

# **Management Accounting Systems and Organisational Culture: an Institutional Framework for Interpreting their Linkages and Processes of Change\***

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## *Abstract*

*This paper aims to explore the nature, the roles and the dynamics of change of management accounting (control) systems within those processes of continuous organisational learning and transformation which are currently being undertaken by many of the world class corporations. Besides the traditional focus on the accounting and finance functions, by relying also on General Electric's recent implementation of the Six-Sigma initiative as 'the engine for organisational change', we intend to uncover the potential of these holistic measurement based systems of management for aligning business processes with corporate strategies. In so doing, they sustain continuous processes of transformation by infusing organisational culture/knowledge with shared metrics (both financial and non-financial) of performance accountability. Thus, after having provided a definition of process of cognitive change, we rely both on our 'clinical' position as researcher/helper-consultant and on the insights provided by Schein's approach to organisational culture (1992) and Giddens structuration theory (1984), to develop an institutional framework for interpreting the way in which the routinised systems of accountability bind the ongoing processes of cultural change across time and space.*

Key words: management accounting systems; organisational culture; changing processes; institutional framework; 'clinical' method.

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## 1. Introduction

**The current organisational scenario** - The last fifteen years have witnessed a massive transformation in business processes, which have constantly been re-engineered according to different operational and business philosophies (Kenny and Florida, 1993; Ezzamel et al., 1999; Dale, 1999). In the face of increasing complexity in the global and highly uncertain market environment, there have been continuous efforts to secure competitive advantage through the development of strategic innovations both in product and process technology (Ezzamel et al., 1999). In particular, various philosophies of organisational change, such as Total Quality Management (see Crosby, 1979; Deming, 1982/1986; Juran, 1988; Feigenbaum, 1991) and Business Process Reengineering (see Hammer, 1990; Hammer and Champy, 1993), have been used in order to meet the financial requirements of the stock market, by infusing *organisational culture*<sup>1</sup> with a set of 'values' informed by customer knowledge (Willmott and Wray-Bliss, 1996; Hennestad, 1999; Dale, 1999). This process continues today. It could be argued that the continuous alignment of business processes with corporate strategies is the main challenge facing the world class corporation as we enter the new millennium.

In this process of ongoing adaptation to an uncertain business environment, organisational resources and processes need to be constantly organised and monitored in order to achieve the goals individuated by the corporate vision of the business. As such, organisational leaders are required to translate their broad mission and strategies into specific objectives and measures and to communicate them across the organisation. In so doing, they are increasingly relying on 'new' initiatives of organisational transformation driven by "holistic" (i.e., comprehensive, organisation-wide) performance measurement systems. These systems both comprise and extend the traditional financial measurement systems (Scapens, 1999). Thus, by leading global processes of organisational transformation, they raise questions about the 'broadened' role of management accounting practices and their linkages with those processes of learning directed at changing organisational culture (Burns and Scapens, 2000; Hennestad, 1999).

The extended tasks of management accounting systems (MAS) have boosted their diffusion, acceptance and employment throughout the company. In fact, by integrating operational, financial and strategic information, they behave as *repositories* and *carriers* of a common organisational language/knowledge informed by shared metrics of accountability (see Busco, 2000). Within such a scenario, management accounting (and control) systems seem to play a key role in binding the dimensions of change. Thus, even through the employment of specific advanced key tools such as *activity based techniques* (analysis, budgeting, costing and management) and the *balanced scorecard* (Kaplan and Norton, 1996; Kaplan and Atkinson, 1998), these systems of performance accountability display the potential to organise, monitor and manage the continuous alignment of 'macro' corporate strategies (which are financially driven and customer oriented) with 'micro' business processes (which

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<sup>1</sup> In this paper we use without any difference of meaning the expressions "organisational culture" and "corporate culture".

need to be constantly reengineered and improved according to continuous processes of organisational learning and growth).

**The conceptualisation of management accounting systems** – Over the past twenty years, world wide, academics and professional accountants have been debating the relevance, the nature and the roles of MAS within their organisational contexts (Ashton *et al.*, 1995). In so doing, there have been numerous interesting contributions providing evidence to illustrate and/or support different views (Kaplan, 1984; Johnson and Kaplan, 1987; Bromwich and Bhimani, 1989/1994; Ezzamel *et al.*, 1993/1994/1996; Drury *et al.*, 1993; Scapens *et al.*, 1996; Shields, 1997). Furthermore, as emphasised by Chua (1988), the heterogeneity of the areas, on which management accounting research has relied, suggests that this branch of accounting is a ‘derived subject’ whose understanding involves insights from numerous social science disciplines.

Despite a wide spread agreement defines management accounting as a system tailored to provide ‘information that assists managers in fulfilling *goals* of the organisations’ (Horngren *et al.*, 1994, p.4; see also Kaplan and Atkinson, 1998; Barfield *et al.*, 1991), there are many conceptualisations of the role which MAS play within the corporate realm. While the traditional view which emerged in the 60’s considers these systems to be objects which ensure economically effective and efficient use of resources (Anthony *et al.*, 1992), during the 80’s, there have been many calls to expand management accounting research beyond the technical focus represented by the established “conventional wisdom” (Hopper and Powell, 1985; Hopwood, 1987; Macintosh and Scapens, 1990). In particular, the need to overcome the previous normative and positivistic approaches have led a wide range of scholars to search for much deeper perspectives; explaining management accounting practices as social, cultural and political phenomena (Cooper 1980, Tinker 1980). It is mainly for this reason that other studies have described multiple causes and roles for the accounting systems (Hoque and Hopper, 1994) and have focussed on broader social and institutional practices (Hopwood and Miller, 1994) to explain the multiple dimensions affecting processes of organisational change (Burns, Ezzamel and Scapens, 1998; Euske and Riccaboni, 1999).

**Investigating the linkages between organisational culture and systems of performance accountability** – The attempt to provide holistic explanations to the complex phenomena of management accounting change (Burns and Scapens, 2000) and the recognition of the crucial role played by shared institutionalised values and taken-for-granted assumptions within the ongoing processes of organisational transformation (Schein, 1991/1992) suggest to look deeper *at the multiple linkages connecting systems of performance accountability to the realm of organisational culture* (see also Busco, 2000). In particular, the definition of *institution* as “a way of thought or action of some prevalence and permanence which is embedded in the *habits* of a group or the *customs* of a people” (Hamilton, 1932) led our research to the development of a theoretical framework that, conceptualising organisations as socially constructed and validated realities (Berger and Luckmann, 1967; Dent, 1991; Schein, 1991/1992), may enable a holistic interpretation of the accounting role within complex processes of organisational culture change.

Conceptualising MAS as routinized rules and routines, Burns and Scapens (2000) emphasise the need to recognise their institutional character in order to decipher the complex processes of change. Arguing that management accounting practices play a pivotal role between the structuring properties of institutions and the daily interactions of organisational actors (Giddens, 1984), Burns and Scapens (2000) point out the potentials of MAS as *carriers of organisational know-how* which, becoming institutionalised, may 'contribute to the relative stability (however transitory) of organisational processes'. Drawing on these considerations, but avoiding focussing exclusively on micro-processes of management accounting change *per se*, the aim of this paper is to broaden such analysis to the understanding of the role played by systems of performance accountability within wider processes of organisational transformation. In particular, by arguing that stability and change may be considered as different contingent outcomes of the same, ongoing, organisational process, we intend to investigate and interpret the way in which *MAS are implicated in the creation, storage, maintenance and change of shared stocks of organisational knowledge*.

In doing so, we may introduce our contribution as characterised by a sort of *meso*-level approach (Czarniawska-Jeorges, 1992; Parker, 2000). Thus, although we are aware of the undoubted limitations that terms and related classifications such as 'macro', 'meso' and 'micro' carries with themselves, we artificially intend to place *organisations* and their institutionalised *culture* at an 'intermediate level'. This analytical exercise is meant to support our attempt to re-conceptualise as '*dualities*' those '*dualism*' (macro-micro, objective-subjective, determinism-voluntarism, collective-individual) which have characterised much of social sciences' orthodox tradition. As Parker (2000) suggests:

'organizations can be considered as a meso level between the reified structures of capitalism, patriarchy and so on and the lived experience and accounts of everyday life. In other words, *organisations are institutions which structure industrial societies and individual experience but are also structured by industrial societies and individual experience*. In a broader sense the term 'organization' then can easily become a *metaphor for the social itself*, both as *the outcome of it in terms of institutionalised rules and assumptions* and as *the process of producing structured interaction amongst groups of people*' (p.93-94; emphasis added)

Within this theoretical scenario, by acknowledging the existence and the relative strength of those exogenous 'structural pressures' (i.e., capital market, customer knowledge, globalization, etc.) which shape the current economic context, this paper tries to illuminate the way in which organisations' identity develops in order to 'interact' with these factors. In particular, the research focus is placed upon the underlying nature and the processes of change of a socially constructed phenomenon, *organisational culture*, which is portrayed to play a key role in structuring and co-ordinating the organisational 'responses' to those external pressures. Thus, although it has been largely recognised that *cultural manipulation* is not as easy as might have been thought (Schein, 1992), the need to decipher and interpret the dynamics of organisational learning and its level of sharedness within the company has gained relevance within those processes which drive corporate transformation (Kloot, 1997; Hennestad, 1999).

## 2. Understanding the organisational domain: culture, routines and actors

Management accounting systems can be portrayed as stores (repositories) and carriers of the cognitive, regulative and normative dimensions which are at the very heart of organisational culture (see also Busco, 2000). In particular, by employing a combination of Schein's approach to organisational culture (1992) and Giddens's structuration theory (1984), the institutionalist contributions of Nelson and Winter (1982), Macintosh and Scapens (1990), Scott (1995) and Burns and Scapens (2000) may be drawn upon to interpret the intimate and constitutive role which accounting plays within the construction of organisational reality (Hopwood, 1987; Miller and O'Leary, 1987; Dent, 1991; Hopwood and Miller, 1994; Miller and O'Leary, 1994; Catturi and Riccaboni, 1996). In so doing, management accounting may be interpreted as socially constructed and validated systems of rules, roles and routines which are drawn upon by specific organisational actors ('position-practice' incumbents) within the day-to-day process of creation, diffusion, maintenance and change of those taken-for-granted assumptions, values, philosophies which represent the ultimate source of organisational behaviour and patterns of interaction.

Thus, drawing heavily on the contribution of Schein (1991/1992), this paper will start our analysis by conceptualising organisational culture as an *institutionalised* phenomenon which binds together both time and space through continuous processes of social interaction. In so doing, stressing the crucial need to decipher its deepest institutionalised layers, rather than stopping at the mere understanding of its overt, i.e. enacted, visible manifestations, we define organisational culture as a *socially constructed and validated pattern of shared basic assumptions*, which have been developed by a specific *group of individuals* (organisational members) as it *learns* to cope with its problems of *external adaptation and internal integration*. Such taken-for-granted assumptions, which have worked well enough to be considered valid, represent the stored synthesis of mutual knowledge of organisational members and, therefore, they have to be "taught" to newcomers as the appropriate way to perceive, think, and feel in relation to specific situations which might occur (Schein, 1991).

Aiming at understanding the social learning process through which *organisational values* and *routinised patterns of behaviour* come to be *frozen* (institutionalised) within a *shared* culture, Schein proposes a *holistic* and *dynamic* approach to organisational transformation; an approach in which stability and change are not 'mutually exclusive'. Thus, being affected by both *endogenous* and *exogenous* factors/pressures, stability and change are not considered two independent sets of phenomena but, on the contrary, represent 'contingent' faces of the same – multifaceted – process (Burns and Scapens, 2000). The espoused considerations, together with the acknowledgement of the key role which Schein attributes to the daily enactment of routinised patterns of behaviour as a means of coping with the *anxiety* which arises during the actors' continuous psychological search for *ontological security*, highlight the multiple convictions which Schein and Giddens (1976/1979/1984) share about the constitution, maintenance and change (handling of *critical situations*) of organisational order.

Therefore, besides recognising the concurrent shaping abilities of macro (i.e., external adaptation) and micro (i.e., internal integration) factors, within the interpretative framework developed in this paper the development of organisational knowledge/culture is conceptualised as the ongoing result of both objective – institutionalised, taken-for-granted – and subjective – emerging out of human interaction – dimensions of social reality. These two domains, which characterise each organisational setting, are not separable; i.e., they cannot be reduced to a dualism. On the contrary, being the medium and outcome of each other, they represent ‘that duality’ which needs to be placed at the very core of organisational life (Giddens, 1984). Consequently, by avoiding to fall within the traditional dichotomy between organisations ‘having’/‘as’ culture, we intend to emphasise the process of social construction and validation which is at the base of these institutionalised taken-for-granted assumptions.

The acknowledgement of such a ‘*duality of culture*’<sup>2</sup> (Hennestad, 1999) implies that corporations have their own distinctive culture and identities (Parker, 2000). Such organisational culture, which is characterised by shared taken-for-granted values, rules and resources, may be described out of time and space as a set of institutionalised properties of the organisation itself. Furthermore, being stored within actors’ mutual stocks of knowledge, these assumptions are then drawn upon by the incumbents of ‘position-practice’ and instantiated in their actions (Giddens, 1984). Thus, during the day-to-day flow of interaction, the knowledgeable reflexive organisational members rely upon specific modalities of structuration to enable processes of meanings communication (through interpretive schemes), to determine patterns of behaviour for sanction or reward (norms) and to facilitate the enactment of power (facilities).

Being at the point of intersection between human agency and corporate culture, such a web of framed (by rules) ‘position-practice’ represents the organisational repository and, then, carrier of mutual knowledge.. Thus, the storage of shared knowledge, whose enactment is strictly connected to the concept of power, becomes twofold. Besides informing the psychology of situated organisational members, the carrier of stored information is also involved in the ongoing production and reproduction of corporate culture which, fading away in time and space, is recursively accomplished through the enactment of routinised patterns of behaviour by specific ‘positions-practice’ incumbents.

As such, being aware of the complexity which characterise processes of organisational transformations, within this paper we proceed first to deliver a possible interpretation of processes of organisational cognitive change (exploring how the individual-level dynamics affect the group-level manifestations), and then to illuminate how systems of performance accountability contribute to the ongoing creation and re-definition of organisational culture. Pursuing this type of research implies the need to investigate far beyond the current obsession of making the numbers and beyond the systems of accountability as enacted: it requires us to take into account the way in which less visible

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<sup>2</sup> Hennestad points out how such ‘duality of culture’ is well synthesised by the works of Geertz (1973), who emphasises how ‘meanings resides in the act’, and Silverman (1970), who affirms that ‘action arises out of meaning’.

organisational dimensions, such as the cultural, political, social and institutional, affect the continuous processes of transformation.

### 3. The Research Methodology

The elaboration of the institutional framework, whose development represent the ultimate objective of this paper, has heavily benefited from the empirical evidence which has been collected through a longitudinal, exploratory, case study<sup>3</sup> (Scapens, 1990). In particular, by combining the figure of the ‘researcher’ (observations, meetings, interviews, attending internal training courses, etc.) with the role of ‘helper-consultant’ (active involvement within internal training activities, such as seminars, workshops, case analyses, etc.), we have tried to decipher the observed processes of organisational change by exercising what has been called by Schein (1985/1991/1992) the ‘clinical perspective’ (see also Berg and Smith, 1985). Thus, the process of *holistic* interpretation (Scapens 1990/1994) has benefited from a combination of the observations of outsiders, but with extensive knowledge about the organisational context, together with the critical analysis and contributions of a group of insiders (Schein, 1992).

According to Schein, the position of ‘helper-consultant’ enhances the researcher’s potential to overcome the difficulties which, in the absence of extensive ethnographic research, may arise during the uncovering of the taken-for-granted assumptions which are at the very core of organisational culture. Therefore, when one relies principally on observable behavioural rituals (such as organisational artifacts, rules, roles, patterns of behaviour), in order to decipher those highly abstracted psychic categories of thought, beliefs and feelings, which constitute the ultimate source of the organisational shared knowledge, it is necessary to adopt ‘an eclectic approach that draws on anthropology, sociology, and social psychology, and that reflects research methods broader than the traditional ones’ (Schein, 1991, pp. 246). Furthermore, as Schein asserts:

‘by recording all of the artifacts the group comes up with, stimulated by questions and observations from the outsider/consultant, one can make visible the manifest side of the culture. One then pushes the group to name the values that are implied by these artifacts and, when those have been examined, pushes the group further to identify the shared underlying assumptions that lie behind the artifacts and values’ (1991, p. 253).

The nature of the issues researched requires the case study to be *longitudinal* (Scapens, 1990). It needs also to be *interpretive* since by exploring the nature, the roles and the holistic dynamics of change in management accounting systems we intend to provide *practical and theoretical answers to*

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<sup>3</sup> Our first contacts with the company are dates back to 1996. Over the subsequent period, particularly since September 1997, our visits to the sites have been nearly monthly with activities and tasks which have ranged from *pure* research to internal training. This twofold role has enabled us to obtain a deep access to the organisational setting. Thus, we had the possibility of actively participating in the ongoing process of organisational transformation by *living* such organisational events as workshops, seminars and courses, collecting a large quantity of internal material and, in parallel, conducting a large number of extensive interviews.

*questions related to the ongoing interplay between systems of performance accountability and the creation of mutual frames of organisational knowledge.* Although within interpretive studies the understanding of social processes may emerge out of the context of the case, a theoretical framework is needed to bind together the evidence analysed (Humphrey and Scapens, 1994). As **Macintosh and Scapens** argue, ‘case studies by themselves are not enough to advance our knowledge of management accounting practice; they need to be informed by the theory’ (1990, p. 475).

As explained above, in recent years there have been several studies attempting to understand MAS as social and institutional practice. By using both cases study and questionnaires, those studies have tried to explore the nature of current accounting practices and their roles within organisational realities. Nevertheless, with few exceptions, they have been largely descriptive and lacking theorisation of the ‘*essence*’ of accounting practices (Scapens, 1990). For these reasons, the institutional model developed in the paper is used to illuminate the phenomena observed in the field. In so doing, rather than testing the statistical validity of the theory through the examination of a representative sample of cases, the objective of this research is to reach theoretical generalisations through the employment of a framework capable of explaining the characteristic of the reality investigated (Scapens, 1990).

Being implemented within an Italian company, Nuovo Pignone – NP, which has recently moved from state to private ownership, by General Electric – GE, and which has naturally experienced a massive organisational transformation, the case aims to illustrate the processes of continuous organisational learning and change which many world class corporations are currently undertaking. In particular, by focussing on GE’s world wide implementation of *measurement based* programs of organisational re-structuring, we intend to uncover *the potential of this holistic system of management for aligning business processes with corporate strategies and sustaining continuous processes of transformation by infusing organisational culture/knowledge with shared metrics of performance accountability.*

#### **4. Infusing ‘culture’ through systems of measurement and accountability: the case of Nuovo Pignone**

**Nuovo Pignone and the ‘GE way’** – Known originally as *Pignone*, this Florence based company was established in 1842 as a metallurgic firm. Considered from the very beginning as a symbol of the town and the entire region, towards the end of the Nineteenth century and, mainly, at the beginning of the Twentieth century, Pignone entered massively into the mechanical sector. The actual denomination, *Nuovo* (new) *Pignone*, is due to the acquisition (in 1954) of the original firm by ENI (Ente Nazionale Idrocarburi), a state-owned holding operating in the field of petroleum. During the last fifty years NP developed an enviable reputation as compressor and turbine manufacturer. As such, when in Italy it came the time of privatization (1994), General Electric, one of the world’s leading companies growing by acquisition, did not waste the opportunity to buy one of its strongest

competitors in the field of power generation. Nowadays, with \$2.1 billion in sales and 4.600 employees this Italian subsidiary represents one of GE's bigger divisions and a valuable example of its policy of globalization launched during the 90s.

GE's strategy was not too difficult to discern: acquire NP's *production abilities* and fit them into their *well-oiled business mechanisms*. As such, since June 1994, immediately after the end of the acquisition procedures, NP was involved in a rapid process of business *integration* within the GE globalized environment. Due to NP state-assisted recent past, the process of integration was strongly tailored to re-engineering its organisational structures and its system of management. In fact, although NP has always showed positive bottom line results, GE's analysts knew it could do better. As a Finance Manager suggests:

'When the Americans arrived they didn't touch our products. They were our competitors, they knew we were an excellent manufacturer. On the contrary, one could feel that a revolution, and a big one, was going to affect our organisational approach'.

NP presented all the symptoms of a bureaucratic giant: multiple layers of management, poor communication among functions and, finally, the total absence of a measurement culture and an adequate systems of performance accountability. 'Nuovo Pignone is a very strong company, but it made its success more on *people* than on *processes*' explains NP's sourcing leader, formerly at quality. In that respect, a huge cultural turnaround was about to be implemented. Since NP became part of GE, as well as other well known programs (and slogan) of organisational restructuring such as downsizing, delayering, boundaryless, outsourcing, etc., the 'real' change emphasis was placed upon the key missing factor in NP: this was linked to the concept of *measurement*. 'There was no culture of measurement or, at least, the attention towards those aspects was poor' affirms a Finance Manager who joined NP at the time of the acquisition.

'It wasn't a mere tools problem; of course several instruments were not adequate to the new requirements, but that didn't look as the key problem. The problems were deeper, were cultural. There was no emphasis on performance control mechanisms. There was an absence of attention upon these issues. If no one asks you to make proper numbers, if no one checks your performance, you don't make it. You know you should achieve the targets, you try, but you do it fairly relaxed. It was a question of management, a question of leadership. Ultimately, it was a question of culture'.

**A twofold 'cultural jump'** – 'When, in 1994, GE's integration team started to arrive in Florence for exploring our organisational reality *one thing was clear to everybody*: a revolution was going to happen', affirms a project engineer. 'We knew the world was going to change. And the world has changed totally!' argues a finance manager sitting next to him. It was immediately clear to everybody in NP that the company was undertaking a *twofold cultural jump*: not only from an Italian to an American company, which was a big step itself, but also from a bureaucratic state-owned company to one of the most intense, business oriented, corporations in the world. Furthermore, it was also clear that although GE's aims were presented as integrating the two 'realities', to teach its values as well as respecting and learning NP capabilities, to drive change rather than to force it, GE was ultimately the

new boss. ‘If you don’t want to change, don’t be acquired’<sup>4</sup> affirms a GE manager. In so doing, GE *diplomatically* retained a former ENI director as chairman but, perhaps not surprisingly, a ‘*GE man*’ was installed in the powerful position of CEO.

‘*GE is a language* – it is a word – and at the beginning it is difficult’<sup>5</sup> (NP’s chairman)

As NP’s chairman affirms GE is a complex language. GE is a global company that for integration and management purposes has to rely on a *common organisational language*. Due to its multiple businesses, which range from aircraft engines to capital services, from plastics to power systems, from lighting to medical systems, from broadcasting to industrial systems, etc., GE is constantly involved in creating a shared organisational knowledge. The continuous, obsessive, objective is to use a common learning culture to align key organisational strategies in its global and heterogeneous businesses. In so doing, GE grounds its leadership abilities, on the commitment of its executives and managers to employ the slogans, words and rhetoric language of its Chief Executive Officer. ‘I want a revolution, and I want it to start at Crotonville’<sup>6</sup> states the CEO talking about the key role of GE’s Management Development Institute. Such is the power of Crotonville as a leadership and culture development centre that Schein has made a comparison between the training activities developed in this Institute and wartime brainwashing (Crainer, 1999). As the CEO argues:

‘What sets (GE) apart is a *culture* that uses (its) wide diversity as a limitless source of learning opportunities, a storehouse of ideas whose breadth and richness is unmatched in world business. At the heart of this *culture* is an understanding that an organization’s ability to learn, and translate that learning into action rapidly, is the ultimate competitive business advantage’<sup>7</sup> (emphasis added)

Thus, if GE is portrayed as a shared language – an essential philosophy to run the business – credit deserves to be given also to the way in which it has been passionately led by its *tough* CEO (as he has been constantly defined during his twenty years career as GE’s boss). He re-designed and globalized a company which, being number one in US market value since 1993 (around \$300 billion in 1997), has nowadays a workforce of 276.000 employees, revenues around \$91 billion and net earnings for \$8.2 billion (GE 1997 annual report). His managerial skills, together with the toughness and rudeness which he loves to exhibit on every occasion, have been widely acknowledged within the business environment; ‘if leadership is an art, then surely (GE’s CEO) has proved himself a master painter, (...he is) the gold standard against which other CEO’s are measured’<sup>8</sup>.

‘You can’t manage a company the size of GE. You leverage it’<sup>9</sup> affirms NP’s Chief Executive Officer; quoting exactly a slogan of GE’s CEO. The ‘expressions’ employed are more or less the same

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<sup>4</sup> Fortune Magazine, 1999.

<sup>5</sup> Fortune Magazine, 1999.

<sup>6</sup> GE CEO’s published interview (Tichy *et al.*, 1993).

<sup>7</sup> GE’s CEO speech at GE Annual Meeting, April 1997 (Slater, 1998).

<sup>8</sup> Business Week, 1996.

<sup>9</sup> Fortune Magazine, 1999.

when one interviews lower layers of management and employees. The rhetoric used by the leaders, by GE's CEO and top management reach the *heart* of the people, without any significant distinction between managers and workers, accountants and engineers, women and men. They may agree or disagree, they may open to debate but, at the end, they know clearly which is the 'GE's way to do the job' and, more importantly, that they will be truly responsible for their activities.

## 5. The experience-driven sedimentation of a common knowledge: from a '*rational know-what*' to a '*tacit know-how*'

**Unfreezing Nuovo Pignone: the power of GE's communication system** – GE does not care about saving resources on communicating values. This is especially true within a recently acquired company such as NP. Communication and training were, and still are, central in GE policy at NP. The investments to *infuse* NP's human resources with *the GE way* to run the business were massive. Communication is everywhere, it looks to be on the air, 'it follows you even in the toilet' argues, maybe exaggerating for a while, a NP white collar worker. 'You may not share completely those claims, you may need time to understand them, but you can not say that nobody told you. *You can't ignore them, they are out there, they are everywhere*' explains a human resource manager pointing out one of the latest *mission statement notice* flowered in the garden besides his office.

GE's CEO is perfectly aware of the impact of his statements upon his *troops*. He knows the 'conditioning power' of his speeches, and he certainly had a specific purpose at hand when he made his 'shocking' statements on human resource management in GE. In January 1997, during his address at the Operating Managers meeting, the CEO talked about the categories according to which managers and employees should be classified within the GE world: *A players*, who subscribe to the company's values and, as such, have to be kept and rewarded, *B players*, who still deserve to be trusted because they have the potential to improve their skills and enhance productivity, and *C players*, who do not rely on the company's value system and, without any remorse, deserve to be fired.

'Too many of you work too hard to make C's into B's. It is a wheel-spinning exercise. Push C's on to B companies or C companies, and they'll do just fine (...) We're an A plus company. We want only A players. We can get anyone we want. (...) Take care of your best. Reward them. Promote them. Pay them well. Give them a lot of stock options and don't spend all that time trying work plans to get C's to be B's. Move them on out early. It's a contribution'<sup>10</sup>

Certainly, every acquisition may involve a cultural shift, but in NP it was a very major one. The changes were fast and, despite its technical abilities, speed was not a typical characteristic of the old NP. 'That wasn't a normal change, that was a shock! An earthquake in our daily way to think and behave. Take the example of human resource management, from a rather relaxed system mainly based on egalitarian principles, we suddenly faced the 'A,B,C ranking theory'. I am not arguing it was right

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<sup>10</sup> CEO's speech at GE Operating Managers meeting, January 1997 (Slater, 1998).

before, I am not arguing it at all, but this was scary’ explains a B ranked engineer. And one may feel it was. ‘You have to get rid of blockers and identify high-pots simultaneously’ says Human Resources head at NP. Thus, in spite of labour regulation in Italy, which does not allow people to be fired so easily, and although the number of employees who left the company after GE arrival may be considered as physiological, i.e. relatively normal for an acquisition procedure, those words hit heavily at the deepest layers of organisational members’ sensitivity.

As such, one day, a couple of months after the CEO’s statements on the *ABC ranking*, during a lunch-break in the refectory of the site, we were not surprised to find on the shelves a trade-unions’ note<sup>11</sup> that comment those claims in the following way:

‘Nuovo Pignone has grown up (...) with the strong commitment of the workers to the corporate values (...) We will not allow the destruction of an asset (human resources) by someone who ignores our history, our culture, the organisational life of our company (i.e. GE headquarters) or by *someone* (i.e. local management) *who have suddenly lost his memory due to being well paid!*’ (comments added within the brackets, emphasis added)

As Giddens (1984) and Schein (1992) suggest, in order to cope with the anxiety which may arise within the complex and uncertain realm of organisational interaction, individuals are constantly looking for a certain degree of psychological safety. In particular, emerging through a process of social validation based on behaviour routinisation, a sense of ‘ontological security’ is often researched to explain the nature and the type of phenomena which make up the organisational ‘reality’. Thus, besides the explicit rationalisation of action through the employment of what Giddens (1979) called discursive consciousness, individuals tend to reinforce unconsciously the legitimacy of their patterns of interaction. The potential for corporate leaders to rely on such a need for ontological security in promoting employees identification with the values and strategies individuated by the management (‘If you don’t want to change, don’t be acquired’) are highlighted through the analysis of the case of GE/NP.

**Reconciling the individual and collective sensemaking: the concept of *schema*** - Although the *Americans’ driven* local management’s conduct were explicitly regarded by the unions as an opportunistic behaviour, as an unexpected and serious betrayal (...*someone who have suddenly lost his memory...*), it cannot be interpreted as a mere, narrow, matter of bonuses and stock options (...*due to being well paid!*). In general, the reasons seem to be more complex, and a deeper explanation is made possible through the various contributions which represent the pillars of the framework proposed in this paper. As such, besides drawing upon a combination of Giddens’s theory of structuration and Schein’s view of organisational culture, consistently with our intention to re-conceptualise as duality traditional dualism such as ‘*macro*’ and ‘*micro*’, objective and subjective, collective and individual, we rely on the insights of the social cognition literature<sup>12</sup> and, in particular, on the notion of *schema* (Harris, 1994; Bartunek, 1984; Bartunek and Moch, 1987). Thus, by acknowledging that the concept

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<sup>11</sup> Unions have traditionally been very strong in this region, and within NP in particular.

<sup>12</sup> For a review of the social cognition literature see Markus and Zajonc (1985).

of organisational culture encompasses both individual and group-level phenomena (Louis, 1985; Van Maanen and Barley, 1985; Harris, 1994), the objective is to illuminate the way in which actors' unconscious need for 'psychological safety' (Giddens, 1984; Schein, 1992) along with their ability to behave reflexively upon the heterogeneous dimensions which characterise the organisational realm and its specific contexts of interaction, have the potential to explain such a deep and rapid process of cultural transformation.

As pointed out by Harris, despite recognising the individual-level dynamics connected to the notion of organisational culture (Louis, 1980; Van Maanen, 1976; Schein, 1992) 'the bulk of scholarly attention has been devoted to organisational culture's group-level manifestations while its individual-level manifestations have remained relatively neglected' (1994, p. 309). Nevertheless, as Van Maanen and Barley (1985, p.35) argue 'while a group is necessary to invent and sustain culture, culture can be carried only by individuals'. For this reason, conceptualised as 'cognitive structures in which an individual's knowledge is retained and organised' (Harris, 1994, p. 309), the notion of *schema* is employed in this paper to address such a gap. In particular, viewed as mental maps which emerge from one's experience about how the social world operates (Louis, 1983; Weick, 1979a; Markus and Zajonc, 1985), schemas have the potential to lead 'the search for, acquisition of, and processing of information and guide subsequent behaviour in response to that information' (Harris, 1994, p. 310; Weick, 1979b).

**The 'mental dialogue' at the individual-level: exploring the reflexive abilities of the individuals** – In the case of NP, such a cognitive approach may be useful to explore the way in which an event as GE's acquisition has impacted on the intrapsychic 'mental dialogue' which affect individual sensemaking (Giddens, 1984; Harris, 1994). Answers to questions such as 'What's GE?', 'What are the implications of GE's arrival for my job?' and, principally, 'How should I respond now?' emerge through the exercise of individuals' reflexive abilities (Giddens, 1984). As Harris and Giddens suggest, these responses are mainly the outcomes of mental dialogues between themselves (e.g. 'I believe X means Y, so it is better to behave like this') and other contextually-relevant agents (e.g., 'What would they think about it? What I am expected to do?') through which, human beings, who are conceptualised as *knowledgeably reflexive*, make sense of organisational life.

Consequently, as pointed out by Macintosh and Scapens (1990, p. 458) 'individuals are not just social dupes, but existential beings who reflexively monitor and provides rationales for the character of the ongoing flow of their social life'. Describing the reflexive monitoring of human beings, Giddens points out that individuals 'are not only able to monitor their activities and those of others in the regularity of day-to-day conduct'. He emphasises also that they are able to 'monitor that monitoring' (1984, p. 29). Hence, agents act while being mutually aware of the conditions and consequences of their actions. Such consciousness, which enables actors to behave not merely as individual responders, guarantees the dynamics of the process of structuration and the evolution of organisational institutions (which may be viewed as collective schemas) over time (Macintosh and Scapens, 1990).

Relying on Erikson's ego-psychology approach (1963), Giddens' interpretation of agent's psychological make-up presents three layers of '*cognition/motivation*': discursive consciousness, practical consciousness and the unconscious. In particular, whereas *discursive consciousness* represents the characteristic of social actors to act as purposive agents who both have reasons for their actions and are 'able if asked to elaborate discursively upon those reasons' (Giddens, 1984, p. 3), *practical consciousness* consists of 'all the things which actors know tacitly about how to 'go on' in the contexts of social life without being able to give them direct discursive expression' (Giddens, 1984, p. xxiii). Besides the recognition of levels of self-consciousness where rational considerations may arise, Giddens emphasises how the ongoing implementation of routinised patterns of behaviour represent the overt manifestation of *motivations* (portrayed as a need for ontological security) which arise within the deepest layer of cognitive structure, the agent's *unconscious*.

**Breaking established frames of meanings: from a 'rational know-what'...** - Thus, by recognising the reflexive monitoring abilities of 'position-practice' incumbents, we may decipher the reasons why many of them, whose convictions were not necessarily consistent with the espoused values of the company, were immediately ready to accept the new 'cultural roots' planted by GE. 'The majority of those *yes man* mushroomed particularly among the youngest and the newcomers who, very often, acted more for career purposes than according to true personal beliefs' argues a project engineer while asking us to turn off the tape recorder. Indeed, such a behaviour orientation towards the values proposed by those in positions of dominance (CEO, top management, project managers etc.) enhance the psychological safety of the incumbents who 'rationally' decided to secure the legitimacy of their roles and activities ('GE was ultimately the new boss') by infusing their actions with the reflexive use of the knowledge received.

The psychological securities built up by the workers during ENI management-era were seriously threatened by the *GE way*. As we mentioned before, once GE acquired NP, it was immediately clear to everybody that a deep organisational turnaround was going to happen. The majority of organisational members were aware of the past and present conditions/characteristics of NP; they knew perfectly its strengths and weaknesses. In view of the 'name' of the buyer, GE, it was not difficult for them to make predictions about the 'intensity' of the process of integration. They were aware that, differently from the past, those 'scary' claims could easily become facts. The stories and the language which have contributed to create the 'GE way *myth*' had a powerful impact on the established frames of meaning. Of course, the unions stated they were ready to fight, it is part of the game, but NP was already changing. This is to say that the workers' approach towards GE's values was characterised by a rather 'rational response'. Through interviewing lower levels of employees, apart from the *physiological stocks of complaints* on various issues and organisational aspects, it emerged quite clearly that they wanted to be considered a key element of such an important company. A core business of the world-wide celebrated 'GE reality'.

As explained above, agents may employ mental schemas to identify and categorize organisational stimuli, to determine what they mean and, then, to formulate an appropriate response to those events.

Furthermore, as such a cognitive theory suggests, it is crucial to highlight that schema-guided sensemaking may occur ‘relatively’ consciously or unconsciously (Gioia and Poole, 1984; Louis and Sutton, 1991). In particular, ‘this mental dialogue process is likely to influence sensemaking in a relative *conscious* and *reflective* manner when *novel* or *unexpected* social stimuli are encountered’ (Harris, 1994, p. 316; emphasis added). In these critical situations (Giddens, 1984; Schein, 1992), the unconscious need for a continuous psychological safety forces knowledgeable actors towards a *rational* elaboration, manipulation and re-conciliation of their frames of meanings. In so doing they engage a rather conscious, self-reflective activity of sensemaking. Such mental dialogues uncover the centrality of possible tensions in motivating change, which may arise between the agent and the ‘others’ (Lungberg, 1985). Thus, as the case of NP may demonstrate, a new ownership and new leaders become influential ‘others’, i.e. powerful counterparts within this mental conversation, which stimulate a self-reconsideration of the reality through the reflexive efforts of each organisational member (Harris, 1994).

**...to a ‘tacit know-how’** – As organisational members gain more experience ‘in coping’ with those events which stimulated such conscious changes, they may gradually transform their former ‘rational-based’ positions in tacit, routinised, patterns of behaviour which require less conscious effort. Thus, when the re-designed cognitive ‘schemas’, which underpin such routines, work repeatedly in providing agents with that fundamental sense of ‘ontological security’ they are constantly looking for, they become taken-for-granted and drop of awareness (Schein, 1992). Furthermore, being socially validated, they become institutionalised and stored within the agents’ stocks of knowledge. Consequently, when the day-to-day flow of social interaction is not crossed by any particular (endogenous/exogenous) shocks or ‘revolutionary’ episodes ‘the results of previous, conscious dialogues (...conducted when an unfamiliar stimulus or events have occurred...) which have been incorporated into the schema for the stimulus, inform sensemaking in a relatively tacit, unconscious, and ‘effortless’ manner’ (Harris, 1994, p.317).

It may be argued that after the ‘revolutionary’ phase of breaking of NP’s established organisational frames of meanings, the actors’ perception of the ‘new knowledge’ still laid at a rather conscious (i.e. superficial, manifest) level. Thus, maybe as a natural consequence of the sudden need to align personal and collective values, beliefs and patterns of behaviour to the vision proposed and diffused by the ‘new owner’, a certain degree of discursive consciousness, or rational awareness, was characterising the actions of organisational members. ‘We are building up the *necessary kit-for-survival*, aren’t we?’ affirms a project engineer right at the end of an intense ‘financial fundamentals’ session of training. One might perceive how the *tangible* need for legitimating their organisational status as ‘position-practice’ incumbents by sharing the same ‘business convictions’ with the dominant figures of the company enabled a rather rapid rational and reflexive creation of a common set of intentions and understandings.

As mentioned above, personal values and connected reasons for action might be explained, on request, by NP’s employees, who were reflexively aware of their roles and able to justify discursively

the contents of their day-to-day patterns of interaction. However, since the implemented organisational changes were rather deep, after this period of forced cognitive disruption, a collective phase of ontological re-construction and validation followed. This continuous process of social production and reproduction created the conditions for a progressive transformation of those 'explainable' values, philosophies and thoughts into taken-for-granted, and often unconscious (for this reason difficult to explain), cultural assumptions. Synthesising, it is possible to argue that through situated contents of organisational interaction, NP undertook an ongoing experience-driven process of knowledge sedimentation where a '*rational know-what*' was extended into a '*tacit know-how*'.

**From 'I' Vs. 'others' to 'We': the emergence of a sedimented organisational culture** – When crisis arise, they generally precede phases of *re-orientation* in which individuals/organisations face a cultural mismatch, a knowledge gap (Haerem et al., 1996; Hennestad, 1999). The 'available' knowledge does not help them to cope with the 'new' problems that the company is facing. In these cases, when a route is found, when a solution is proved to be repeatedly successful, it tends to be treated as a taken-for-granted basic assumption (Schein, 1985/1992), it becomes 'the way we do things around here' (see Peters and Waterman, 1982). 'What was once a hypothesis, supported by only a hunch or a value, comes gradually to be treated as a reality (...) Basic assumptions (...) have become so taken for granted that one finds little variation within a cultural unit' (Schein, 1985, p. 18). Thus, we may argue that a common organisational culture becomes reflected in the emergence of 'congruent schemas' which, indeed, shape, and are shaped by the illustrated sensemaking process of intrapsychic mental dialogue between the 'agent' and the 'others', but whose sensemaking guidance has, over time, developed a '*We experience*', a tacit and unconscious sense of sharedness (Harries, 1994; Schein, 1992).

According to Schein (1992), processes of organisational culture change occur when three factors are in appropriate balance. These factors are represented by *mechanisms of disconfirmation*, *creation of anxiety* and *the subsequent creation of psychological safety*. Such elements contribute to unfreeze the stored web of cultural values that, as a result, becomes motivated to change. As such, 'change then occurs through cognitive redefinition of key concepts, and the *resulting behavioural changes become refrozen in the personalities of the individuals and in the norms and routines of the group*' (Schein, 1995, p. 312; emphasis added).

Thus, these re-defined and stored stocks of knowledge are then *mobilised* by 'position-practice' incumbents within their daily routinised activities. In so doing, as the very term 'duality of culture' emphasises, those continuous processes of co-ordination and control which generally characterise the organisational contexts of interaction enable the potential of the individuals to reproduce and, eventually, institutionalise the cognitive, normative and regulative dimensions of organisational culture. As such, besides the differences due to specific 'position-practice', these considerations are applied quickly to the majority of NP's employees.

**A ‘re-defined company’** – Living in NP nowadays, one can not state anymore this is a *jurassic* place, a bureaucratic slow giant. Newspapers, specialised press and financial commentators have all acknowledged the changes implemented and the new standards achieved by NP, which has now come to be viewed as a re-designed entity that portrays its human asset as its major organisational strength. Thus, linking GE’s global process of growth by acquisition to its boundaryless internal strategy of communication, the CEO argues that:

‘(the) learning culture killed any view that assumed the GE Way was the only way, or even the best way. The operative assumption today is that someone, somewhere, has a better idea; and the operative compulsion is to find out who has that better idea, learn it, and put it into action – fast’<sup>13</sup>

GE’s world-wide acquisition policy relies on these assumptions, and NP is portrayed as one of the best example. Despite the enhanced pressures, anxieties and stress, by observing organisational members’ behaviour, their speeches and the language they employ, one may affirm that they appear extremely proud ‘to have been so good to be still part of the game’. And this is what GE’s gurus had in mind in 1994. ‘This is an amazing and stimulating opportunity to work for a company where you may continuously learn all the best practices. If they don’t grow here, they penetrate the company immediately, as they arise in the business. You never stop having chance to improve, and you are required to exploit them; it is stressing, but it is cool’ affirms a young business analyst with five years experience in NP.

We do not intend to imply that the described situation is what NP’s workers dreamt about in 1994, that it matches NP’s employees aspirations, but objectively this is the image that the majority of the interviewed (mainly managers and white collars employees) wished to give about their renewed work place. In just three years (1996-1998), NP’s income nearly recovered GE’s initial cost of the investment<sup>14</sup>. When one goes there and interviews people, they make it very clear to you.

Thus, after having observed and actively participated to such a longitudinal process of integration and transformation over a period of three and a half years, within this paper we try to explain *how change took place in NP*. By employing an institutional framework of analysis, we aim to interpret the way in which GE and NP’s management have driven and enabled the generation, however socially created and validated by the active involvement of the all members, of a renewed common stock of corporate knowledge. In so doing, we turn now on two major organisational stories: the re-engineering of previous (poor) systems of performance accountability and the subsequent massive implementation of a new measurement based quality program, the Six-sigma initiative. Both these events, in which we participated as researchers as well as mentors, allowed us to appreciate the role played by financial and non-financial performance measures and systems of accountability in driving this holistic process of learning and organisational culture change.

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<sup>13</sup> CEO’s speech at GE Annual Meeting, April 1997 (Slater, 1998).

<sup>14</sup> Sources: financial statements and internal documents.

## 6. The *heart* of Nuovo Pignone changes: uncovering the ‘Accountability Revolution’

Aiming to align NP’s practices with the GE way to run the business, new executives and managers started by unfreezing some firmly held traditions at NP. In so doing, relying on widely proved capacities of leadership, GE’s management began a massive and intense turnaround, by acting not only, as described above, upon the psychological side of the employees, but on manifest and structural aspects of the business as well. Thus, along with the natural emphasis on the professional threats and opportunities, it is important to investigate the way in which such a *cultural revolution* was driven by the holistic implementation of *measurement based systems of performance accountability*. ‘This was NP’s main lack, this was what GE specialised in’ argues proudly a management accountant. As such, shaped by the values of a ‘new organisational awareness’, such systems, which have the potential to reach every person at any level in the company, acted as organisational repositories for carrying the *stored* stocks of mutual knowledge.

**Day one: numbers first** – When the integration process started GE’s intentions were immediately espoused: numbers first. As such, together with human resources experts and general managers, the integration team relied heavily on people from finance. Besides taking control of the books, with the general ledger immediately set-up in the format GE uses world wide, they started a holistic process of change to implement a revolutionary, in relation to NP previous experience, culture based on performance measurement and accountability. Management accounting and control systems were quite poor in NP. ‘They were probably enough for the needs and the requirements of a state-owned company, surely they were inadequate for a *financially obsessed* corporation like GE’ affirms a cost accounting manager who experienced this phase of transformation. As a consequence, the beginnings were characterised by a deep accounting and finance revolution.

Before the deal with GE was signed, NP was characterised by weak systems of accountability. During the late 70s an elementary system of budgeting and products cost control was ceremonially implemented by ENI management, but the effective emphasis on those *ritualistic* practices was extremely light. ‘Annual budgets and operative plans were not launched until October and the first revision of those documents wasn’t in agenda before June’ asserts an experienced accountant. By interviewing NP accountants, specially the older ones, it emerged that, besides specific shortages and weaknesses, the problems were not with the tools, techniques and processes themselves. ‘*To be a bureaucratic state-ship we were adequately equipped, armed enough. The question was that we didn’t need to shoot, nobody asked us to find our limits, there were no wars to do*’ underlines a management accounting manager. NP’s profits were fine. Its market, connected as it was to others stated-owned companies, was relatively protected. ENI management was happy like that. ‘There were no special pressures for improvements. No particular information were required (...) The tools were there, the data were there, but they didn’t look so interesting or ‘burning’ as now. I still have doubts anyone bothered to read carefully those documents’. Now, in NP, this doubt does not exist anymore.

**The culture of ‘making and stretching the numbers’** – In spite of GE’s CEO rhetoric claims, ‘don’t focus on the numbers (...) Numbers aren’t the vision, numbers are the product (...) I never talk about numbers’<sup>15</sup>, it was immediately clear that there was ‘the need to produce numbers (...) the obsessive mission to show continuous financial improvements’ explains a quite stressed finance manager, four days before the end of the quarter. Since GE took over, financial measures and metrics of accountability became crucial. ‘Numbers became the core of our organisational life (...) You need to achieve the targets, you need to show the numbers, and you must do it on a quarterly basis’ explains a financial analyst. The implementation of such systems was crucial to GE’s continuous strategy of *stretching*. According to GE’s language, stretching meant exceeding goals; i.e., set this operative targets high enough to find the limits of both processes and individuals.

‘We have found that by reaching for what appears to be the impossible, we often actually do the impossible; and even when we don’t make it, we inevitably wind up doing much better than we would have done’ (CEO’s published interview; Slater, 1998)

Nowadays, corporate strategies are led by the Boards’ sensitivity to the companies’ stocks value. Strategies of growth, acquisitions, mergers, productivity plans, customers and employees satisfactions and so on seem to represent the means and the slogans for achieving the financial market driven organisational targets (Ezzamel *et al.*, 1999). In that respect, GE is not an exception, rather it is one of the most visible examples. To achieve this, GE provided NP with a web of organisational roles and practices aim at constantly aligning corporate behaviours and processes with the vision and the programs identified by the management. Within these processes of leadership, systems of performance accountability, and the financial and non-financial metrics they rely on, play a key role. In fact, their routinised employment (which relies upon the day-to-day interaction of organisational members), enables the ongoing process of learning and transformation which lead to organisational culture change.

**The re-engineered Accounting and Finance departments** – The need to achieve higher levels of efficiency through a continuous activity of cost reduction, together with the necessity to infuse organisational culture with shared metrics of performance accountability, led GE to re-design completely NP’s previous management accounting and control systems. Thus, in addition to the introduction of such an important leading figure as the Chief Financial Officer, NP re-structured its organisation to enhance the centrality of the finance and accounting departments. In particular, besides the reinforcement of traditional financial accounting areas, such as tax management and internal audit, and the parallel introduction of new financial areas related to cash and transaction risk management, NP systems of reporting and accountability were totally re-engineered as follow:

- a department, GEAP<sup>16</sup>, which is responsible for the traditional processes of cost accounting. Although it was much less developed, this area of management accounting existed already in

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<sup>15</sup> Industry Week, may 1994.

<sup>16</sup> GEAP stands for GEstione Attività Produttive (Production activities management).

the old structure. Among the other tasks, GEAP is responsible for direct and indirect cost control, inventory control, job cost closure and for the provision of divisional and product lines P&L accounts;

- a totally new area, FP&A, which is responsible for NP's financial planning and analysis. Together with its quarterly activity of financial reporting to GE headquarters, in order to reconcile NP's numbers with U.S. regulation, FP&A is responsible for the macro-analysis of NP's businesses. Furthermore, by providing the CFO with strategic analysis and forecasting upon specific processes, products and items of cost, FP&A represent a major link between the individual corporate strategies and the operating processes of the company;
- a new, decentralised, 'task-force', known as Finance Managers, who supervise the process of budgeting for the projects activated within each division. Indeed, being a company strongly based on project management, NP's core activity is the production of specific and *customised* jobs. As such, every division has a Finance Manager who is responsible for the processes of budgeting and cost control of these projects.

**Stretching beyond the 'traditional' notion of controllership: from reactive to proactive systems of accountability** – The described organisational structure is fully integrated. Data, information, charts, flow quickly across the offices in order to accomplish the targeted objectives. As emphasised above, the main pressure is to produce numbers, and good ones, every three months. This was a major change for NP. 'GE's headquarters need numbers to show to Wall Street. Consequently, we need to be fast, reliable and, indeed, profitable. If not, the next week tough *inquirers* start to cross the Atlantic' a business analysts points out quite seriously while nervously consulting a calendar. The market driven necessity to report every three months requires documents based on two months actual data and one month of forecasts. This was a crucial issue within the process of change. 'Analysis became central in NP. We moved *from reactive and narrow mechanisms of control and accountability to proactive and broadened forms of analysis and forecast*. We have the tools, we have the technologies, we need to do the analysis, to show the forecast outcomes of possible future strategies'. As argued by GE's CEO:

'in finance (...) A's (players) will be people whose *talents include, but transcend, traditional controllership*. The bigger role is one of full-fledged participant in driving the business to win in the market-place – *a role far bigger than the dreary and wasteful budget 'drills' and bean counting that once defined and limited the job*' (CEO's letter to share owners, GE 1997 Annual Report, emphasis added)

Due to its heterogeneous business needs and to the necessity of implementing a common language able to align world wide strategies with specific production processes, GE has completely transformed NP's previous organisational structures of accountability. The enhanced importance of producing numbers have boosted the personnel directly or indirectly involved in finance and accounting activities. In so doing, the traditional areas of cost control have been progressively broadened to

include business forecasting and analysis. The need to integrate operating processes with the broad evaluations of the business prompted the extension of systems of accountability both horizontally and vertically. This led to recent organisational innovation, which allow these systems to permeate further down to the shop floor. In that respect, Finance Managers and their structures have been introduced to integrate the activities of project management. They live the atmosphere of production. They are mentally and, often, physically there; they are responsible for ‘the numbers’ of the jobs of the division. In so doing, the need to communicate with dozens of engineers, and they need to do it quickly. As such, the deep diffusion of metrics of accountability and the organisational-wide understanding of performance measurement systems have assumed a crucial role.

‘By empowering engineers with financial metrics of accountability they (NP management) didn’t create new figures, they didn’t reproduce accountants. On the contrary, they have infused operative roles with a broader view of the business. They created a ‘minimum’ common base of knowledge to talk about contents, without losing any time arguing about meanings’ (NP’s project manager, comments added within the brackets)

In order to enable the continuous and unavoidable process of communication between accountants and engineers, between finance and project managers, a massive program of training was implemented. Thus, although with different levels of depth, all NP engineers and skilled operatives have been extensively informed about financial metrics of accountability. ‘*We need to talk in terms of contribution margin, in terms of cost and revenues. We need to do it fast and at all levels. We have no time for misunderstanding*’ affirms the financial expert of a job (project) team. Consequently, the understanding of financial performance measurement metrics was spread organisation wide. Within this process of diffusion, the development of a *new integrated information system* was essential. ‘The intra-net and the possibility of having data on line are massive steps forward. If previously we took a week to calculate or obtain the data, nowadays we take three days. This allows us to save a lot of time for the broadened and more complex processes of analysis’ argues a FP&A business analyst.

**The routinised character of accountability practices** – After having been promoted and encoded within individuals’ stock of meanings through the rhetoric of organisational leaders and enacted by a re-structured web of ‘position-practice’, the deep diffusion of management accounting systems relied on the day-to-day incumbents’ performance of a set of routinised practices and activities which, throughout the company, became progressively institutionalised. As such, after the ‘revolutionary’ organisational re-structuring which followed the process of acquisition, the daily employment of tools, techniques, metrics and processes of performance accountability enabled these systems to become taken-for-granted, eventually modified and then re-frozen within the stored stocks of knowledge. The monthly production of reports and financial analysis, the key need to compare budgeted with actual figures and to provide continuous revised forecasts of the implemented activities, become institutionalised features of NP’s organisational behaviour.

Therefore, across the period of our analysis, the enactment of these systems, which at the beginning was rather conscious (i.e. discussed, debated and, then eventually, resisted by organisational members)

became progressively unconscious (i.e. automatic), representing *the habitual way of doing things*. Consequently, NP's employees started to communicate by employing *mindlessly* the financial language and vocabulary of accountability. Terms ranging from contribution margin to customer satisfaction, from accounting payables to cost of reworked units, became progressively part of a shared way of understanding organisational activities and consequent patterns of interaction. Ultimately, as we discuss and explain later in the paper, within an ongoing process of change (Burns and Scapens, 2000) such systems became simultaneously stores, carriers and basic contents of a new organisational culture.

Thus, within NP, a new re-definition and, then, institutionalisation of systems of accountability progressively took place in the late 90s. Besides that, such a network of positions, rules and practices may be considered as one of the most powerful repositories on which organisational values and strategies are carried (see also Busco, 2000). In fact, while producing and reproducing themselves, these systems played an important role within the continuous process of creation, maintenance and change of these shared stocks of knowledge. As such, values, beliefs, slogans, organisational philosophies have been disassociated from the historical context which originated them (CEO's speeches, internal seminars, training activities, work-out, etc.) to become part of the common organisational know-how. Nowadays, as a result of this process of institutionalisation and time-space distancing, 'the organisational language has changed (...) Around the designing-tables one can hear engineers deeply concerned about margins. Financial benefits, cost savings, quality targets are informed by a new organisational awareness. If you don't share this vocabulary, it is difficult to grow here' explains a project manager who works at the gas-turbines division.

**A conscious perception of the changing reality: the case of training** – While the need to transform organisational systems of performance accountability was introduced by GE's leaders at the time of the acquisition, since then NP's practices of budgeting, reporting and analysis have been produced and reproduced through the day-to-day activities of organisational actors. Actually, being aware of the importance of these metrics within NP, organisational actors have become progressively conscious of the need to use such systems. 'Training, as you probably know (referring to the fact that we were involved in such processes), is one of the best examples. At the beginning, by relying on the previous experiences in ENI, it was considered by the majority as a company's *legitimated* waste of time, it was nearly approached as a relaxing day-off. Nowadays, due to the transformation of the organisational setting, training represents a chance of growing, a true possibility of acquiring those skills required to play an active role within the ongoing processes of change (...) Synthesising, five years ago we were forcing training, nowadays people are asking for it. It is perceived as a prize, as a reward' argues a human resource manager. As explained above, the urgency to align actors' values and knowledge with those portrayed by the dominant figures within the organisation emerges at a quite conscious level, where individuals offer explicit, rational explanations about their thoughts and patterns of behaviour.

Furthermore, extensive training sessions enable both accountants and engineers to extend their skills. In so doing, besides the possible creation of some 'hybrids' figures (Burns and Baldvindsdottir,

1999), they favour the enactment of wider systems of planning and control, which require a certain degree of comprehensive knowledge on both sides. Thus, the need to integrate operating processes with business analysis has nowadays broadened the role and the contents of management accounting (Scapens, 1999). This affects its contingent characteristics, as well as its processes of change. In fact, while implementing innovative programs of cost reduction, such as the *bullet train*, in which commodity leaders are responsible for organisation-wide reduction of specific items of indirect cost, the routinised enactment of such systems is the core of further processes of transformation and subsequent re-institutionalisation.

**Exploring the process of validation and change: a sophisticated system for an unsophisticated company** – The process of management accounting change is continuous. In 1998, for example, new job budgeting and cost control procedures were formally recognised and applied to all the projects activated in NP. As such, after a certain period of ‘field’ validation (i.e. use) in particular divisions, those routinised patterns of behaviour stretched the space-time context that produced them and, due to the mechanism of best practices diffusion, they were introduced across the company. Sometimes this process may extend beyond NP boundaries, to other businesses within GE, as is the case with the new activity-based costing system introduced by NP. Attempting to overcome the possible limits of GE’s traditional costing methods, this system is currently used for all the divisions of NP and is being considered for a further diffusion with the corporation. ‘*A sophisticated system for an unsophisticated company*’ was the surprised comment delivered by one of the GE Power Systems’ executives after having attended our presentation’ argues a GEAP manager.

The ongoing process of bridging the exposed agents’ *knowledge gap* between discursive and practical consciousness (Giddens, 1984; Bate, 1994; Hennestad, 1999), was coupled with a major internal ‘revolution’ which aimed at broadening NP’s understanding of systems of measurement and performance accountability. Thus, besides the individual and collective psychological process of extending in depth (we may say, *vertically*) the taken-for-granted nature of the new organisational meanings, the purpose of this latest initiative was a holistic expansion of the contents of such organisational knowledge (in this case, we may argue, *horizontally*). Consequently, the continuous process of cultural transformation undertaken by NP has heavily relied on the massive implementation of a new measurement-based quality initiative which had the ability to reinforce the process of integration between global strategies and operative processes as well as broaden the recently created financially-driven measurement awareness with further non-financial metrics of accountability.

## **7. Broadening Nuovo Pignone’s measurement undersanding: the six-sigma initiative**

**Six-Sigma as a major organisational turnaround** – One particular business philosophy seems to have add a major impact on the search for integrated operational and managerial excellence: the *six-sigma* methodology. After its first implementation by Motorola (in 1987), many corporations, including Texas Instruments (1988), ABB (Asea Brown Boveri - 1993) and AlliedSignal (1994), have

been employing six-sigma as the driver for a continuous performance measurement-based process of cultural change leading to organisational transformation. Although being designed as a quality improvement program (*sigma* is, in fact, a measurement of mistakes per one million discreet operations<sup>17</sup>), the Six-Sigma program has developed into a system to produce financial improvements and competitive advantage in the very short term, through cost savings and benefits arising from the achievement of higher levels of customer satisfaction. In so doing, this methodology relies on a progressive and systematic revision of crucial corporate processes and activities, which are explored according to pro-active criteria, i.e. investigating the intimate causes of possible problems rather than their effects.

Conceptualising the quality issue as ‘the next act of productivity’<sup>18</sup>, the achievement of excellent standards of quality became GE’s main challenge in the late 90s. On average, GE’s processes were around three and a half/four sigma: this meant waste \$8 billion to \$12 billion per year; i.e. 10 to 15 percent of company’s total revenues<sup>19</sup>. Thus, in January 1996, the CEO launched the six-sigma initiative to increase profitability and enhance customer satisfaction. He stated the following:

‘We want to change the competitive landscape by being not just better than our competitors, but taking quality to a whole new level. We want to make our quality so special, so valuable to our customers, so important to their success that our products become their only real value choice’<sup>20</sup>

**A never-ending discipline** – Emphasising GE’s ability to take best practices from its competitors, ‘we didn’t invent the Six-sigma, we learned it’<sup>21</sup>, the CEO argued that the Six-sigma would be implemented as ‘*a never-ending discipline*’, rather than the mere ‘program of the month’<sup>22</sup>. In particular, pointing out the need to consider quality as the central activity of every employee, he likened the initiative to the concept of *boundarylessness* and emphasised the importance to bring such a program into every aspect of organisational life, at any level in the company.

‘It’s no different than boundaryless behaviour. People who weren’t boundaryless shouldn’t have been here in the eighties. Shouldn’t be here in the nineties. If you’re not driving quality you should take your skills elsewhere. Because quality is what this company is all about. *Six sigma must become the common language of this company*’<sup>23</sup> (emphasis added)

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<sup>17</sup> Sigma is a statistical unit of measure that reflects the defects occurring in an organisational process. Operating at two sigma means that 308,357 defects per million operations occur, at three sigma 66,807, at four 6,210, at five 233 and, finally, at six 3.4. This means that at three and a half sigma, which is the average quality measure for most companies, there are 35,000 defects per millions of operations. During the late 80s, Motorola, who first pioneered the Six-sigma initiative, reduced the number of production defects, raising its quality standards from four to five and a half sigma.

<sup>18</sup> CEO published interview, July 997 (Slater, 1998).

<sup>19</sup> Source: GE/NP internal documents.

<sup>20</sup> CEO speech at GE annual meeting, April 1996 (Slater, 1998).

<sup>21</sup> GE annual report 1997.

<sup>22</sup> CEO’s statement at GE Corporate Executive Council, June 1995 (Slater, 1998).

<sup>23</sup> CEO’s speech at GE Operating Managers Meeting, January 1997 (Slater, 1998).

Due to its organisational-wide diffusion, six-sigma has become a common operational and managerial language, which has spread trans-nationally across the subsidiaries and intra-organisationally through the divisions and the organisational roles/functions. The six-sigma approach starts from an *a priori* customer driven identification of the macro ‘critical-to-quality’ (CTQ) characteristics of those organisational processes which need to be carefully monitored in running the business. Then, these macro areas are broken-down into multiple key processes each of which may cause defects in the identified critical-to-quality characteristics.

**The D-MAIC** – Within a continuous program of business improvement, these critical processes are then tackled with specific micro-projects. As such, after an explorative preliminary phase – named *define* for the need to identify the key characteristics of the process– these projects are then structured in four steps: *measure* (i.e., identification of the key internal processes influencing the CTQ and subsequent rigorous measurement of the number of defects, measured in sigma, generated in connection to the specific CTQ), *analyse* (understand, through the employment of a wide typology of tools which range from brainstorming to statistical methodologies, the fundamental variables causing the defects), *improve* (in such a phase, after having created a system for measuring the variations of the individuated variables, the processes are modified to bring the number of defects within the established limits) and *control* (the continuous activity of monitoring, which is accomplished through *statistical process control* instruments, tailored to verify the variations of the parameters under investigation). The achievements of these ongoing processes of organisational re-engineering and transformation are constantly monitored both in financial terms (*effective* and/or *potential* cost savings/financial benefits need to be displayed to close the projects) and according to heterogeneous non-financial indicators (customer satisfaction, supplier quality, etc.).

This holistic expansion of management accounting systems has been also characterised by the parallel introduction of five corporate measures for monitoring the progress achieved with the projects. Such indexes, whose aim is to deliver the ‘temperature of the business’, are the following: *customer satisfaction* (measured, through interviews, in relation to CTQs on a one to five scale), *cost of quality* (this item includes only the directly identifiable cost of quality such as the inspection and the cost of testing, reworking, scrapping, guarantee and concessions), *internal performance* (which relies on the calculation of all the defects generated by the company’s processes, both of production and transaction), *supplier quality* (in this case, evaluating the compliance with technical specifications and the respect for the dates of delivery, it is calculated the number of defects per million units purchased) and, in conclusion, *design for six- sigma* (with which, by measuring the percentage of drawings reviewed for each CTQs and the percentage of CTQs designed to six sigma, is ensured, for all the new products placed on the market, a design totally oriented to fulfil the six sigma requirements).

**The emerging ‘warrior class’** –The Six-sigma initiative relies upon a brand new ‘warrior class’ within the company (Slater, 1998). As such, besides the creation of full-time Quality Teams to accompany the implementation of the initiative, the Six sigma players, classified by belts, consist of: *Champions* (200 in GE, by the end of 1997), *Master Black belts* (700), *Black belts*

(2,600) and *Green belts* (15000). The Champions are company leaders in charge of functions or division of products; they supply the necessary (part-time) support within their sector of responsibility by both approving individual quality projects and removing all possible barriers that could slow down the process. The Master Black belts are the full-time experts in the methodology. They manage the projects by instructing and mentoring the Black Belts. In so doing, they employ quantitative skills along with teaching and leadership abilities. Within each operating sector, the Black Belts are then the full time quality executives who lead and train teams dedicated to specific projects. As such, being responsible for the correct execution of the D-MAIC cycle, they are constantly required to combine specific product/function skills with the six-sigma tool kit. Finally, six-sigma's players are completed by the Green belts who work part-time on specific projects while continuing their normal functions in the company.

Implemented by the end of 1996, the six-sigma initiative had an immediate impact on the organisational structure and human resource management of NP. In that respect, a specific division of the company was dedicated full-time to the accomplishment of such a quality mission. The *Quality Team* responds directly to NP's CEO. Directed by the quality leader, the aim of the team is to support product divisions and functions in implementing their quality plans and specific six-sigma projects. In so doing, besides the positioning of a Master Black belt as quality leader in each business or function, the quality division has been structured by dividing production (driven by a product quality process leader, normally a Master Black belt) to transactional processes (driven by a commercial quality process leader)<sup>24</sup>. Thus, together with policies of high-potentials individuation, job rotation and incentive plans, the six-sigma kicked off a *further intense season* of internal training which involved all the personnel within NP. In particular, this allowed 1500 white collars out of 3000 to become Green belts by the end of 1999. The objective, still to be achieved, is to train as Green belt the totality of NP workers.

**An example of Six-sigma's potential for breaking habitual routines and enabling a new institutionalisation** – During November 1996, aiming to re-design and improve a strategic phase such as the ITO – inquiry to order – process, the Division Parts & Service started the implementation of one of the pioneer six-sigma macro-projects within NP<sup>25</sup>. Viewed as a key business area of NP growth strategy, the Division Parts & Service identified *response time in ITO processes* to be a major issue affecting customer satisfaction. By the end of 1996, a team composed of eight people (the Champion, the process leader, the Master Black belt, the Black belt and four more employees) concluded the definition-phase of the project. Thus, after the identification of both customers and internal critical needs (CTQs), the team developed an activity-based analysis of the various processes of bidding and focussed on the metrics which were required to appreciate possible improvements. 'Within these

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<sup>24</sup> It is important to point out that although the *idea* of such a quality revolution has been taken from other companies' experiences, GE was the first who applied the programs to all organisational processes, without any distinction between transactional and manufacturing.

<sup>25</sup> Formally, in view of its pioneering role, this was labelled as a five-sigma project. 'This was only a matter of nomenclature' affirms the Black belt responsible for the project 'because, in practice, we were exploring, while employing, the six-sigma complex methodology'.

phases we employed those specific six-sigma tools we learnt during the intense periods of training; instruments such as CTQs tree, process map per product, structure tree, fishbone diagram, who-what-when chart, CTQs validation against customer survey, flow chart and so on' explains, rather proudly, a member of the team.

Such a holistic measurement-based approach first questioned and, then, modified traditional views about the way to run processes of bidding in the Division. As the macro analysis started, it became immediately clear that multiple micro-projects for tackling specific problems and shortages were needed. Consequently, during 1997 a large number of small projects took off. The aim was to reach a level of five-sigma within 1998. In so doing, for each service typology of the product provided by the division, a specific process and activities analysis was developed, a *time sequence of operation* was defined and a *process map* was elaborated. For the 'spare part quotation', for example, this typology of service was broken down in four steps – request for bid, technical analysis, pricing, bid issue – each of which was, then, the object of a specific six-sigma micro-project. The critical-to-quality characteristics identified were cycle-time reduction and customer satisfaction. For both these items the key point was to calculate the potential financial benefit which should arise from the continuous activity of process improvement. Such financial benefits were calculated by applying the expected contribution margin rate to the planned incremental sales.

In spite of a huge number of process improvements, the targeted five-sigma level still needs to be achieved. 'But this wasn't the point' argues a Green belt involved in the project.

'In the short-period six-sigma should lead NP towards a new operational and managerial methodology. Its tools, together with parallel initiatives such as the best-practice diffusion and the work-out meetings, should enable the generation of a new, measurement focussed, way to participate and live the business (...) This is what has truly happened: six-sigma has been spread throughout the company, which is now strongly integrated and bound by this *modus operandi*. Nowadays, when we think, discuss or communicate, we do it in terms of CTQs and contribution margin. It doesn't matter if we are talking to the accountants or among engineers, it doesn't matter if we are ringing Talamona (a decentralised NP's division) or the States'

Thus, besides the points gained by each process on the sigma-scale, and the higher potential/effective levels of productivity and customer satisfaction achieved, the best outcomes are undoubtedly intangible. 'They are cultural (...) Indeed, they cannot be always synthesised in impressive numbers yet, but they represent potential future achievements' argues a HR manager. As a consequence, these tools and techniques are now taken-for-granted, they are stored in organisational members' stocks of knowledge and 'mindlessly' enacted within the day-to-day flow of activities.

Furthermore, as underlined above, through the sharing of best-practices, which is nowadays nearly automatic in a global company such as GE, innovative processes and behavioural models can stretch far beyond the boundaries of the division which implemented them. In so doing, they may also be conceptualised as '*internal*' threats to the routinised patterns of behaviour enacted within other divisions and/or subsidiaries of the company. This was the case with the '*response time in ITO*

*processes*' project. Having been acclaimed the best six-sigma project within GE at the '1998 Quality rally', the assumptions, achievements and improvements, which characterised the project were spread throughout the company.

Synthesising, despite problems which have arisen in specific cases 'six sigma has gone from being an alien concept, full of complex calculations and unfamiliar jargon, to a consuming passion sweeping across the company'<sup>26</sup>. Overall six-sigma has driven NP (and the whole GE) towards both a new customer-oriented culture and unexpected levels of bottom line achievements. As GE's CEO underlines:

'operating margin, a critical measure of business efficiency and profitability, hovered around the 10 percent level at GE for decades. With Six Sigma embedding itself deeper into Company operations, GE in 1997 went through the "impossible" 15 percent level – approaching 16 percent – and we're optimistic about the upside'<sup>27</sup>

The contents which characterise the case of GE/NP are undoubtedly insightful for interpreting the underlying nature of processes of learning and organisational transformation. In relation to the specific purposes of this paper, such a longitudinal field observation provides us with a valuable opportunity to refine an *institutional framework of change*. Thus, by combining practical evidence and theoretical insights we intend to interpret how these revolutionary/evolutionary processes come about; to uncover the key variables which may enable the unfreezing, re-definition and institutionalisation (re-freezing) of shared stocks of organisational knowledge and, principally, to illustrate the role played by those broadened systems of management and performance accountability within the ongoing circuit of culture production and reproduction. Nevertheless, having portrayed the institutional character of both MAS and organisational culture, and their consequent link with the routinised enactment of specific patterns of behaviour which provide organisational members with a certain degree of 'cognitive security and stability', we believe it is essential to start our considerations upon their ongoing dynamic nature by acknowledging the psychological origin of their processes of change.

## **8. Management accounting systems and organisational culture: an institutional framework for interpreting their processes of change**

**A definition of change** – Relying on the contributions sketched earlier (i.e., Giddens, 1984; Schein, 1992; Harris, 1994), the purpose of this section is to develop an institutional framework to interpret how management accounting systems and organisational culture interplay and to illuminate the underlying nature of processes of institutional change. For this reason, an attempt is made here to provide a general definition of (cognitive) *change*. In particular, at the micro-organisational (individual) level, change may be defined as the *ongoing process of cognitive definition and re-definition which influence actors' motivation for action*. In this sense, change may be conceptualised

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<sup>26</sup> CEO's speech at GE Annual Meeting, April 1997 (Slater, 1998).

<sup>27</sup> CEO's letter to share owners, GE Annual Report, 1997.

as a continuous re-examination, *although at different cognitive levels*<sup>28</sup>, of the stored knowledge (i.e., schemas) which provides ‘position-practice’ incumbents with a sense of ontological security. Furthermore, since change impacts on the psychological side of organisational actors, whereas, on the one hand, its consequences may be deciphered through the observation of its overt manifestations, on the other hand, the interpretation of the way in which it comes about may be extremely complicated.

Consequently, while recognising that the process of change is continuous, that it involves inertial forces which provide continuity over time (Nelson and Winter, 1982), we may artificially distinguish different ‘contingent’ routes according to the depth and the intensity with which cognitive structures are impacted. Thus, if one aims at interpreting the way in which change occurs, the focus needs to be placed principally on the underlying psychological consequences, rather than on the origin of the forces which affect the processes of cognitive re-structuring. In particular, by drawing on the contribution of Nelson and Winter (1982), we portray as *revolutionary* those episodes which display a significant impact on the existing routines and institutions (Burns and Scapens, 2000). Thus, while being often (but not always – Schein, 1992) caused by major external events such as economic shocks, ownership change and technological innovations, these processes of change need to be understood as involving a radical disruption of the institutionalised values and patterns of behaviour which characterise organisational culture.

Such events threaten that psychological safety which constitute the base for the sense of ontological security embedded within the institution. When (in critical situations) these securities are unfrozen, and anxiety arises, individuals may question their taken-for-granted assumptions and revolutionary episodes may occur. Besides that, the routinised character of institutions enable change to be *evolutionary*. Evolutionary changes are incremental and involve only minor and, sometimes, unconscious adjustment to the taken-for-granted assumptions. In this case, the potential for change is still constrained and enabled by the underlying routine and institutions which are encoded within organisational ‘position-practice’.

Thus, by defining change as an ongoing process of ‘cognitive schema definition’ which affects actors’ motivation for action, the dichotomy between evolutionary and revolutionary change (Nelson and Winter, 1982; Burns and Scapens, 2000) may be, at least ‘partially’, abandoned. In fact, since the revolutionary/evolutionary *qualities* are attributed to the different levels of agents’ consciousness/unconsciousness which processes of change are able to affect, they may be re-conceptualised as *contingent momentum* of the same ongoing process which differs in the *intensity* with which its route occurs. As a consequence, we may conclude by affirming that, in view of the widely acknowledged enabling/constraining power of institutionalised assumptions upon the situated context of interaction (Giddens, 1984), whereas the process of change is generally characterised by an evolutionary (i.e., path dependent) route connected to the possible mutation, imitation, emulation

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<sup>28</sup> It is fundamental to recognise that change may occur at different cognitive levels. In fact, as described later in the paper, this may help us in understanding when the evolutionary processes of change are interrupted by revolutionary episodes.

and/or adaptation of existing routines (Nelson and Winter, 1998), ‘moments of sudden disruption’ may also take place. These ‘revolutionary events’ may be conceptualised as *points of discontinuity*. Nevertheless, such discontinuity does not refer to process of change *per se*, which still requires to be conceptualised as ongoing and uninterrupted, but to the cognitive consequences of its occurrence. Thus, by dissolving the shaping abilities of the existing routines and institutions, these revolutionary contingencies rely generally upon major individual/organisational repositioning such as occurred in the GE/NP case.

**The interplay between management accounting systems and organisational culture: a holistic-clinical approach** – The theoretical assumptions outlined in previous pages constitute a framework for investigating the dynamics of organisational culture change and its interplay with MAS. As a consequence, although Boland (1996) neglects this possibility<sup>29</sup>, by relying on the contributions of Schein (1991, 1992), Macintosh and Scapens (1990), Dent (1991), Barley and Tolbert (1997), Burns and Scapens (2000), we emphasise the usefulness of institutional theories and Giddens’s theory of structuration for understanding such ongoing processes of organisational transformation (see also Busco, 2000).

Portraying organisational culture as a *dynamic concept*, Schein points to the need to conduct holistic observations in order to understand how the whole organisation acts towards and participate in cultural change. Furthermore, the benefits which may arise when such observations are ‘clinical’ also need to be acknowledged. The combined action of *researcher* and *helper-consultant* enables a deeper interpretation of the nature of existing culture, of the way in which it came about, and is sustained. In this way, by analysing those manifest artifacts, symbols, stories, rituals and patterns of behaviour which characterise the organisational context, the values and the norms which govern individual behaviour and, the underlying taken-for-granted assumptions which determine organisational members’ thoughts and reasons for actions may be deciphered (Schein, 1992).

Therefore, the abstract nature and the heterogeneous contents of the phenomena under investigation, along with the need to explore their ongoing processes of transformation, requires the adoption of a *holistic-clinical* approach in which the longitudinal dimension of change needs to be constantly integrated with a ‘vertical’ perspective tailored to uncover the deepest ontological assumptions of organisational culture and with a ‘horizontal’ analysis in which the normative, regulative and cognitive elements that characterise the culture’s contents are explored. In such a dynamic setting, the nature of MAS as a set of rules, roles and routines and their key role as stores and carriers of the signification, legitimation and domination dimensions of organisational culture, need to be acknowledged (see also Busco, 2000).

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<sup>29</sup> ‘To characterize individuals as sharing well developed belief systems that explain their behaviour is not appropriate in a structural analysis at any level. There is a vast difference between recognizing that individuals in a social system have a common stock of knowledge (which Giddens refers to as interpretative schemes), and assuming that those individuals have shared meanings and values ‘ (cf. Boland, 1996, p.696).

**Exploring the ‘inertial’ evolutionary route of processes of change** – The empirical investigation and the subsequent interpretation of processes of change and institutionalisation is a difficult task (Barley and Tolbert, 1997). Consequently, in order to decipher the dual relationship between social interaction and structural assumptions it is necessary to focus on the organisational processes by which it daily occurs. As suggested by Barley and Tolbert (1997, p. 100) ‘to carry out research on these processes requires a conceptual framework that specifies the relations between interactional episodes and institutional principles’. For these reasons, by relying as well on Burns and Scapens (2000), we combine both synchronic and diachronic elements to interpret the way in which MAS and organisational culture, which are here conceptualised as institutional phenomena (Hamilton, 1932; Schein, 1992; Scapens, 1994), intertwine within a shared process of social construction and validation (enacting and reproducing – see fig.1) and, eventually, institutionalisation<sup>30</sup>.

[ Insert figure 1 about here ]

In so doing, overcoming the *apparent* static approach portrayed in the structuration theory, it is possible to argue that whereas the assumptions underlying organisational culture enable and constrain situated interaction synchronically, i.e. at a specific point in time, ‘position-practice’ incumbents reproduce and validate these assumptions diachronically; i.e., through their cumulative influence over time (Barley and Tolbert, 1997, p. 100). Thus, relying on the fact that institutionalisation is ‘a continuous process whose operation can be observed only through time’ (Barley and Tolbert, 1997, p.100), the thick and bold horizontal arrows at the top and at the bottom of figure 1 represent the temporal extension of the two realms of social structure described by Giddens (1984). Such realms, i.e. action and institutions, are repeatedly structured through time and space by a dual process in which MAS may perform a pivotal role.

Drawing from the work of Burns and Scapens (2000), the evolutionary path of organisational change has been artificially divided into four different steps which may be synthesised as following: encoding, enacting, reproducing and institutionalising<sup>31</sup>. The first step (*arrow a*) concerns the encoding of taken-for-granted, institutionalised (cultural) assumptions. As such, the rules, roles and routines which characterise MAS are informed by the values and beliefs embodied in such institutions. Although this encoding involves all the dimensions of structure, it generally relies upon the employment of specific resources of power drawn from the institutionalised structures of domination (Burns and Scapens, 2000).

Then, the second moment (*arrow b*) refers to the enactment, through activities of ‘position-practice’ incumbents, of those patterns of behaviour which are informed by the encoded principles, values and beliefs. As such, the specific rules and organisational roles, shape behavioural regularities

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<sup>30</sup> Relying on Giddens (1984) and Schein (1992) we interpret the ongoing circuits of social production and reproduction as continuous processes of shared learning and validation that, for specific values and patterns of behaviour, may end up with the institutionalisation as taken-for-granted cultural assumptions.

<sup>31</sup> This is due to the explanatory purposes which inform our paper. Furthermore, it is important to recognise that the process of change is continuous and difficult to sub-divide.

or routines which bring to life the underlying taken-for-granted assumptions that constitute the essence of organisational culture. As emphasised by Schein (1992), Barley and Tolbert (1997) and Burns and Scapens (2000), although this process may sometimes involve conscious choice, it is generally the outcome of reflexive monitoring driven by tacit knowledge of the individuals, and it is due to the need for ontological security which characterise the agents' unconsciousness.

The third step (*arrow c*) takes place as the continuous enactment of repeated patterns of behaviour lead to a social reproduction of the values embedded in these routinised activities. Thus, through a recursive process of enacting and reproduction, management accounting systems, which are conceptualised as both *repositories* – Giddens (1984) – and *carriers* – Jepperson, (1991), Scott (1995) – of stored cultural values, drive organisational culture's values across time and space. Furthermore, in specific cases, such shared process of learning and social validation might end up with a deeper cognitive transformation in shared taken-for-granted assumptions. As argued by Schein 'as the group builds up more common experience, it gradually transforms its values and beliefs into assumptions (...) *The more these assumptions are validated, the more they come to be taken for granted and drop out of awareness*' (Schein 1991, p. 250, emphasis added).

With reference to the process of validation it needs to be emphasised how beliefs and values are tested both externally and internally. As the case of GE/NP has confirmed, the external validation occurs generally through a measurement of actual success in task accomplishment (financial market reactions, customer surveys, etc.) while, from an internal point of view, assumptions are validated by their potential to reduce the *anxiety* that is associated with situations of meaninglessness and unpredictability (Schein, 1991). In so doing, as stressed throughout the paper, the mutual knowledge or common organisational 'schema' which is continually re-stored into organisational routines and enacted by 'position-practice' incumbents, get its stability from the fact that it provides a sense of ontological security (Schein, 1991, Giddens, 1984).

As mentioned above, the process of shared validation, whose contents involve not only a web of meanings, but also regulative and normative elements, implies 'generally' the institutionalisation (*arrow d*) of those values which 'deserve' to be stored within organisational common stock of knowledge as 'the right way of doing things'. This fourth step involves a dissociation of institutionalised values from the repositories-carriers and situations through which they were transported and generated. As such, these institutionalised values represent the taken-for-granted (i.e. unquestioned) basis for social interaction which is then encoded within agents' stocks of knowledge as *memory traces* (Giddens, 1984). In so doing, they became 'so taken for granted that someone who does not hold them is viewed as crazy and automatically dismissed' (Schein, 1991, p. 16).

As emphasised by Burns and Scapens (2000), such taken-for-granted assumptions, which have the potential to shape the contents of organisational repositories-carriers, are obviously more abstract than the rules, roles and routines in which they are stored. For this reason, dotted lines are used for arrows a and d. Furthermore, by enabling/constraining social interaction and organisational artifacts period by

period, they bind time in situated contexts of co-presence. Hence, the several b and c arrows for each pair of a and d arrows. Finally, the phases of encoding and institutionalisation represent ongoing processes, rather than single, identifiable movements (this explain the broad lines used for arrows a and d).

Aiming to explore the role played by systems of measurement and performance accountability as repositories-carriers where culture's values are stored and their contribution within the continuous process of organisational change, the crucial importance of resources of power need to be recognised. In this respect, Giddens' use the term power in both a broad and a narrow sense (Roberts and Scapens, 1985). Whereas power in a broad sense is considered as **transformative capacity**, 'the ability to get things done and to make a difference in the world' (Macintosh and Scapens, 1990, p. 461), in a narrow sense, power is simply the medium for domination.

Once stored within specific 'position-practice', these resources are then mobilised by incumbents in processes of co-ordination and control (Cohen, 1989). Thus the emergence of different levels of power within such circuits of reproduction may be uncovered (Burns and Scapens, 2000). In particular, it is possible to underline how hierarchical and explicit power, generally held by senior members of the organisation and/or individuals with a strong personality, is involved in processes of enacting rules, roles and routines. Furthermore, a different use of power may arise during the process of validation and reproduction of organisational systems, where the ceremonial use of rules, roles and routines may favour the interests of particular organisational groups. Finally, the power stored in common stocks of knowledge, which are able to create stability while encapsulating organisational web of meanings and ontological assumptions need to be acknowledge.

**The acknowledgement of revolutionary points of cognitive discontinuity** – The interpretation of an ongoing evolutionary path (underlined by the progressively denser background in fig. 1) is crucial for understanding processes of change. During our period of observation at NP, major transformations such as the new measurement-based organisational language, the 'sophisticated' activity-based cost system, the broadened idea of controllership, the 'awarded' ITO-response time process, etc. have emerged through the above illustrated process of social learning and shared validation. In fact, one of the key features of 'position-practice' incumbents is that, relying on the stocks of knowledge stored, they have the *potential* to make a difference, either enabling or resisting change, during the ongoing process of interaction. As such, they have the capability, either intentionally or unconsciously, to drawn upon the structure of domination to enact power and to initiate, co-ordinate and control processes of learning and transformation.

Nevertheless, besides the acknowledgement of such an evolutionary route, the recent history of NP witnesses how, in specific circumstances, major *episodes* of cognitive disruption may revolutionise the path-dependent course of events. In particular, by impacting heavily upon the deepest layers of agents' psychological make-up (Macintosh and Scapens, 1990), such shocks have the potential to cancel that sense of psychological safety and ontological security which is 'ordinary' provided by routinised patterns behaviours. When these episodes arise, the established frames of meanings (i.e., institutions)

are no longer drawn upon by ‘position-practice’ incumbents who ‘are able to assemble the resources and the rationales necessary to collectively question the existing rules and routines’ (Burns And Scapens, 2000). As such, these institutions remain consciously locked in a past temporal frame and lose any substantial shaping ability (moment ‘e’ in fig. 1). Relying on the work of Lewin (1951), the literature of organisational change provides several descriptions of such critical or unfreezing episodes. As noted by Hennestad (1999), besides Schein, theoretical contributions are provided among the others by Lundberg (1984) and Strebelle (1995), and longitudinal studies have been developed by Miller and Friesen’s (1980) and Tushman and Romanelli’s (1985).

The sources of such disruptive events may be either *internal* or *external* to the organisation. As the Six-sigma implementation demonstrates, a massive operational and managerial revolution emerged as a result of an *internal* decision of the Board, and the CEO in particular. As emphasised earlier in this paper, external influences (financial market pressures, competitors improvements, customer complains, etc.) were important in shaping the implemented strategy but, ultimately, it remains a GE’s choice. In this sense, we need to recognise a further, stronger, level of power that, if drawn upon, may *reset* the ontological security which provide organisational members with a sense of psychological safety and stability. GE’s CEO was aware of the disruptive potential of its statements when he launched the *ABC ranking*. The consequences in the agents’ minds of these unfreezing claims may be so deep and challenging that they have been compared by Schein to wartime brainwashing (Crainer, 1999).

Besides power-related human transformative capacities, the framework developed here highlights the importance of external shocks such as economic downturns, ownership change (as for the case of GE/NP) and changes in technology, which require immediate adaptation, and may initiate revolutionary episodes of change. These exogenous contingencies, which act upon individuals’ anxiety-control mechanisms, affect the enactment of social ‘position-practice’. In so doing, they stimulate the *changing* and learning capability of organisational members, whose psychological safety become seriously threatened. Thus, by recognising that the complex organisational setting is characterised by multiple and overlapping social structures, it becomes crucial to investigate the way in which such external structures may overcome organisational boundaries and affect the behaviours of key organisational actors (Giddens, 1984; Whittington, 1992). The disruptive consequences of these shocks upon agents’ psychological securities and their conceptualisation as discontinuity points within the ongoing process of evolutionary change explain the sudden ‘slippage’ of the two longitudinal arrows in Fig. 1 and the return to a white background.

## **9. Concluding comments and possible implications**

The need to understand, manage and, possibly, drive the enhanced organisational complexity is undoubtedly one of the main challenges for current corporate leaders. Facing ongoing problems of external adaptation and internal integration, global corporations such as GE/NP seem to rely on the

potential of holistic measurement based systems of management for aligning business processes with corporate strategies and sustaining continuous processes of transformation by infusing organisational culture/knowledge with shared metrics of performance accountability. Thus, by recognising the need for a deep interpretation of such ongoing organisational integration this paper aims to explore the underlying nature of these processes of change and the role played by management accounting (control) systems within these broad, organisational-wide, processes of culture transformation.

Nevertheless, one must acknowledge the possible limitations and constraints related to the approach chosen. Thus, the conceptualisation of organisational culture as a '*substantially shared*' institutional phenomenon, the lack in taking into account wider anthropological aspects (i.e., the influence of the *national culture*), the bias which might arise being in a 'researcher-consultant' position, the lack in considering other macro-economic variables, and the low percentage of shop-floor workers interviewed should be considered. Having said that, our purpose to re-conceptualise as duality a number of traditional social sciences dualism need to be remembered as well.

Conceptualising organisational culture and management accounting systems as 'deep' organisational phenomena (Schein, 1992; Scapens, 1994), we rely on the widely employed concept of *institution* (Hamilton, 1932) to investigate their ultimate nature and their intertwined dynamics of change. As such, by drawing on heterogeneous assumptions, whose contents range from ego-psychology to sociology of knowledge, from anthropology to organisation theory, from management to cognitive sciences, we rely on our position as both *researcher* and *helper-consultant* to explore far beyond the mere *visible* enactment of organisational processes. In particular, by employing a combination of theoretical assumptions and holistic field observations, we define change as the *ongoing process of cognitive definition and re-definition which influences actors' motivation for action*. In this sense, change is portrayed as a continuous re-definition of the different levels of knowledge (schemas) stored within the network of organisational 'position-practice', which provide incumbents with a sense of ontological security. In so doing, avoiding any Darwinian or Kuhnian temptation, the *institutionalised* character of these organisational phenomena enables to re-conceptualise such extreme positions by recognising how the process of change, which tends to be evolutionary (i.e., tacit, unconscious, path dependent), may be disrupted by specific revolutionary episodes (or stimuli) which imply a rational, conscious, activity of self-reflection.

Within this framework, systems of measurement and performance accountability are portrayed as socially constructed and validated practices through which organisational culture's values are stored and carried. More precisely, being conceptualised as a set of rules (the formalised statements of procedures), roles (the network of social positions) and routines (the practices habitually in use) involved in the production and reproduction of organisational order, they may be interpreted as framed (by rules) sets of 'position-practice' for structuring organisational culture along the different dimensions of institutions - domination (which contain regulative elements, power), legitimation (which carries normative elements, the moral code) and signification (which provide cognitive elements, meanings) – conceptualised by Giddens (see also Busco, 2000). Such assumptions, along with the

insights drawn from institutional theories and on the works of Barley and Tolbert (1997) and Burns and Scapens (2000), enable an institutional explanation of the way in which such systems of management and accountability are able, in action, to facilitate processes of organisational learning (linked to policies of transformation and change) and the creation of shared organisational knowledge by encoding, enacting, reproducing and institutionalising organisational culture values. Besides that, in spite of this 'evolutionary' path, the 'revolutionary' occurrence of unfreezing, disruptive, episodes need to be acknowledged. In these situations, *crisis* tend to arise and moments of rational cognitive re-definition is likely to occur.

Thus, paraphrasing Giddens' account of the role played by urban life, i.e. cities, within the constitution of the society, we portray systems of accountability as 'the *container* or '*crucible of power*''(Giddens, 1984, p. 262, emphasis added) which have the potential to structure the organisational order. In so doing, by leading and shaping organisational learning, accounting practices represent tools which powerful incumbents, such as corporate leaders and top management, but also project engineers and finance managers, may use to regulate (speeding or slowing) the processes of change. As such, by emphasising that 'information storage (...) is a fundamental phenomenon permitting time-space distancing and a thread that ties together the various sorts of allocative and authoritative resources in reproduced structures of domination' (1984, p. 262), Giddens acknowledged how organisational repositories (such as management accounting practices) end up generating the major types of structural principles in the construction of organisational order. Indeed, as wars and conflicts may represent possible points of disruption within the ongoing construction of the society, the same happens within the creation of organisational order, when major shocks or 'unexpected stimuli' (such as the ownership change in the case of NP) affect the *routine-based* course of events.

As mentioned earlier in the paper, the relationship between the theoretical framework and the observations of our longitudinal research in GE/NP is twofold. While on the one hand the empirical analysis has contributed to our search for an institutional explanation of evidence collected, on the other hand, such empirical data may be illuminated by employing the theoretical insights which distinguish the framework itself. Thus, in interpreting the ongoing process of organisational learning and transformation, which have characterised NP since GE's acquisition, we acknowledged the key role played by systems of performance accountability within such a processes of cultural integration and change. In so doing, after having described the unfreezing 'moment' of the acquisition, besides the focus placed on the 'evolutionary' consequences for the accounting and finance functions, we have explored GE/NP's recent implementation of the Six-Sigma quality program as 'the engine for organisational change'. In particular, it may be interpret as an internally-originated episode of cognitive disruption which requires a conscious phase of individual/organisational repositioning.

Thus, during the '*clinical*' experience lived at NP, together with an understanding of the nature of MAS as an institutionalised web of socially constructed and validated rules, positions and practices, we had the opportunity to explore the way in which organisational leaders (especially GE's CEO) rely

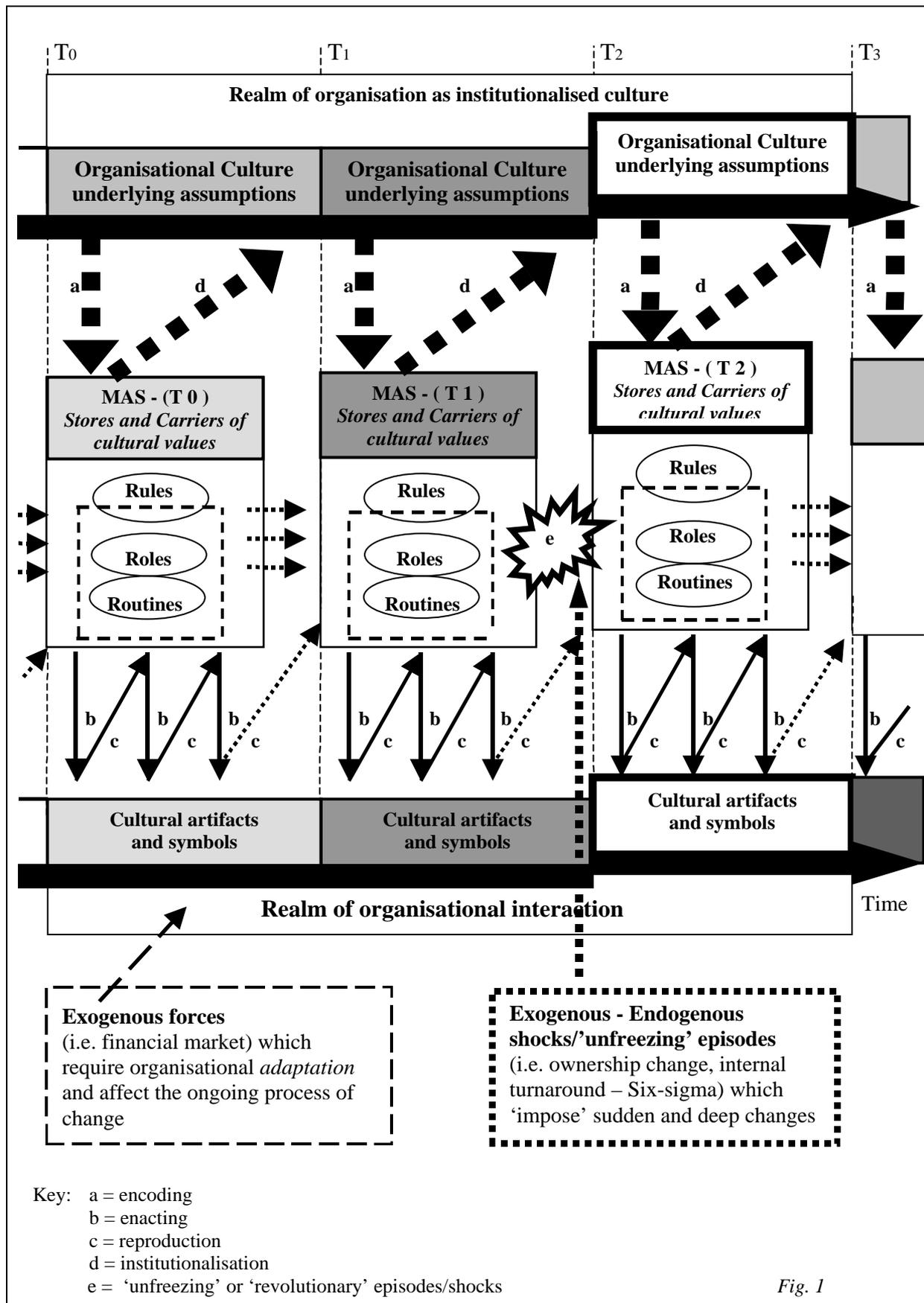
on the well-known capabilities of accounting systems to visualise, measure and communicate the daily business activities and events, to question specific operational and managerial strategies and to justify new paths of 'action' (Hopwood, 1990; Ezzamel *et al.*, 1999). By translating the external market driven 'pressures' into a specific set of internal financial and non-financial target linked to specific production processes and business practices, these systems enable organisational leaders to transform abstract broad strategies into visible (quantifiable and measurable) individual tasks. Being communicable even to the lowest operational levels, such 'understandable' personal objectives enhance first the employees' conscious (i.e. rational) and, then, an unconscious (taken-for-granted) identification with those cultural values which infuse organisational leader's daily rhetoric.

The fact that systems of performance accountability cannot be described as objective and neutral tools is self-evident. Furthermore, by carrying, diffusing, validating and institutionalising these underlying taken-for-granted assumptions which constitute the very core of organisational culture and systems of knowledge, they may be conceptualised as a *technology* (Ezzamel *et al.*, 1999) *deeply implicated in the production and reproduction of shared organisational values* (Macintosh and Scapens, 1990). Thus, as in the case of GE/NP, their enactment may improve organisational communication and integration by infusing 'non-accountants', such as engineers, with a common language of accountability based on financial and non-financial metrics, and thereby overcome communicative, cultural and operational boundaries across subsidiaries or divisions located in different countries through shared meanings (the accountability vocabulary, the six-sigma metrics) in 'reading' the state of the business. As a consequence, we may synthesise that if *ownership shift* motivated change, the '*measurement revolution*' give it a direction (see also Hennestad, 1999).

In conclusion, as the case of GE/NP highlights, stimulated by the impact of increasing global competition and the consequent needs for organisational integration, the continuous alignment of business processes and corporate strategies relies heavily on the organisational-wide implementation of holistic systems of measurement and accountability (Scapens, 1999). Furthermore, within a context where MAS seem to play a key role in binding all dimensions of change, it emerges out of the case how the 'conventional' financial-based systems of accountability need to be substantially adapted and integrated within the 'broader' non-financial aspects of the business. In so doing, the traditional monetary measures employed to manage the business are increasingly coupled with performance indicators which measure things such as customer satisfaction, market share, numbers of rejects, extent of innovation, employees empowerment, etc.

Consequently, by extending the tasks and the contents of the existing MAS, these holistic processes of organisational transformation raise interesting questions about the future role of accountants, and particularly about the '*broader*' knowledge, capabilities and skills that seem to be required to exploit the opportunities and face the threats within such a changing working environment. *What about the future organisational functions and roles of management accountants? How are they going to evolve both in absolute and relative terms within the companies? What kind of education and training programmes should accountants undertake to be able to fulfil such roles? To what extent and*

*in which way may the different social, cultural, political and institutional contexts affect these processes of organisational transformation?* The need to answer these questions, along with the undoubted limitations of the present study suggest that the discussion and investigation of these issues deserves further field research and theoretical contributions.



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Starting from the position that management accounting systems and practices constitute organizational rules and routines, this paper describes an institutional framework for the conceptualization of management accounting change. Drawing from (old) institutional economics, the framework explores the complex and ongoing relationship between actions and institutions, and demonstrates the importance of organizational routines and institutions in shaping the processes of management accounting change. The inherent stability and continuity of organizational life is discussed, and three categorizations of institutional change are explored. This framework explains the evolution in management accounting through four recognisable stages. As explained by Omar et al. This is similar to other studies on management accounting and organizational change which also use contingency theory (for example, Baines & Langfield-Smith, 2003; Haldma & Laats, 2002; International Research Journal of Management Science & Technology <http://www.irjmst.com> Page 1014 IRJMST Volume 4 Issue 2 Online ISSN 2250 - 1959 HyvÄrinen, 2007). The following sub-sections summarise the process of management accounting change from each perspective. Organizational Assessment: A Framework for Improving Performance puts forth a framework for analyzing the strengths and weaknesses of an organization in relation to its performance. The text introduces a heuristic framework that has guided our work for the past decade or so. In general, the framework posits that organizational performance is a function of its enabling environment, capacity and organizational motivation. Over the last ten years, we developed a framework of institutional and organizational assessment that culminated in the book entitled Institutional Assessment: A Framework for Strengthening Organizational Capacity (Lusthaus, Anderson and Murphy, 1995). The book. Changing organizational culture : the change agent's guidebook / Marc J. Schabracq. goals and behavior implies for th Load more similar PDF files. PDF Drive investigated dozens of problems and listed the biggest global issues facing the world today. Documents can only be sent to your Kindle devices from e-mail accounts that you added to your Approved Personal Document E-mail List. To add our e-mail address (.), visit the Personal Document Settings under Preferences tab on Amazon.