and the textual in both modes, the verbal and the visual.

Both in the linguistic and the verbal process of text analysis, the ideational metafunction investigates how the *social action* develops, in terms of what is going on, who (the participants) is doing what (types of process) under what circumstances (place, time, etc). The semantic categories of participants, processes, and circumstances explain "how phenomena of the real world are represented in linguistic structures" (Halliday, 1985:102).

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<sup>6</sup> Processes can be narrative, conceptual, symbolic. Images can narrate events or provide the viewers with conceptual or symbolic representations of actions.

<sup>7</sup> Circumstances reveal where, when, and how participants relate to each other.

<sup>8</sup> Visual configurations have two main functions. The first is to create a visual contact with the viewer, who is directly asked to activate a visual relation with the represented participant/s. The second, addresses the viewer indirectly; the absence of eye contact offers the depiction to the viewer's scrutiny.

<sup>9</sup> Distance establishes the degree of proximity to, or farness from, the viewer. The closer the shot is, the more the intimacy between the represented participants and the viewer is prompted, The longer the shot the less interaction is processed.

<sup>10</sup> The image can be created from a horizontal or vertical angle. Images produced from a horizontal angle represent the relation between the frontal plane of the image-producer, and the frontal plane of the represented participants. The producer can choose between a frontal-angled or an oblique-angled depiction. Frontal angle images indicate a sort of involvement between what is represented and who represented it; the viewer feels the same sort of intimacy being positioned in front of the depiction. Oblique angle images display detachment, the producer did not feel intimacy with what s/he represented. As a consequence the viewer will feel the same state of detachment. Scanning the image from a vertical angle, the viewer is involved in a relation of superiority (high angle), since the producer depicted the image looking down at what s/he would represent. The viewer feels in a position of equality (medium angle), since the producer depicted the image as feeling the same level of solidarity. The viewer feels in a state of inferiority (low angle), since the producer showed the power of the represented participants over her/himself.

<sup>11</sup> From a horizontal reading path, elements are analysed according to their position, from left to right, where elements on the left represent the Given (known information), while those on the right the New (new information). From a vertical reading path, elements are analysed according to their position, from top (the generalised essence of information,) to bottom (the concrete essence of information). Both horizontal and vertical reading paths include the analysis of foregrounded and backgrounded elements, and centralised or marginalised elements. Both foregrounded and centralised elements usually correspond to core factors, while backgrounded and marginalised elements are of secondary importance.

While examining how the visual and the verbal interact intersemiotically at the ideational level, once the participants, the processes, the circumstances, and the attributes (personal qualities and features) have been identified, cohesive ties, in terms of semantic relations between the lexical items and visual segments, are labelled. Halliday and Hasan's approach (1985) to the examination of cohesion was used by Royce to analyse cohesive relations, which he called "*sense relations*" between visuals and texts. Royce's framework of lexico-semantic cohesion among different modes involved inersemitic relations of repetition, synonymy, antonymy, hyponymy, meronymy, and collocation<sup>12</sup>.

By exploring how images and texts are interpersonally interrelated, the role structure, in terms of how the author and the reader of a text, and the producer and the viewer/reader of an image interact, is pivotal in influencing the understanding and interpretation of the message. Visuals and texts are interpersonally complementary if and when the viewer/reader is addressed (mode). In the verbal mode, the degree of involvement and interaction between writer/speaker and reader/listener depends on the speech-functional meanings. Halliday (1994) identified four primary speech functions (order, command, statement, question), which, according to the addressor's production and the addressee's replies, determine the linguistic pace and the degree of interaction. In the social act of exchanging information or proposals, as Halliday named the possible forms of interaction, the order in which subject and finite<sup>13</sup> are employed, and the use of modals to express the personal attitudes and views, affect the intensity of the social exchange.

The degree by which involvement is activated with visuals depends on factors different from the speech functions, mood and modality used in verbal speech. Gaze, perspective, distance and salience are indicators of how the producer and the viewer/reader relate. The absence of gaze, horizontal oblique angle, vertical high angle, and the size elements are indicators of exclusion; the viewer is left alone in contemplation of an image whose message is offered to be decoded. Conversely, direct gaze, horizontal frontal angle, vertical eye-level angle, and the size of the frame as close or medium shot involve the viewer in an act of cooperation with the producer. These elements are all markers of inclusion: the viewer is given visual support and is helped in analysing and understanding the visual message.

The distribution of how segments of the text and elements of the image textually relate, in terms of how meanings are verbally and visually exchanged and organised as messages, will be defined in the following sections of the paper.

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<sup>12</sup> Repetition indicates the repetition of experiential meaning; synonymy expresses a similar experiential meaning; antonymy designates an opposite experiential meaning; hyponymy marks the identification of a general class of something and its subclasses; meronymy refers to the whole of something and its constituent part; collocation implies words that tend to co-occur in various subject areas.

<sup>13</sup> In Halliday's (1994) analysis of the grammatical organization of clauses, he identifies two elements, the subject (nominal group) and the finite (part of the verbal group) as being the basic components of the MOOD, which is the essential component of the social exchange.

### 3. THE ARTICLE: THE BILL THAT COULD BREAK UP EUROPE

The article bearing the title *The Bill that could break up Europe*, which was published in *The Economist* on 26<sup>th</sup> February 2009<sup>14</sup>, is presented in full in *Figure 1* here below. A sentence division of the article is given in *Appendix 2*.

Figure 1:  
Eastern Europe's woes  
The bill that could break up Europe  
If eastern Europe goes down, it may take the European Union with it  
Feb 26th 2009 | from the print edition



Illustration by KAL

TUMBLING exchange rates, gaping current-account deficits, fearsome foreign-currency borrowings and nasty recessions: these sound like the ingredients of a distant third-world-debt crisis from the 1980s and 1990s. Yet in Europe the mess has been cooked up closer to home, in east European countries, many of them now members of the European Union. One consequence is that older EU countries will find themselves footing the bill for clearing it up.

Many west Europeans, faced with severe recession at home, will see this as outrageously unfair. The east Europeans have been on a binge fuelled by foreign investment, the desire for western living standards and the hope that most would soon be able to adopt Europe's single currency, the euro. Critics argue, with some justice, that some east European countries were ill-prepared for EU membership; that they have botched or sidestepped reforms; and that they have wasted their borrowed billions on construction and consumption booms. Surely they should pay the price for their own folly?

Yet if a country such as Hungary or one of the Baltic three went under, west Europeans would be among the first to suffer (see article). Banks from Austria, Italy and Sweden, which have invested and lent heavily in eastern Europe, would see catastrophic losses if the value of their assets shrivelled. The strain of default, combined with atavistic protectionist instincts

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<sup>14</sup> The article was published in the European edition of the paper. Every week the magazine issues a North American, a European, and an Asian edition, which do not differ in the contents of the articles, but which may feature a different cover and advertisements according to the topical interests of the countries they are aimed at.

coming to the fore all over Europe, could easily unravel the EU's proudest achievement, its single market.

Indeed, collapse in the east would quickly raise questions about the future of the EU itself. It would destabilise the euro—for some euro members, such as Ireland and Greece, are not in much better shape than eastern Europe. And it would spell doom for any chance of further enlarging the EU, raising new doubts about the future prospects of the western Balkans, Turkey and several countries from the former Soviet Union.

The political consequences of letting eastern Europe go could be graver still. One of Europe's greatest feats in the past 20 years was peacefully to reunify the continent after the end of the Soviet empire. Russia is itself in serious economic trouble, but its leaders remain keen to exploit any chance to reassert their influence in the region. Moreover, if the people of eastern Europe felt they had been cut adrift by western Europe, they could fall for populists or nationalists of a kind who have come to power far too often in Europe's history.

### **How to avert disaster**

The question for western Europe's leaders is how best to avert such a disaster. Although markets often treat eastern Europe as one economic unit, every country in the region is different. Three broad groups stand out. The first includes countries that are a long way from joining the EU, such as Ukraine. Here European institutions may help financially or with advice, but the main burden should fall on the International Monetary Fund. These countries will have to take the IMF medicine of debt restructuring and fiscal tightening that was meted out so often in previous emerging-market crises.

Things are different for the countries farther west, all EU members for which the union must take prime responsibility. One much-touted remedy is to accelerate their path to the euro, or even let them adopt it immediately. It might make sense for the four countries with exchange rates pegged to the euro: the Baltic trio of Estonia, Latvia and Lithuania, plus Bulgaria. (Slovenia and Slovakia have joined the euro already.) None of these will meet the Maastricht treaty's criteria for euro entry any time soon. But they are tiny (the Baltics have a population of barely 7m), so letting them adopt the euro ought not to set an unwelcome precedent for others nor should it damage confidence in the single currency. Yet the European Central Bank and the European Commission firmly oppose this form of "euroisation", even though two Balkan countries, Montenegro and Kosovo, use the euro already.

Unilateral or accelerated adoption of the euro would make far less sense for a third group of bigger countries with floating exchange rates: the Czech Republic, Hungary, Poland and Romania. None of these is ready for the tough discipline of a single currency that rules out any future devaluation. Their premature entry could fatally weaken the euro. But as their currencies slide, the big vulnerability for the Poles, Hungarians and Romanians, especially, arises from the debt taken on by firms and households in foreign currency, mainly from foreign-owned banks. What once seemed a canny convergence play now looks like a barmy risk, for both the borrowers and the banks, chiefly Italian and Austrian, that lent to them.

### **Stopping the rot**

The first priority for these four must be to stop further currency collapse. The second is to prop up the banks responsible for the foreign-currency loans that are going bad. The pain of

this should be shared four ways: between the banks and their debtors, and between governments of both lending and borrowing countries. From outside, these two tasks will necessitate help from several sources: the European Central Bank as well as the IMF, the commission's structural funds, the European Bank for Reconstruction and Development and perhaps the European Investment Bank. Given the scale of the problem, the lack of co-ordination between these outfits has been scandalous. A third aim must be to get eastern European countries to restart the structural reforms they have evaded thus far.

Bailing out the same mythical Polish plumbers who just stole everybody's jobs will be hard for Europe's leaders to sell on the doorsteps of Berlin, Bradford and Bordeaux, especially with the xenophobic right in full cry. German taxpayers are already worried that others are after their hard-earned cash (see article). The bill will indeed be huge, but in truth western Europe cannot afford not to pay it. The meltdown of any EU country in the region, let alone the break-up of the euro or the single market, would be catastrophic for all of Europe; and on this issue there is little prospect of much help from America, China or elsewhere. It is certainly not too late to rescue the east; but politicians need to start making the case for it now.

The article (hereafter referred to as *The Bill* text), which discusses the economic crisis Europe is suffering, is a multimodal text composed of a visual and a verbal mode. The visual representation portrays the caricaturization of an after-dinner caricature set in a restaurant where three clients whose facial expressions show evident signs of worry for a bill they have just been given by an emotionlessly composed waiter. The verbal counterpart narrates and comments on the reasons why the crisis exploded in Europe; details of what the responsibilities of both the Eastern and the Western European countries are given, and, on these grounds, urgently imperative interventions of recovery on both sides are suggested.

As a priority in the analysis of this multimodal text, my main concern is to examine it as a metafunctional construct where its ideational, interpersonal, and textual meanings interact simultaneously. As a ten-year subscriber and usual reader and viewer of *The Economist*, I wish to provide the elements to substantiate my investigation and allow any reader/viewer to interact with the complexity of multimodal texts and understand their organizational, social, and interactional aspects in order to manage the comprehension of where and how the visual and verbal are intersemiotically interrelated.

#### **4. IDEATIONAL INTERSEMIOTIC ANALYSIS**

In the examination of the intersemiotic relationship between the visual and the verbal aspects of the text, initial focus is devoted to the analysis of the ideational features which characterize both modes, in terms of WHO or WHAT the visual representation portrays (animate or inanimate represented participants), WHAT action is occurring under WHAT circumstances. I proceed by reading through the verbal aspect of the text semantic relations among lexical items. Finally, the semantic relationship between the visual and the verbal elements are elucidated.

*The Bill* text portrays a waiter holding a bill and giving it to three clients sitting at a table. Each of them reacts at the sight of the bill and looks astonishingly worried; as viewers we cannot but deduce that the bill must be very costly. One of the main purposes of the image is to identify the characters involved in the action portrayed, any salient elements, which may contribute to their identification, is meaningful. The represented participants are a

metaphorical and metonymical caricaturization and their identity may be commented on as follows:

- the waiter is a pictorial metaphor<sup>15</sup> for the European Commission and announces to the EU member-states that they are in trouble; there is no reference of him in the text, which does not contribute to correlating his visual and verbal representation;
- the three clients, read through from left to right, are pictorial metaphorical caricaturizations and represent three politicians identified as Merkel, Sarkozy, and Brown who metonymically indicate the heads of three western European governments (Germany, France, and Britain). They indicate the Western European countries which must decide the Eastern European countries' destiny. We know about this by virtue of the frequent use of the intersemiotic repetition of the countries they represent *west European countries*, which are also meronymical expressions; the intersemiotic lexical items such as *western Europe's leaders* and *Europe's leaders* indicate the institutional position they hold;
- the bill, which is both visually represented and verbally discussed as the subject of the multimodal text, is a pictorial metaphor for the European economic crisis; it also illustrates either visually and verbally what must be done to save Europe. As it is the topic of this multimodal text, any form of intersemiotic verbo-visual complementarity is analysed later in this section;
- the typical dishes from Eastern European countries listed in the bill are a metonymical<sup>16</sup> verbalization of which countries are in grave danger and risk to making Europe collapse. In terms of intersemiotic complementarity, they are verbalized through the lexical repetition of the countries where the dishes are cooked (*Hungary, Bulgaria, Romania, The Baltic trio of Estonia, Latvia and Lithuania*);
- the "*very sour krauts*" and "*Silvio if only*" are metonymical indicators of who invested money to make some Eastern European countries join the European community. The verbal counterpart of sour krauts refers to Austria, while Silvio to Italy, which are repeated as lexical items in the article. Intersemiotic complementarity is found by the use of synonyms which connotatively refer to Austria and Italy as *the borrowers, the borrowing countries*, and hyponymically by the repetition of semantically correlated items such as *the banks, foreign-owned banks*;

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<sup>15</sup> As Lakoff and Johnson (1980/2003) defined it, metaphor is the phenomenon whereby we talk and potentially think about one thing in terms of another. According to the Cognitive Metaphor Theory (CMT) developed by the two scholars in the late 1980s, metaphors may be defined as linguistic and conceptual. While the former indicate the systematic verbal process of talking about one thing in terms of another, the latter indicates the systematic process of thinking about one thing in terms of another. The semantic link between the two conceptual domains, as they were called, is conceived as a mapping process. The two domains are the source and the target. Borrowing Kövecses's words, "the conceptual domain from which we draw metaphorical expression to understand another conceptual domain is called source domain, while the conceptual domain that is understood this way is the target domain" (2010:4). If Lakoff and Johnson did not set limits to metaphorical representations, CMT did not take notice of metaphors in non-verbal language. Forceville (1994, 2008) developed CMT principles and applied them to pictorial metaphors before and multimodal metaphors later. A pictorial metaphor is a non conventional visual representation in which both source and target are visually portrayed. A multimodal metaphor occurs if target and source domain are rendered in two different sign systems (visual, written, spoken), or modes of perception (smell, taste, and touch), even if the 'A is B' format is maintained, metaphors become multimodal.

<sup>16</sup> A visual metonymy is a figure by which the representation of a referent is replaced by the depiction of an attribute or of an entity related to in some semantic way. There is a directly or logically contiguous relationship between the substituted element and its referent.

- The national flags, shaped like napkins, represent the client's and saviours' nationality (German, French, British). There is neither specific verbalization of the three countries, nor are the politicians' names mentioned in the article, which speaks about western European countries in general;
- The drinks on the table are social stereotypes and associate the typical national drink to each of the three clients; Merkel drinking coffee, Sarkozy drinking wine, and Brown drinking tea are indicators of cultural drinking habits. There are no lexical items which semantically link these visual elements to the verbal aspect of the text;
- The purse is a pictorial metaphor for British state funds and it is empty, the butterfly which is flying away is a metaphorical sign of the help which Britain seems unable to give to the indebted countries. There is little evidence of intersemiotic complementarity in the text between the purse/butterfly metaphor and Britain's attitude towards the crisis;
- The couples of clients in the background are pictorial metaphors for Europe's citizens waiting for a decision to be taken by the foregrounded clients. There are no significant salient elements in the image which allowed me to find semantic relations between the visual illustration and the verbal lexicalisation;

Moving from the visual representation to the verbal aspect of the text, the remarkably high number of sentences discussing what the image portrays (see the verbalization of the text in *Appendix 3*) and the use of a substantial number of lexical items show that the verbal and the visual aspects of the *Bill* text complement each other; there is a relatively high occurrence of intersemiotic synonymy, repetition, hyponymy, meronymy and collocation, which interactively support the focus of the text. There is thus clear evidence of intersemiotic complementarity in the ways that both modes deal with the same topic and relevant terminology.

As the economic status of crisis in Europe is the topic of the multimodal text, I focus on the intersemiotic complementarity between the visual representation of the bill and the verbal references to it as details expressed via repetitions of such lexical items as *bill, problem, disaster, collapse, rot, break up*, all of which, bill excluded, are also synonyms and bear the bill's connotative meaning. The lead of the article uses a hyponymical climax, which presents possible economic problems verbalised as "*tumbling exchange rates*", "*current-account deficits*", "*foreign currency borrowings and nasty recessions*", "*ingredients of a third-world crisis*". A relatively high frequency of intersemiotic meronymy, which is concerned with part/whole relations, illustrates and discusses the geographical division of Europe into Eastern and Western countries, where the former indicate the cause of the crisis while the latter symbolize the possible saviour countries. Intersemiotic collocation is also significant, as any reference to the bill highlights a state of *pain, disaster* or risk of an economical *collapse*. The subject area is pointed out via the use of *crisis* as the head-word of a semantic chain in which lexical items such as *collapse, disaster, problem, meltdown, recession, investment, assets, losses, floating exchange rates, currencies, currency collapse, debt*, could be expected to co-occur in a text about economic crisis.

As a multimodal verbo-visual metaphor, the bill illustrates and examines a crucial moment for Europe, which risks an economic crash in the eastern countries (Hungary, Bulgaria, Poland, Baltic countries), in some western countries (Ireland and Greece) which are already in grave danger, and in some western countries (Germany and Britain) which *faced a severe recession*; Austria, Italy, and Sweden which provided financial support to the eastern countries to launch new companies are also involved and risk *catastrophic losses*. In

ideational terms, there is undoubtedly remarkable intersemiotic complementarity between the visualization and verbalization of the countries above-mentioned in terms of lexical repetitions (i.e. *east European countries, east Europeans, eastern Europe; west Europe, west Europeans*), intersemiotic meronymies (i.e. *Hungary/Hungarians, Poland/Polish, Romania/Romanian; western European leaders, Europe leaders* and the three politicians in the image).

If we look at the same bill from a different perspective, that is to say through Merkel's, Sarkozy's and Brown's eyes, it may even be seen as a visual and verbal metaphor for solution. The intersemiotic complementarity of the way to rescue Europe is visually and verbally discussed via the metaphorical representation of the bill. As the image shows and the text points out, the only way to avoid a collapse is to pay the bill. The significant usage of intersemiotic repetitions and synonyms in the types of actions suggested as part of the rescue plan are expressed in the text, as summarized in *Table 1*, but neither the image nor the text give evidence of when the payment happens.

Table 1: Paying the bill

SENTENCES	PAYING THE BILL
6	(...) footing for clearing it up
27	These countries will have to take the IMF medicine of debt restructuring and fiscal tightening that was meted out (...)
29	(...) accelerate the path to the euro (...) adopt the euro (...)
32	(...) adopt the euro (...)
42	(...) the pain should be shared (...)
45	Eastern European countries should restart the structural reform they have evaded so far.
48	The bill will indeed be huge but in truth western European countries cannot afford not to pay it.

As for the analysis of the processes performed in the image, the visual is a narrative representation of material and mental processes, as well as a conceptual representation encoding what the processes refer to as symbolic attributive processes. All this may be summarized as follows:

- the waiter holding and giving the bill to the clients illustrates a material process (narrative transactional unidirectional) and symbolizes the necessity of taking a decision to avoid an economic collapse;

- the participants who look worried at the sight of the bill represent mental processes and symbolize the difficulty of the decision which must be taken;
- the butterfly flying away depicts a material process (narrative non transactional) and the purse are connoted as belonging to the same field which symbolizes the lack of money to pay for the bill.

The symbolic value of the processes and participants involved is made prominent by the context in which they are depicted. The circumstantial representation shows a restaurant which is intersemiotically a salient element as regards the verbalization of the bill in the caricature where three clients are given the bill to pay, but it is not as salient as regards the article, which locates the economic crisis in Europe. The setting and the bill are important for their metaphorical narrative meanings. This symbolic contextualisation, which emphasizes what is portrayed, gives a highly connotative meaning to the message.

The bill projects metaphorical meanings in terms of past temporal references of decisions taken and actions performed; it provides a scenario of what the present situation is, and makes meaningful suggestions for future arrangements, as *Table 2* summarizes here below.

Table 2: Use of tenses

<b>PAST</b>	<b>PRESENT</b>	<b>FUTURE/CONDITIONAL</b>
Has been cooked (s.5)	Goes down (s. 3)	Could break (s. 2)
Faced (s. 7)	Sound (s. 4)	May take (s. 3)
Have been on a binge (s.8)	Are not (s. 15)	Will find (s.6)
Were (s.9)	Is ... remain (s. 19)	Will see (s.7)
Have botched or sidestepped, have waisted (s. 9)	Is (s. 22)	would soon be able (s.8)
Have invested and lent (s. 12)	Treat... is (s. 23)	Should pay (s.10)
Shrivelled (s. 12)	Stand out (s.24)	Would be (s.11)
Was (s. 18)	Includes ...are (s. 26)	would see (s.12)
Felt (s. 20)	Are (s.28)	could easily unravel (s. 13)
Have been cut adrift (s. 20)	Is ... let ...adopt (s.29)	Would quickly raise (s. 14)
Have come (s. 20)	Are (s.32)	Would destabilise (s. 15)
Was meted out (s. 27)	Oppose ...use (s.33)	Would spell (s. 16)
Have joined (s.30)	Is (s.35)	Could be (s. 17)
Seemed (s.38)	Arises (s.37)	Could fall (s. 20)
Lent to (s. 38)	Looks like (s. 38)	May help.. should fall (s. 26)
Has been (s. 44)	Is to prop up (s. 41)	Will have to take (s. 27)
Have evaded (s. 45)	Are (s. 47)	Must take (s. 28)

Stole (s. 46)		Might make (s. 30)
		Will meet (s. 31)
		Ought not to (...) should it damage (s. 32)
		Would make (s. 34)
		Could fatally weaken (s. 36)
		Must be (s.40)
		Are going bad (s. 41)
		Should be shared (s. 42)
		Will necessitate (s. 43)
		Must be (s. 45)
		Will be (s. 46)
		Will indeed be (... ) cannot afford (s. 48)
		Need to start (s. 50)

The bill is announced at the very beginning of the article as the result of something which has occurred recently, *has been cooked up*, a location is given as well, *at home, in east European countries*; details of what the eastern countries have done is referred as *have been on a binge*, which underlines how a past action is showing its present results. Other participants are identified in the past actions, as the banks from Austria, Italy, and Sweden which *have invested and lent*. The bill as a narrative metaphor for the present situation of western and eastern European countries is intersemiotically lexicalised as follows: some east European countries are ready to join the euro, others are not, in order to recover from their economic crisis. Finally, the countries which invested in the east European one are now at risk.

The future prospects of the bill connoted as a solution, are supported intersemiotically by lexical items as *priority* and *aims* which must be taken into consideration to prevent an economical collapse.

As the bill's history can be considered in terms of a period of time (present-past and future) the intersemiotic relationship between the visual story and the aspects of the verbal story referred to in the text, would seem to be one of intersemiotic meronymy (the whole being the period of time). Indeed lexical items such as temporal adverbs are not used much. The use of *now* for the present prevails over the past and future references are not used extensively. Conversely, the use of modes and tenses is substantial in the past, present, and future. Relevantly important is the building of the bill's present and future/conditional by the use of *goes down*, *could break up*, and *may take* in the headline and the sub-headline which summarize the whole article.

Looking at these results, I would like to comment positively as regards the verbo-visual intersemiotic complementarity in *The Bill* text, whose usage is prominently realised through repetitions, synonyms, and meronymies to introduce and develop the topic .

## 5. INTERPERSONAL INTERSEMIOTIC ANALYSIS

In the analysis of the intersemiotic relationship between the visual and the verbal aspects of the text in interpersonal terms, I start by examining how the text addresses the reader/viewer, and follow by focussing on the level of involvement which allows both the reader and the viewer to feel engaged while reading through the semantic relations between the article and the image. I will then investigate the degree of social distance which determines how close to or far from the multimodal text the readers and viewers are, in order to reflect if they have a stronger or weaker responsibility in understanding the subject matter of the text.

In terms of visual *address (gaze)*, the caricature may be interpreted as a visual offer. Since there is no eye contact with the viewer, s/he is offered information, and what s/he is required to do is to read the information and agree or disagree with what is portrayed. This interpretation of the image is complementary to the verbal counterpart which verbalises the metaphorical representation of the bill as *the bill that could break up Europe*, and the three clients as *western Europe's leaders, Europe's leaders*. The represented participants do not trigger any form of direct interaction with the viewer. In the analysis of language, there are no attempts to directly involve the reader as an active collaborator, all the clauses, except for the headline follow the order subject before finite and mark the declarative mood(statement) in the exchange of information. There are no clausal examples of interrogative, except the rhetorical question "surely they should pay the price for their own folly?" (s.10) or imperative mood, the reader is neither asked questions nor requested or ordered to do or behave in a certain way.

Turning to the *level of involvement (perspective)* which is frontal as regards the constructor and oblique as regards the represented participants, I would say that the multi-layered degree of obliqueness (each client is looking in a different direction) increases the level of exclusion from the visual representation on the side of the viewer who is put in the condition of being no more than a mere observer. In the verbal aspect of the text there are no attempts at involving directly the reader as an interactive participant in the exchange of information by using forms of direct address; neither are there attempts to use the second person pronoun *you* nor the first person plural pronoun *we* as referring to the reader. The reader is not included in a multimodal exchange and discussion of information. All singular and plural personal pronouns are in the third person. *They/them/themselves* refer mainly to the western, the eastern countries, Europe's leaders; while *it*, which is rarely used, refers to the bill. In terms of intersemiotic complementarity, neither the viewers nor the readers are explicitly addressed, they are considered as mere receivers of the offered multimodal information.

Focussing on the *power relation* between the viewers and the represented participants in the image, neither is placed in a position of superiority. The eye-level angle puts the viewer and the represented participants in a position of equality, which means that there is no difference in the degree of power exercised by either. In terms of intersemiotic relations, as for the verbal part, the reader is assumed to be the receiver of information given by the writer. The

degree of equality visualized via the eye level angle power relation is closely interconnected to the exchange of verbal offering/receiving information.

In terms of *social distance* the participants (only the human ones) are represented from a close to a medium close shot; they are not portrayed in their full figure because emphasis has been given on their faces whose size is exaggerated, and which express anxiety. Both elements contribute to confirm and focus on the exaggerated size of the bill and on the gravity of what the bill wants the viewer/reader to be informed of. The verbal counterpart does not give any sign of closer relation in terms of involvement, as mentioned above.

On these grounds the caricature excludes the viewer from any form of direct involvement. This caricature was not meant to be considered as part of the viewer's world, nevertheless s/he is put in a position of equality from which the image seems to ask him/her for the reception of information s/he is being offered, and which might be accepted or refused.

In terms of address and involvement, there is clear evidence that the intersemiotic complementarity between the caricature and the verbal text is achieved by intersemiotic interdependence of indirect address and lack of involvement.

As the distribution of visual information varies from a neutral to a coded representation of facts, a visual world may display a stronger or weaker degree of reality, reliability, credibility, possibility and probability. This process, which is called visual coding orientation, reveals and highlights the producer's point of view in terms of visual modality.

In the examination of *The Bill* text, the caricature portrays a naturalistic scenario (participants, actions, circumstances) which is quite easily recognizable to the viewers even though it is an abstract caricaturization. The representation, from a stylistic point of view, is accurate and detailed, the represented participants, both human and non human, have been portrayed with particular emphasis, which underlines the producer's point of view, and accentuates the features that the viewer is supposed to focus on. A closer examination of the three clients reveals some interesting attitudes: Merkel's, Sarkozy's and Brown's heads are bigger than the usual size of a head, the flags and the drinks, as additional features, are used as social stereotypes and allow the three leaders to be recognized more easily. The viewer is offered the metaphorical (clients/politicians, bill/crisis) and stereotypical (coffee/Germany, wine/France, tea/Britain) elements to decode the visual message.

*The Bill's* visual text, whose caricaturized representation of reality is maintained by a medium high degree of modality<sup>17</sup>, portrays a metaphorical setting where the three clients' physical details give evidence of a worrying state of crisis, the gravity of which is emphasized by their facial expressions, and is worsened by the bill's exaggerated size and by the avoidance of any form of hesitation in the waiter's holding and giving the bill. All the elements contribute to emphasise a high degree of modality. The semantic density of the visual messages, which the viewer is provided with, increases the degree of credibility of the participants' behavioural status, actions and reactions. Merkel, Sarkozy, and Brown have unquestionably met and discussed the economic crisis, what is clearly less realistic, and gives a touch of

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<sup>17</sup> Halliday (1994), in his systemic functional approach to the analysis of language, distinguished three degrees of modality, lower, medium, and high, which are encoded by modal verbs and/or modal adjuncts elements (adverbs, prepositional phrases, nominalisations, etc.). Lower modality indicates a degree of possibility (may, might, could), medium modality expresses the probability that something occurs (should, will), and high modality, which excludes any sort of prediction and evokes certainty. (must, ought to).

bitter irony to the image is the visual representation of the crisis through an oversized bill. Yet its size and the metaphorically connoted list of dishes contribute to sidestep any form of uncertainty as regards the gravity of the situation, and confirm the high degree of visual modality. Visual modality slightly decreases looking at Merkel's and Sarkozy's apparent behavioural hesitation. This status of indecision is not confirmed in the article simply because the leaders are not the producers of the verbal message, it is the journalist's point of view which orients the readers and supports the high degree of modality in the multimodal text. In giving details of how western countries must finally react to the crucial moment for the EU economy, the verbal modality features used by the journalist express a general attitude of certainty, as the following clauses state: "*European countries **will** find themselves footing the bill*" (s.6), "*the first priority (...) **must** be to stop further currency collapse*" (s.40), "*a third aim **must** be to get eastern European countries to restart the structural reform they have evaded so far*" (s.45), "*western Europe **cannot** afford not to pay it*" (s.48), and "*It is **certainly** not too late to rescue the east; but politicians **need** to start making the case for it*" (s.50).

Conversely, by giving details of and arguing about catastrophic consequences which highlight the wrongfulness of decisions (wrong investments, lack of reforms), the degree of modality varies from medium to low, as pointed out by the following expressions: "*if eastern Europe goes down, it **may** take the European Union with it*" (s.3), "*the political consequences of letting eastern Europe go **could** be graver still*" (s.17), "*the pain of this **should** be shared four ways*" (s.42).

In terms of attitudinal congruence which realises intersemiotic complementarity, I found three general content areas:

- there is a medium degree of congruence between how responsibilities must be shared and what decisions must be taken by the west European and the east European countries in the visual and the verbal mode;
- there is a high degree of congruence between the way the reasons of the crisis have been shown and written about;
- there is a high degree of congruence between what the future scenario will be, as visually shown and written about.

As regards attitudinal dissonance, I did not find any form of intersemiotic discrepancy between the two modes which, in terms of interpersonal features, contribute to confirming the high level of complementarity in the verbo-visual scenario.

## 6. TEXTUAL INTERSEMIOTIC ANALYSIS

*The Bill* text gives evidence of intersemiotic textual relationship between the visual and the verbal modes which contribute to produce coherent uniformity to the multimodal message.

In the analysis of where information is distributed on the page, and how this is valued, the caricature is placed in the central-lower status of the text which, according to a top-bottom organizational setting, emphasises both its concrete status of truthfulness, credibility and its salient prominence as regards the size of the represented participants.

As for the overall vertical distribution of the text, we may divided it into three sections, with the headline and sub-headline at the top, the image which follows it, and the article from the

upper centre to the bottom of the page. In terms of balance in the verbal and the visual expression, the multimodal text is predominantly verbal, but, as for the semantic aspect, the visual and the verbal modes are intersemiotically closely related. The viewer and the reader are provided with a metaphorical visual sketch which focuses on the topic and subject matter of the article via a caricaturization of the participants involved in the economic crisis. The crisis in Europe, as the verbalised target domain of a multimodal metaphor, visualises the source domain (waiter, bill, and clients) in a contextualised business-lunch scenario. The metaphor, as an element of intersemiotic interrelatedness, in its visual form is meant to be an introductory and preliminary reflection about the possibility of an economic collapse in Europe, while the verbal mode addresses the reader by focussing on the key words of the message, such as *the bill, Europe, western European countries, eastern European countries, Europe's leaders, break up, collapse, disaster, rescue, pay* and gives complementarity to the metaphorical meaning.

Looking at the multimodal text and its visual *salient* centrality, the reader is at first attracted and his/her attention is directed to the visual as the stabilising introductory step towards the reading and understanding of the whole text. The headline, the caricature and article all draw attention to the bill, whose visual size and vertical and horizontal space visual invasion (from centre-left to down-right) highlight the imperatively vital need to pay for it as a binding process to rescue Europe.

Another salient factor in the image is the choice of colours. The background is in a soft modulated yellow which focuses the viewer's attention on the foregrounded participants. The colours of the flags are saturated, while the flesh pink of the waiter's and the clients' faces and the business-like blue/black of their suits are both modulated. The former gives emphasis to the troubled questioning mood of the politicians, the latter focuses on their institutional status. The table and the bill are in a soft-creamed greyish modulated colour. As for the bill, the softness and the low modulation highlight the black saturated colour of the bold-typed text.

In ideational terms, the colours represent a real-like world and denote its meaning; as for an analysis of the interpersonal values of colours, the modulated use of colours in both the participants faces and their clothes communicate feelings of worry (faces) and institutional responsibility (clothes). With regards to the textual organization of colours from a soft yellow at the top, the centre is characterized by a stronger degree of colour intensity (black, blue, red, yellow, white) which emphasises the national, social and behavioural status of the represented participants. The bottom of the image brings focus to the list of content elements of the bill (in black) and leaves the cream- greyish tablecloth and the bill in the position of ancillary elements.

The direction/s the viewer and reader follow to explore a multimodal text is significantly prominent in the interpretation of intersemiotic verbo-visual relation in terms of Kress and Van Leeuwen's *Given-New* text organization. Following the assumption that both visuals and verbals are supposed to be read from a left to right *potential reading path*, I found that the narrativization, as the past, present, and future projection of events, of both the visual and the verbal organization of *The Bill* text, gives evidence of a high degree of intersemiotic complementarity. The *Given*, which illustrates the waiter giving the bill, and which eastern countries should be involved in the rescue project, refers back to what happened with eastern European countries. The verbal counterpart communicates what actions contributed to increase the heaviness of the bill (wrong investments) the visual *New* shows both the

clients' reactions as a consequence of reading the bill, and which western investing countries should be involved in the rescue plan mentioned in the *Given*; the verbal text develops the analysis of Europe's present crisis by referring to the troubles it has been dealing with.

In terms of the horizontal arrangement of the image and the text on the page, intersemiotic complementary is achieved by the way the giving/receiving information frame is developed in both modes, and gives a balanced focalisation of *information valuation on the page*.

Moving to the examination of the *degrees of framing elements* on the page, the visual and the verbal relate intersemiotically and do not fight for space dominance. The two modes are clearly arranged as separate frames, which, nevertheless, interact with a high degree of harmonious collaboration, and convey to the viewer/reader a semantic verbal and visual sense of unity and inclusion. The multimodal framing flows according to the integration of the verbal and visual blended organization and development of information; the headline introduces what the caricature contextualizes and visualizes, which the article develops and argues in details. The overall effect for the viewer and the reader is of a textually integrated semantic system.

The *Given-New* status of information, in terms of what past/present/future reactions and actions are enhanced by past events and decisions, is intersemiotically complemented by the verbal structural organization of the article.

*Table 3* lists the past, present, and future development of actions in the article.

Table 3: Past events

SENTENCES	
5	The mess has been cooked at home
7	West European countries faced recession
8	Eastern European countries have been on a binge fuelled by foreign investment
9	East European countries were ill-prepared (...) they have botched or sidestepped reforms
12	Banks from Austria and, Italy and Sweden (...) have invested and lent heavily in eastern Europe
45	(...) to restart the structural reforms they have evaded

Present events

SENTENCES	
14	Collapse in the east raise questions about the future of EU itself
15	Ireland and Greece are not in much better shape than eastern Europe
22	The question for western Europe's leaders is how best to avert such disaster
29	One remedy is to accelerate their path to the euro
35	None of these is ready for the tough discipline of a single currency
47	German taxpayers are already worried that others are after their hard-earned cash

Future event

SENTENCES	
7	Older EU countries will find themselves footing the bill for clearing it up
22	Western European countries are to stop such disaster
40	The first priority must be to stop further currency collapse
41	The second is to prop up the banks responsible for the foreign currency that are going bad
42	The pain should be shared four ways: between the banks and their debtors, and between governments of both lending and borrowing countries
46	Everybody's jobs will be hard for Europe's leaders to sell on the doorsteps of Berlin, Bradford and Bordeaux
48	The bill will indeed be huge
49	The break up of the euro or the single market would be catastrophic for all of Europe

**FINAL REFLECTIONS**

The aim of this paper was to illustrate to what extent the visual and the verbal modes are semiotically complementary, which allows the viewer and the reader to read through the multimodal text, and understand it as a cohesive semantic unit. I based my examination on Royce's research on multimodal discourse analysis and on the framework he developed (1998, 2002, 2007) which, following either Halliday's concept of cohesion and cohesive ties within written texts, and Kress and Van Leeuwen's approach to identify socio-semantic relations in the visuals, enables the addressee to explore the degree of synergy between the portions of an image and the verbal chunks of a multimodal text.

In my analysis, *The Bill* text substantiates Royce's approach and intersemiotic complementarity is achieved in ideational, interpersonal, and textual metafunctional terms. As for the ideational features and meanings in either modes, lexico-semantic relations are realised through *repetitions, synonyms, meronymies, hyponymies* and *collocations*. Moreover, interpersonal verbal and visual messages co-occur and are related through the low degree of involvement realised via the absence of visual/verbal *address*, the *obliqueness* in the *perspective angle*, the consistent *social distance* which the viewers and readers are kept from, and the medium-high degree of intersemiotic *attitudinal congruence* (modality). Finally, it has been demonstrated that the multimodal text is displayed as proportionally uniform, and gives evidence of verbo-visual semantic interrelation via *information value, salience, framing, and the reading path* on the page. The analysis of *The Bill* text clearly evidenced intersemiotic complementarity, thus highlighting the degree of interactivity among the visual and verbal segments which multimodal texts are composed of.

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APPENDICES

APPENDIX 1

ROYCE'S FRAMEWORK

Visual-verbal intersemiotic complementarity

METAFUNCTIONS	VISUAL	INTERSEMITOIC COMPLEMENTARITY	VERBAL
<b>IDEATIONAL</b>	<i>participants</i> <i>processes</i> <i>circumstances</i> <i>attributes</i>	<ul style="list-style-type: none"> <li>• <i>Repetition</i></li> <li>• <i>Synonymy</i></li> <li>• <i>Antonymy</i></li> <li>• <i>Meronymy</i></li> <li>• <i>Hyponymy</i></li> <li>• <i>collocation</i></li> </ul>	<i>participants</i> <i>processes</i> <i>circumstances</i> <i>attributes</i>
<b>INTERPERSONAL</b>	<p><i>address</i> (direct, indirect address)</p> <p><i>involvement</i> (perspective)</p> <p><i>Social Distance</i> (size of frame)</p> <p><i>Modality markers</i> (contextualisation, salience)</p>	<p><i>Mood</i> (address via offers, commands, statements, questions)</p> <p><i>Modality</i> (real or unreal, true or false, possible, impossible,)</p> <p><i>Attitudinal congruence/dissonance</i></p>	<p><i>Mood</i> (speech functions and clause relations)</p> <p><i>Modality</i> (high, medium, low)</p>
<b>TEXTUAL</b>	<p><i>Information value</i> (vertical: top/bottom; horizontal: left/right; balance: centre/margins)</p> <p><i>Salience</i> (foreground/background, size, colour tones and contrasts)</p> <p><i>Framing</i> (visual space and structure)</p>	<p><i>Page structure:</i></p> <p><i>Information valuation</i> (horizontal, vertical, balance)</p> <p><i>Salience</i> (foregrounded, backgrounded elements, size, tones and contrasts)</p> <p><i>Framing</i> (visual and verbal space display)</p> <p><i>Reading path</i> (visual and verbal organization of language)</p>	<p><i>Verbal mode organization</i></p> <p style="text-align: center;">:</p> <p><i>Information value</i> (given/new)</p> <p><i>salience</i> (typesetting, copyfitting)</p> <p><i>framing</i> (display type)</p>

## APPENDIX 2

### SENTENCE DIVISION OF THE TEXT

1. **Eastern Europe's woes.**
2. **The bill that could break up Europe.**
3. **If eastern Europe goes down, it may take the European Union with it.**
4. TUMBLING exchange rates, gaping current-account deficits, fearsome foreign-currency borrowings and nasty recessions: these sound like the ingredients of a distant third-world-debt crisis from the 1980s and 1990s.
5. Yet in Europe the mess has been cooked up closer to home, in east European countries, many of them now members of the European Union.
6. One consequence is that older EU countries will find themselves footing the bill for clearing it up.
7. Many west Europeans, faced with severe recession at home, will see this as outrageously unfair.
8. The east Europeans have been on a binge fuelled by foreign investment, the desire for western living standards and the hope that most would soon be able to adopt Europe's single currency, the euro.
9. Critics argue, with some justice, that some east European countries were ill-prepared for EU membership; that they have botched or sidestepped reforms; and that they have wasted their borrowed billions on construction and consumption booms.
10. Surely they should pay the price for their own folly?
11. Yet if a country such as Hungary or one of the Baltic three went under, west Europeans would be among the first to suffer.
12. Banks from Austria, Italy and Sweden, which have invested and lent heavily in eastern Europe, would see catastrophic losses if the value of their assets shrivelled.
13. The strain of default, combined with atavistic protectionist instincts coming to the fore all over Europe, could easily unravel the EU's proudest achievement, its single market.
14. Indeed, collapse in the east would quickly raise questions about the future of the EU itself.
15. It would destabilise the euro—for some euro members, such as Ireland and Greece, are not in much better shape than eastern Europe.
16. And it would spell doom for any chance of further enlarging the EU, raising new doubts about the future prospects of the western Balkans, Turkey and several countries from the former Soviet Union.
17. The political consequences of letting eastern Europe go could be graver still.
18. One of Europe's greatest feats in the past 20 years was peacefully to reunify the continent after the end of the Soviet empire.
19. Russia is itself in serious economic trouble, but its leaders remain keen to exploit any chance to reassert their influence in the region.
20. Moreover, if the people of eastern Europe felt they had been cut adrift by western Europe, they could fall for populists or nationalists of a kind who have come to power far too often in Europe's history.
21. **How to avert disaster**
22. The question for western Europe's leaders is how best to avert such a disaster.

23. Although markets often treat eastern Europe as one economic unit, every country in the region is different.
24. Three broad groups stand out.
25. The first includes countries that are a long way from joining the EU, such as Ukraine.
26. Here European institutions may help financially or with advice, but the main burden should fall on the International Monetary Fund.
27. These countries will have to take the IMF medicine of debt restructuring and fiscal tightening that was meted out so often in previous emerging-market crises.
28. Things are different for the countries farther west, all EU members for which the union must take prime responsibility.
29. One much-touted remedy is to accelerate their path to the euro, or even let them adopt it immediately.
30. It might make sense for the four countries with exchange rates pegged to the euro: the Baltic trio of Estonia, Latvia and Lithuania, plus Bulgaria. (Slovenia and Slovakia have joined the euro already.)
31. None of these will meet the Maastricht treaty's criteria for euro entry any time soon.
32. But they are tiny (the Baltics have a population of barely 7m), so letting them adopt the euro ought not to set an unwelcome precedent for others nor should it damage confidence in the single currency.
33. Yet the European Central Bank and the European Commission firmly oppose this form of "euroisation", even though two Balkan countries, Montenegro and Kosovo, use the euro already.
34. Unilateral or accelerated adoption of the euro would make far less sense for a third group of bigger countries with floating exchange rates: the Czech Republic, Hungary, Poland and Romania.
35. None of these is ready for the tough discipline of a single currency that rules out any future devaluation.
36. Their premature entry could fatally weaken the euro.
37. But as their currencies slide, the big vulnerability for the Poles, Hungarians and Romanians, especially, arises from the debt taken on by firms and households in foreign currency, mainly from foreign-owned banks.
38. What once seemed a canny convergence play now looks like a barmy risk, for both the borrowers and the banks, chiefly Italian and Austrian, that lent to them.

### **39. Stopping the rot**

40. The first priority for these four must be to stop further currency collapse.
41. The second is to prop up the banks responsible for the foreign-currency loans that are going bad.
42. The pain of this should be shared four ways: between the banks and their debtors, and between governments of both lending and borrowing countries.
43. From outside, these two tasks will necessitate help from several sources: the European Central Bank as well as the IMF, the commission's structural funds, the European Bank for Reconstruction and Development and perhaps the European Investment Bank.
44. Given the scale of the problem, the lack of co-ordination between these outfits has been scandalous.
45. A third aim must be to get eastern European countries to restart the structural reforms they have evaded thus far.

46. Bailing out the same mythical Polish plumbers who just stole everybody's jobs will be hard for Europe's leaders to sell on the doorsteps of Berlin, Bradford and Bordeaux, especially with the xenophobic right in full cry.
47. German taxpayers are already worried that others are after their hard-earned cash.
48. The bill will indeed be huge, but in truth western Europe cannot afford not to pay it.
49. The meltdown of any EU country in the region, let alone the break-up of the euro or the single market, would be catastrophic for all of Europe; and on this issue there is little prospect of much help from America, China or elsewhere.
50. It is certainly not too late to rescue the east; but politicians need to start making the case for it now.

### **APPENDIX 3**

#### **VERBAL ASPECT OF THE TEXT**

- 1. Eastern Europe's woes**
- 2. The bill that could break up Europe**
- 3. If eastern Europe goes down, it may take the European Union with it**
4. Yet in Europe the mess has been cooked up closer to home, in east European countries, many of them now members of the European Union.
5. One consequence is that older EU countries will find themselves footing the bill for clearing it up.
6. The east Europeans have been on a binge fuelled by foreign investment, the desire for western living standards and the hope that most would soon be able to adopt Europe's single currency, the euro.
7. Yet if a country such as Hungary or one of the Baltic three went under, west Europeans would be among the first to suffer.
8. Banks from Austria, Italy and Sweden, which have invested and lent heavily in eastern Europe, would see catastrophic losses if the value of their assets shrivelled.
9. Indeed, collapse in the east would quickly raise questions about the future of the EU itself.
10. It would destabilise the euro—for some euro members, such as Ireland and Greece, are not in much better shape than eastern Europe.
11. The political consequences of letting eastern Europe go could be graver still.
12. Moreover, if the people of eastern Europe felt they had been cut adrift by western Europe, they could fall for populists or nationalists of a kind who have come to power far too often in Europe's history.
13. How to avert disaster
14. The question for western Europe's leaders is how best to avert such a disaster.
15. One much-touted remedy is to accelerate their path to the euro, or even let them adopt it immediately.
16. It might make sense for the four countries with exchange rates pegged to the euro: the Baltic trio of Estonia, Latvia and Lithuania, plus Bulgaria. (Slovenia and Slovakia have joined the euro already.)
17. But they are tiny (the Baltics have a population of barely 7m), so letting them adopt the euro ought not to set an unwelcome precedent for others nor should it damage confidence in the single currency.
18. Unilateral or accelerated adoption of the euro would make far less sense for a third group of bigger countries with floating exchange rates: the Czech Republic, Hungary, Poland and Romania.

19. None of these is ready for the tough discipline of a single currency that rules out any future devaluation.
20. Their premature entry could fatally weaken the euro.
21. But as their currencies slide, the big vulnerability for the Poles, Hungarians and Romanians, especially, arises from the debt taken on by firms and households in foreign currency, mainly from foreign-owned banks.
22. What once seemed a canny convergence play now looks like a barmy risk, for both the borrowers and the banks, chiefly Italian and Austrian, that lent to them.

### **23. Stopping the rot**

24. The first priority for these four must be to stop further currency collapse.
25. The second is to prop up the banks responsible for the foreign-currency loans that are going bad.
26. The pain of this should be shared four ways: between the banks and their debtors, and between governments of both lending and borrowing countries.
27. A third aim must be to get eastern European countries to restart the structural reforms they have evaded thus far.
28. The bill will indeed be huge, but in truth western Europe cannot afford not to pay it.
29. The meltdown of any EU country in the region, let alone the break-up of the euro or the single market, would be catastrophic for all of Europe;
30. It is certainly not too late to rescue the east; but politicians need to start making the case for it now.