

Extending Institutional Analysis through Theoretical Triangulation: Regulation and Activity-Based Costing in Portuguese Telecommunications*

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ABSTRACT

This paper examines why a Portuguese telecommunications company – Marconi - adopted activity-based costing (ABC). The focus lies in New Institutional Sociology (NIS), particularly the institutional change model of Dillard *et al.* (2004), supplemented by theoretical triangulation involving economic, labour process, and actor network theories to enrich observations and extend theory. Why Marconi adopted ABC lay in a complex, inter-related chain of institutions, including the parent company, management consultants, national and European Union regulators, financial markets, and consumer associations during market liberalisation. ABC was a means and symbol of improved competitiveness and efficiency but its diffusion and adoption also involved mimetic, coercive and normative factors. In regulated environments external legitimacy and efficiency were intertwined and demonstrating efficiency using accounting symbols is problematic. The results confirm criticisms of early NIS research for dichotomising economic and institutional pressures, assuming private organisations are exempt from institutional pressures, and neglecting internal organisational dynamics. The Dillard *et al.* model accommodated many features of institutionalisation but needed extension to incorporate the public interest, the role of boundary spanners across social levels, and how intra-organisational factors and properties of the technology derived following translation and praxis play a part.

Keywords: Institutional theory, theoretical triangulation, activity-based costing, European telecommunication regulation, consultants, management accounting change

PROLOGUE – Conversations between the authors

Scene One circa 1999

Maria *I want to study why Portuguese firms are adopting ABC. Every theory seems reasonable but they all disagree.*

Trevor *Go out and do a pilot study – this will establish which is best.*

Scene Two circa 2000

Maria *The results are confusing – it's still not clear which theory fits best.*

Trevor *Which fits the most? Don't combine theories – it's like mixing oil and water. They have different assumptions: if you combine them you end up satisfying no-one.*

Maria *I guess it's Institutional Theory then.*

Trevor *OK - use that.*

Scene Three circa 2005

Trevor *I've been thinking about the comments on the paper. You were right -no one theory seems to work all the time. I think we should rewrite the paper using multiple theories.*

Maria *Oh dear! Do you think it is wise?*

Trevor *No – but let's try!*

1. INTRODUCTION

Advocates of Activity-Based Costing (ABC) claimed traditional management accounting systems (MASs) generated misleading costs in a contemporary business environment and implementing ABC would remedy this (Johnson and Kaplan, 1987; Jones and Dugdale, 2002). Casual observation that ABC had attracted interest in Portugal, as elsewhere (Innes and Mitchell, 1998) leading to several large firms adopting it, stimulated

this study of why a Portuguese telecommunications firm adopted ABC and its consequences (Malmi, 1999). Initial ABC writings were predominantly atheoretical and prescriptive (Hopper, 1994; Scapens, 1991; Lukka and Granlund, 2002) but subsequent research has a stronger though diverse theoretical hue. Consequently this project, apart from an initial commitment to grounded research, delayed explicit theorisation until after the preliminary research. Here, technical, economic, and implementation issues, and external pressures emerged but no single theory satisfactorily embraced all facets so theorisation proved little easier then. Eventually new institutional sociology (NIS)¹ was pursued in the second research stage as cultural, social and political issues were intriguing.

The results confirmed criticisms of NIS. Social and economic pressures were inseparable, private firms were not immune from institutional pressures; and intra-organisational power struggles and conflicts were important. However, somewhat frustratingly, feedback on initial reports implied that recent theoretical advances in NIS addressed our criticisms. Moreover, important studies of ABC incorporating Actor Network Theory (ANT) had emerged. Our initial reaction was to abandon any pretence of extending NIS theory and just claim the research confirmed previous criticisms. However, upon reflection, we recast the results within the contemporary theory of Dillard *et al.* (2004) (hereafter the 'Dillard model'), which combines Old Institutional Economic (OIE) research on intra-organisational institutionalisation processes with recent NIS research on external pressures. The model proved relatively robust but did not embrace all our observations. Consequently we recast our data according to economic, labour process and ANT precepts following theoretical triangulation methods delineated by Gioia and Pitre (1990) and Lewis and Grimes (1999). These were compared and contrasted with the NIS results to extend the NIS model's treatment of the public interest, boundary spanners, intra-

organisational factors, and how technologies like ABC acquire characteristics through translation and praxis.

Thus the main research questions were: ‘Why did Marconi adopt ABC?’ ‘Does the Dillard *et al.* model (2004) fully explain its institutionalisation? And if not, ‘Can theoretical triangulation extend it?’ The paper firstly reviews ABC and related NIS research, followed by contextual information on Marconi² - the research site – and an exposition of the research methods. The empirical section traces why Marconi adopted ABC and its institutionalisation using the Dillard model, which is then extended by triangulation with other theories. The paper ends with conclusions.

2. INSTITUTIONAL EXPLANATIONS OF WHY FIRMS ADOPT ABC

ABC’s originators recommended it for economic, normative, realist, and deterministic reasons – i.e. it represents best value, accurately represents financial events, and aids rational decision-making and contracting. Alleged benefits include: increased cost awareness and understanding; better tracing of costs to objects; superior allocation of overheads to cost objects; and financial (cost driver rates) and non-financial (cost driver volumes) measures for cost management and operational decisions (Innes and Mitchell, 1991, 98; Cooper 1988a and b; Cooper and Kaplan, 1987; Kaplan and Cooper, 1998). ABC was promulgated as promoting rationality, efficiency, and ultimately profitability, which is why potential users show interest (Innes and Mitchell, 1998; Jones and Dugdale, 2002). Like their North American counterparts, some European companies adopted it and evaluated it favourably (Brierley *et al.*, 2001; Shields, 1995; Innes *et al.*, 2000; Baird *et al.*, 2004).

In contrast to ‘economic’ approaches, institutional theorists argue that adoptions of practices like ABC are often determined by culture, norms and cognitive factors (Scott, 1992, 2001; Baxter and Chua, 2003), i.e. organisations become isomorphic with external

institutional environments (DiMaggio and Powell, 1983, 1991b). An isomorphism is a “constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions” (DiMaggio and Powell, 1991, p. 66). Continual reproduction of institutionalised beliefs gives them a rule-like status, spawning widely accepted, habitual, taken-for-granted assumptions about the world and appropriate behaviour that frame laws, public opinion, education, and constituents’ views (Meyer and Rowan, 1977, 1991; Scott, 1987, 2001). These may be myths but compliance is a pragmatic necessity for organisations being defined as successful, gaining legitimacy and resources, and hence surviving (Carruthers, 1995; Scott, 1987; Granlund and Lukka, 1998; DiMaggio and Powell, 1991a).

Scott (2001) identifies the three ‘pillars’ of NIS as regulative, normative, and cultural-cognitive. Each is associated with particular institutional isomorphisms, namely coercive, normative and mimetic. The *regulative* pillar encompasses rule-based frameworks ranging from informal customs to formal, coercive systems. *Coercive isomorphism* occurs when powerful bodies in an organisation’s domain exercise authority or power (Scott 1987, 1991). Regulative institutions, especially the state, impose laws and sanctions to promote convergence. For example, as in this study, regulators promoted, diffused, and insisted on costing techniques like ABC in the name of rationality.

The *normative* pillar represents social obligations that define goals and appropriate means of attaining them. *Normative isomorphism* occurs when demands from institutions with moral legitimacy are perceived as binding. For example, consultants, professional bodies, business schools and the business media disseminated beliefs that ABC is a pinnacle of management progress and a global standard solution (Granlund and Lukka, 1998; Malmi, 1999; Abrahamson, 1991, 1996). Nevertheless, whilst advisors must demonstrate the efficacy and widespread adoption of techniques they espouse, they must

shroud them in sufficient mystery to justify their services. Thus ABC must be malleable and require situation-specific design.

The *cultural-cognitive* pillar rests on shared conceptions of social reality that frame common beliefs and logics of action. Associated behaviour is mimetic: taken-for-granted understandings, often unconscious, give structure, meaning, and predictability to human life. *Mimetic isomorphism* is driven by imitation and uncertainty, e.g. businesses adopt techniques with widespread cultural support and copy successful companies to prevent their activities being questioned, particularly when uncertainties abound (Galaskiewicz and Wasserman, 1989; Haveman, 1993; Fligstein, 1985, 1991; Covaleski and Dirsmith, 1988a and b). Thus firms may adopt ABC if it is endorsed by respected agencies and used by successful firms. This gives credence to claims that ABC adoption may be a fad associated with fashionable business techniques (Innes *et al.*, 2000; Granlund and Lukka, 1998; Abrahamson, 1991, 1996; Malmi, 1999).

NIS theorists claim formal and informal organisation structures exist in uneasy tension. Organisations may adopt practices due to institutional pressures despite their irrelevance to everyday action, leading operational systems to become either loosely (different but interdependent) or totally (distinct and separately) decoupled (Carruthers, 1995; Scott, 2001; Meyer and Rowan, 1977, 1991). Hence ABC may be ceremonially and ritualistically maintained to impress external constituencies but de-coupled from meaningful organisational action.

Despite claims that NIS is a 'vibrant' theory (Dacin *et al.*, 2002), has been criticised for dichotomising economic and legitimacy issues, and public and private organisations; and neglecting inter-organisational factors, especially power, conflict; and change processes (Scott, 2001). Originally, NIS scholars distinguished between *institutional* and *competitive* isomorphism (Hannan and Freeman, 1977; DiMaggio and

Powell, 1983, 1991b). *Competitive isomorphism* was not denied but NIS researchers concentrated on *institutional isomorphisms* in public organisations like schools, universities, and hospitals (Carruthers, 1995; Orrù *et al.*, 1991; Singh *et al.*, 1991; Zucker, 1987; Scott, 1991, 2001; Dacin, 1997; Fennel and Alexander, 1987). The belief was that private organisations have clear and measurable goals so their practices follow technical and efficiency pressures, whereas public and not-for-profit organisations with ambiguous goals and unclear means-ends relationships seek legitimacy by *institutional isomorphism* (DiMaggio and Powell, 1983, 1991b). However, recent studies indicate that private firms are subject to institutional pressures, e.g. regarding governance (Orrù *et al.*, 1991; Powell, 1991; Lee and Pennings, 2002). Moreover, legitimacy in the public sector can involve efficiency, as league tables of schools, universities, and hospitals bear testament.

Covaleski *et al.* (2003) argue that economic and institutional dichotomies are spurious in ‘administered markets’ of regulated industries (the site of our research): the social constitutes the economic, and legitimacy and efficiency are intertwined. Prices emanate from regulatory actions not market signals, and regulators must reconcile societal needs with consumer and producer interests; prevent market failure whilst promoting efficiency; and legitimate private rather than state provision. Accounting is a major regulatory tool for revealing monopoly abuse; preventing cost manipulation to gain price advantages; and reconciling firms’ long run investment and profit with public protection.

Leading NIS researchers now recognise that institutional and economic pressures are not mutually exclusive or oppositional, can confront organisations simultaneously, and prevail on both public and private organisations. This is consistent with NIS research on ABC. For example, Malmi’s (1999) study of ABC diffusion in Finland found efficiency concerns only explained early ABC adoptions. In the take-off stage fashion-setting organisations were influential but mimetic behaviour and efficiency drove later diffusion.

The second problem of NIS concerns change. Institutions provide individual meaning - they connote stability and uniformity (Scott, 2001, p. 48). Changes threaten individuals' sense of security, increase information processing costs, disrupt routines, and render behaviour less predictable (Zucker, 1988; Oliver, 1992). For example, Granlund's (2001) study of Finnish food manufacturers found post-deregulation economic pressures, consultants' advice, and mimicry fostered ABC adoptions but scarce financial and human resources, conservative cultures, inertia, and organisational routines promoted stability.

NIS has focussed on 'convergent change' involving outcomes or the diffusion of new practices. For example, Granlund and Lukka (1998) attribute global convergence of MAS practices, including ABC, to economic pressures, and coercive, normative, and mimetic institutional behaviour. This has merit but it neglects how new practices emerge and treats organisations as unitary, passive entities or 'black boxes' that only gain legitimacy by conforming to environmental demands (Scott, 2001; DiMaggio, 1988; Perrow, 1986; Collier, 2001; Greenwood and Hinings, 1996; Greenwood *et al.*, 2002). This brought accusations that NIS is 'functional anthropology' akin to contingency theory (Zucker, 1977, 1991) because it ignores perceptions of what is 'real', symbolic, important, and instrumentality – people may address external pressures through strategies other than acquiescence (e.g. compromise, avoidance, defiance, and manipulation) (Oliver, 1991). This has credence for ABC has invoked different interpretations, applications, and strategic responses from internal groups (Innes and Mitchell, 1991, 1993, 1998; Cobb *et al.*, 1992).

Recognition that NIS neglects institutional creation (as opposed to institutions as achieved states), deinstitutionalisation, and the role of actors' interests and power (Abernethy and Chua, 1996) has recently spawned investigations of institutional change (Seo and Creed, 2002; Kraatz and Moore, 2002; Greenwood *et al.*, 2002; Townley, 2002; Zilber, 2002; Kustova and Roth, 2002; Lawrence *et al.*, 2002; Lounsbury, 2002). Special

issues and research forums on this have emerged, e.g. Academy of Management Journal [2002, V. 45(1)], producing new models of institutional creation and destruction (Seo and Creed, 2002; Greenwood *et al.*, 2002). DiMaggio (1988) ascribes new institutions to ‘institutional entrepreneurship’; Oliver (1991, 1992) identifies strategic responses to institutionalisation and a de-institutionalisation model; Beckert (1999) argues that institutional rules and ‘strategic agency’ are co-ordinating mechanisms when people pursue market advantages; Lawrence (1999) outlines how institutional strategies bring institutional transformation; Fligstein (2001) uses the ‘social skill’ construct to analyse tactics people use to persuade others; and Lawrence and Suddaby (2006) view ‘institutional work’ as intelligent situated action. All stress strategic aspects of agency. Space precludes a full analysis of this work and its variety makes synthesis difficult, consequently this research used the Dillard model summarised in Figure 1, that incorporates recent NIS advances to address problems of accounting research in this vein, particularly its neglect of how institutional practices are established, diffused and changed; human agency; power; and socio-economic and political context.

[Insert Figure 1 near here]

The Dillard model takes the structuration theory postulate that action is changed but constrained by structure to develop a recursive institutionalisation model that prioritises processes over outcomes. The institutionalisation, transposition, and deinstitutionalization of practices (P) are continual and dynamic; recursively cascade through three levels; and involve actors’ power and interests; and historical, social, and political factors. The overarching economic and political level (PE) establishes general, widely taken-for granted norms (C_{PE}) disseminated to society and the organisational field level (OF), which translates these into more tangible practices (P_{OF}) and legitimacy criteria (C_{OF}) to evaluate the organisational level (OL). For organisations the major resource allocation institutions

lie at the OF level. However, organisations can be innovators (I) [who develop new organizational practices (P_I) within the P_{OF} and C_{OF} constraints from OF] or late adopters (P_{LA}) [who copy innovators' practices - albeit sometimes ceremonially]. New innovative practices can move laterally and upwards, and modify legitimate practices (P_{OF}) and criteria (C_{OF}). Changes in legitimate and accepted practices (P'_{OF}) and criteria (C'_{OF}) at the OF level normally reflect societal norms (C_{PE}). They reinforce, revise or eliminate extant practices and criteria incrementally but occasionally initiate revolutionary change. Shifts in power and ideology at the PE level may precipitate changes in P_{OF} and C_{OF} downwards. Different actors influence different levels, e.g., government officials, regulators and legislators at the PE level; industry leaders, trade unions and external consultants at the OF level; and managers and workers at the organizational level. Nevertheless, a continual iterative process between levels permits change upwards and downwards, though normally there is sufficient stability to constrain practices.

The change model extends structuration theory work on routines and crises to incorporate Weberian 'axioms of tension'. Accounting information systems are seen as artefacts incorporating socially imposed rules, regulations, norms and values that provoke responses ranging from resistance to institutionalisation. Legitimation, representation, and domination are essential dimensions of social dynamics. Rules, regulations, practices, norms, and values are legitimated by rationalities ranging from the formal (value neutral, based on empirical knowledge calculations with universal application inclined to economics and efficiency); to the substantive (from meanings, values, beliefs, and actions based on ethical and more emotive criteria like equity or fairness). Symbolic representations of reality that range from subjective (socially constructed and based on substantive rationalities) to objective (logical, analytical, concrete and measurable reflecting a formal rationality) provide meaning, facilitate communication, underpin social

action, and often reflect PE level ideologies. They become more operational and specific through translations at lower levels. Criteria for allocating material and human resources are linked to domination, which ranges from formal hierarchical coercion to social consensus. However, power is not symmetrical - normally the societal level sets the dominant ideology for the OF to translate into organisational controls.

All three dimensions should reinforce one another during enactment to maintain institutional stability. Criteria and practices inconsistent with individuals' rationalities and legitimacy criteria may not be reproduced, atrophy, fragment, or become decoupled from action. Institutions are malleable and provide scope for conflict and different interpretations, hence institutions and actions are reciprocally related through reflexivity. Ensuing changes range from the routine and incremental to crises that threaten entity survival and precipitate different routines and characteristics. But actors have agency, though whether rationality clashes precipitate change depends on several factors, not least actors' strategic judgements of power and effect. For example, Soin *et al.* (2002) attributed ABC's emergence in a UK bank to growing competition but micro-processes of change, and replacing established routines and institutionalised practices brought complex and unexpected consequences.

3. THE RESEARCH SITE AND RESEARCH METHODS

The research lay in Marconi, a Portuguese telecommunications company established in 1925, which became a very profitable monopoly supplying long distance telecommunication services. In the 1980s it entered new business areas and expanded its telecommunications business but after integration into Portugal Telecom (PT) in 1995³, Marconi focused on long distance telecommunications. Reorganisation and cost reduction policies following market liberalisation shrunk Marconi's workforce (see later), turnover, margins, profits, and returns on assets (see Table 1).

[Insert Table 1 near here]

A case study was undertaken to make sense of events, address ‘why’ and ‘how’ questions (Yin, 2003), develop theory by iterating it with empirics, and generate future research ideas (Patton, 2002). Its stages were: developing a research design; preparing to collect data; collecting and assessing evidence; identifying and explaining patterns; theory development; and report writing (Scapens, 1990; Ryan *et al.* 2002; Yin, 2003).

The initial study was conducted from January to April 2000, and the second from May 2000 to January 2001 with follow ups to confirm how Production engineers operated ABC. Initially employees from different departments of Marconi, and a Portuguese telecommunications regulator from Instituto de Comunicações de Portugal (ICP)⁴ were interviewed. These were semi-structured to allow flexibility within a consistent framework and were recorded and transcribed, except for the first two that discussed research access. Written documentation gathered included newspaper articles, Marconi’s and PT’s internal and external financial reports and brochures, external market analyses, reports of ICP, national and EU telecommunications legislation, and European Commission (EC) Recommendations. Some direct observation was conducted.

As research issues were clearer in the main study more specific data was collected. Employees were interviewed from Marconi’s main departments, its operational centre for satellites (in Sintra), its submarine cables centre (in Sesimbra), and commutation (in Linda-a-Velha). Detailed documentation on ABC was collected, including Marconi’s dictionary of activities, studies from the EC, ABC outputs, consultants’ notes, employee allocations of time to activities, and financial and non-financial reports. Significant actors outside Marconi were interviewed: two accounting consultants hired by ICP, ICP’s MAS co-ordinator, consultants who implemented ABC in Marconi and PT, two managers in PT, and three managers from two of Marconi’s competitors. All were recorded and transcribed,

except for two Marconi employees who refused. 53 interviews (20 in stage one plus 33 in stage two) were conducted spanning 73 hours (34.5 in stage one plus 38.5 in stage two). 15 interviews (16h.) were held in the Production Department; 10 (11h.) in Commercial Departments; and 28 (49h.) in other Marconi Departments, PT, other Telecommunication companies, regulatory agencies, and consultants.

Multiple data sources constructed a chain of evidence. 'Event-state network display' (Miles and Huberman, 1994) helped cluster recurrent themes, and form patterns, categories and explanations (Marshall and Rossman, 1999). To improve internal validity, evidence contrary to findings was discussed with informants (Miles and Huberman, 1994). It took several iterations to identify pertinent factors and build interrelationships amongst constructs. Feedback on initial findings from key informants and meetings within Marconi and with Portuguese regulators helped check construct validity, data representativeness, and the plausibility of conclusions (Yin, 2003). Lastly, reports to research colleagues helped test the coherence and plausibility of interpretations (Patton, 2002).

In 2005 the data was recast within the Dillard model. This was not difficult as the results were consistent with more contemporaneous NIS models and the analysis had used NIS constructs. A complex network of entities and instruments exerting pressure on Marconi to adopt ABC was traced but the focus on Marconi meant data on recursive negotiations beyond the organisation were slight. So the data was re-examined and a fresh search of newspapers, trade magazines, and telecommunication associations' websites undertaken. Nevertheless, institutionalisation processes beyond the organisation are not studied in detail, unlike those within Marconi and PT.

However, a mono-theoretical approach proved inadequate for explaining some matters. Encouraged by a previous tentative venture at triangulation (Major and Hopper, 2005); calls for an end to 'paradigm wars' in management accounting research⁵; and

discovery of interesting work on theoretical triangulation (see Academy of Management Review, October 1989 and October 1999) neglected by accounting research (see Modell, 2005, for exceptions); the risky but novel route of retrospective theoretical triangulation was taken. This invites questions of how one can combine theories with different ontological and epistemological assumptions. Can intuitive observation that competing theories each contain some validity be pursued without losing theoretical coherence? Works by Gioia and Pitre (1990) and Lewis and Grimes (1999) on theoretical triangulation were useful here⁶. They recognise the impossibility of integrating theories with irreconcilable assumptions. Instead they advocate a dialectic that compares results and explanations from divergent theories to establish paradoxes, conflicts, contradictions to derive insights to extend or revise one's theoretical stance - in this instance NIS - and the topic under scrutiny - namely ABC. Lewis and Grimes' (1999) strategy for multi-paradigm research ascertains each paradigm's assumptions: analyses data using codes from constructs and protocols of each; and rebuilds the focal theory by comparing results through dialectical analysis. The first step identifying the theoretical assumptions of economic, labour process, and ANT follows in the section on triangulation. Recoding data retrospectively was more difficult for ideally an initial commitment to triangulation is required to ascertain what data should be collected. Thus the recasting of events within other approaches was done deductively using data available.

[Insert Figure 2 near here]

4. RESEARCH RESULTS

Figure 2 summarises the results using the Dillard model and triangulation. The research was bottom up, being focussed on Marconi, but many answers lay externally: in retrospect, an unconscious pursuit of the ANT mantra of 'following the actors and actants' led to unexpected areas. Explaining why Marconi adopted ABC unravelled a complex set

of pressures involving regulators, consultants, other companies, capital markets, public opinion, the parent company, and internal organisational dynamics.

[INSERT FIGURE 3 NEAR HERE]

4.1 Market Liberalisation and Regulation in EU and Portuguese Telecommunications

Figure 3 outlines important reforms of the Portuguese telecommunications industry and Marconi's MAS, and major EU regulatory changes. Telecommunications entered European Union (EU) policy agendas in the early 80s: previously Member States determined this, despite EC powers to reverse Member States' policies on monopoly concessions that violated the EC Treaty (article 90). The EC instituted a competition policy in 1985 after finding British Telecom had abused its monopoly. A Telecom Task Force drafted a liberalization framework, leading to the 1987 Green Paper, 'The Development of the Common Market for Telecommunications Services and Equipment' (EC, COM (87), Brussels). In 1988 the EC ruled that dominant national network operators' exclusive rights to distribute terminal equipment violated the Treaty's commitment to competition. The European Court of Justice confirmed this (France vs the Commission of the European Communities, Case C 202/88, 19.3.1991) and the EC started deregulating EU telecommunications. The Treaty empowers the Directorate General IV (Competition) (DGIV) to determine EU market structures and competition policy but the Council and Directorate General XIII (Telecommunications) (DGXIII) also led the transition. Nevertheless, the EC cannot impose liberalization. Member States must incorporate EC liberalization directives into national legislation but their control of National Regulatory Authorities (NRAs) and markets enables them to resist EC measures. Hence the EC cooperated with the EU Council of Ministers over regulatory measures, which are often political compromises (Kiessling and Blondeel, 1998; Lehr and Kiessling, 1999).

However, in Portugal, though we were not privy to negotiations, EC recommendations were faithfully implemented.

The Council, with the European Parliament, harmonized technical interfaces and their supply in the ‘Open Network Provision Framework Directive’ (28 June, 1990), which created a regulatory framework for transition to competition. The “Full Competition Directive” (96/19/EC, 13 March, 1996) abolished legal market entry barriers for telecommunication services and networks. As the European infrastructure was developing interconnected networks, owned and operated by many organizations, charges and access became vital for competition.

As Covaleski *et al.* (2003) note, accounting is a major regulatory tool to identify monopoly abuse and determine prices. However, determining costs is problematic for joint and common costs are a significant proportion of telecommunications companies’ costs (Bromwich and Hong, 2000). Suppliers can apportion them to exert excessive network charges to prevent new operators entering the market. This is sensitive, e.g. joint cost allocations involving access rates brought litigation between AT&T and Ameritech (Public Utilities Commission of Ohio, Cases Nos. 96-922-TP-UNC, 96-974-TP-ATA, 96-1057-TP-UNC). Aware of such problems, EU regulators tried to define their measurement.

The July 1997 “Interconnection Directive” (97/33 EC) extended the “Full Competition Directive” by stipulating non-discriminatory, reasonable, and transparent negotiations between suppliers and customers for interconnections, and cost-oriented prices. Public network and service providers with dominant market power (more than 25%) incurred more restrictive regulation. They had to publicly demonstrate fair network access (article 4) and show cost related interconnection charges and their underlying accounting principles followed the Directive’s instructions to NRAs (article 7). Despite the

EC's efforts to be dominant, dual regulation at the EU and national level prevailed (Kiessling and Blondeel, 1998). This is examined with respect to Marconi.

4.2 Accounting Regulation within Portugal and Marconi

The Portuguese NRA – ICP - passed numerous laws, mainly originating from the EU, to establish full and fair competition amongst operators, regardless of size or market power. Their preambles emphasised the need for competition after full deregulation in January 2000⁷. In 1997 the Portuguese government's - 'Basic Law of Telecommunications' (Decree-Law N°. 381-A/97, December 30th), enacted the EC framework. ICP must ensure that operators' accounting records could establish whether network component and service charges were cost-related; the treatment of un-attributable costs was reasonable; and there was no discrimination between providing services internally and externally (article 26). Cost allocation methods had to be available to interested parties, including other market players. The legislation recommended which cost accounting systems firms should adopt.

Marconi was a target of regulatory scrutiny as it held dominant market shares and public concessions. Pricing conventions for public concessions were specified in agreements between DGIV, ICP, and PT. PT's concession with the Portuguese State for fixed and universal services required an 'analytical accounting system' granting 'all users in equal circumstances ... equal treatment' (Article 30, Decree-Law N°. 40/95, 15 February, 1995). PT had to provide comprehensive cost information so ICP could verify whether prices were cost-oriented (*ibid*, article 19) and non-discriminatory (*ibid*, article 8a). Marconi, being a sub-concessionaire of PT, fell under the regulator's remit. The Portuguese government compensated PT and Marconi for losses accruing from national service provision, e.g. to rural areas, but the calculations needed auditing and verifying by

ICP or an independent body appointed by ICP, and were available to interested parties (Article 12, Decree-Law N°. 458/99, November 5, 1999).

ICP also ruled that PT/Marconi held dominant market positions in fixed telephone services and networks, leased circuits and national interconnections, which drew them further into the regulator's orbit. Other operators could now provide networks and services if registered and licensed by the regulator but 'Old' operators like PT were obliged, if requested, to connect new operators on payment of an interconnection rate. Following commissioned accounting studies (discussed later), the EC told NRAs which cost systems operators with significant market power should use. Dominant operators must supply ICP with cost data from a detailed 'analytical' costing system, endorsed by ICP, that identified full costs using suitable cost categories and cost imputation rules, and separated interconnection costs from other activities and services, to help ICP ascertain whether interconnection prices were 'equal', 'transparent', 'non-discriminatory', and 'cost-oriented' (EC Interconnection Directive, article 7; Decree-Law 474/99, November 8th, article 34). ICP could adjust prices using this information. When requested, dominant operators must give consumer associations, other operators, and the public details of their MAS, including cost allocation methods.

4.3. PT's Privatisation

PT's privatisation also brought pressure for MAS change. In 1994, the Portuguese government responded to the EU's full liberalisation by 2000 by creating a large Portuguese telecommunications group, PT, from merged public telecommunications operators: Telecom Portugal, Telefones de Lisboa e Porto, and Teledifusora de Portugal. In 1995 Marconi was integrated into PT and granted a sub-concession contract for international services. In 1999, a major reorganisation transferred infrastructures and

universal services under the state concession from Marconi to PT. Marconi became accountable to PT but remained operationally autonomous.

PT was privatised in five phases from 1995 to 2000 and reconstituted as a holding company. The goal was to secure a global strategic partner holding PT shares that would improve Portuguese telecommunications research and development, acquire other strategic partners, make PT internationally competitive, and spread PT's capital amongst private investors internationally. PT's shares were listed on the Lisbon–Oporto (BVLP) and New York (NYSE) stock markets. The NYSE has exacting information requirements: PT periodically had to file detailed financial data by business, products, and service, *inter alia*⁸. Every three months PT must prepare press releases and every six months give NYSE audited accounts. PT's Regulatory Issues Director claimed that, "Coming into the stock market, combined with PT's privatisation, was very important. ... The American stock market is very demanding. We needed to provide very detailed costing data." PT's privatisation (described by a manager as a 'public exposure') forced them to project a public image of success and dynamism to financial markets and shareholders. A 'valid' and 'accurate' MAS was vital for publicising their 'modernisation' and impressing capital markets. Moreover, if PT and Marconi failed to justify prices to external bodies, their profits and share price could quickly deteriorate and bring a 'crisis'. Financial markets were significant but lesser drivers of MAS change compared to managers and regulators.

4.4. The Regulator's Adoption of ABC

The regulators' recommendations must be socially legitimate but establishing 'objective', accurate full costs is problematic, especially in utility industries where for technological and economic reasons monopoly suppliers prevail and considerable joint and common costs exist. In 1998 EC cost accounting method recommendations came in "Interconnection in a Liberalised Telecommunications Market: Part 1 – Interconnection

Pricing” [98/195/EC (OJ N°L73)] and Part 2 – Accounting Separation and Cost Accounting” [98/322/EC (OJ N°L41)].

Part 1 recommended operators to use ‘current costs and activity-based accounts’ for calculating interconnection charges instead of “fully distributed historic costs ... developed in monopoly environments” alleged to be “not consistent with a competitive market, and will ... [over-state] interconnection costs”. Operators were instructed to institute new MASs “for internal management” and “external regulation”. NRAs were told to:

*[S]et deadlines for implementation by incumbent operators of new cost accounting systems based on **current costs and activity-based accounts** [to ensure that common costs] ...are distributed to the fullest extent possible, taking into account the relevant direct and indirect cost drivers. **Activity based accounts** which use current costs provide a ‘top-down’ check through reconciliation with interconnection costs calculated according to ‘bottom-up’ forward looking long run average incremental costs. **[emphasis added]***

Part 2 reinforced ABC adoption. It stated:

*... **the allocation of costs, capital employed and revenue be done in accordance with the principle of cost causation (such as activity-based costing: “ABC”). The costing system[s] ... need to be sufficiently detailed to permit – as far as possible the allocation of costs to unbundled network components, in particular to determine the cost of unbundled interconnection services. A well defined cost-allocation system will enable at least 90% of the costs to be allocated on the basis of direct or indirect cost-causation. [emphasis added]***

Subsequent EC Recommendations promoted ABC. However, insofar as the research could ascertain, this was uncontroversial though historical versus long run incremental costs had attracted considerable debate. Why ABC slipped in relatively unnoticed is discussed later.

Thus, PT and Marconi needed a ‘transparent’, ‘modern’, ‘accurate’, and ‘reliable’ MAS to justify prices to regulators; and gain legitimacy with the public, other operators, and capital markets. Otherwise sanctions and fines, lost concessions, and harsher regulatory regimes could ensue. However, these external pressures were consistent with Marconi managers’ desire for a new MAS to support operational decisions in the new competitive environment. How this transpired is examined below.

[INSERT TABLES 2 & 3 NEAR HERE]

4.5. Managerial Pressures

From the late 1980's, telecommunications became highly competitive worldwide - (Financial Times, 1997) resulting in accelerating price falls - see Tables 2 and 3. Marconi's managers knew they must cut costs and prices. In 1992, Marconi implemented a new MAS to give managers more accurate and detailed costs. Despite being based on activities it was unlike the ABC system adopted in 1997 as, *inter alia*, departments established their activities: activities did not span departments. No consultants were involved, possibly because they were not then prominent in regulatory matters. After the MAS implementation Marconi's cost control strategies were reorganised (Marconi 1992-93 Annual Reports) and a price reduction policy ensued. However, managers complained about the '1992' MAS and disillusionment set in. A Telecommunications Infrastructures engineer commented:

People were expecting the new system to be easier to understand and use. ... There was disappointment. People believed that they had too much work feeding the system compared with the outputs they received from it [which] ... were difficult to understand and to use. They started to question the relevance of it.

Nevertheless, managers believed the MAS gave better cost data than previously and had helped them reduce prices. In retrospect, revolutionary MAS change occurred during initial preparations for liberalisation, which laid the seeds for evolutionary change to ABC.

Following its integration into PT, Marconi adopted a functional organisational structure⁹ consisting of two Commercial Departments (Consumer Markets, and Carrier Services and Network Planning), a Production Department (Telecommunications Infrastructure), three support departments (Board Office, Planning and Control, and Legal Office), and three logistic departments (Finance and Administration, Personnel and Development, and Information Systems). Until the 1990's Marconi was production-oriented. Prices were fixed in monopoly agreements: the main priority was high quality services at reasonable prices. The production engineers' expertise had brought public

prestige but the prospect of competition spawned Commercial Departments who gradually usurped power from Production.

Marconi decreased its operational costs - particularly for personnel. Staff cuts began in the early 1990's were not severe until 1995 (in 1990 Marconi had 1482 employees, 1135 in 1995, 363 in 2000, and less than 300 in 2002). Marconi's accountability to PT, the emergence of vigorous new competitors, and an active regulator – ICP - prompted major changes. As a PT report (Form 20-F, Information for the NYSE – 2000, pp. 33-34) stated: *“In the past, we had limited or no competition. ... [Now] our competitors can compete with us in all our service areas. ... We are pursuing a range of strategic initiatives ... to reposition, modernize, and prepare ourselves for the challenging new environment. (...) This market is now highly competitive.”* [emphasis added]. Management consultants were hired and they launched new projects including: revised strategic plans; a career evaluation system; strategic benchmarks; increasing staff awareness of competition threats; an Executive Information System; SAP; and ABC. ABC was the most significant in resource and top management commitment terms.

Marconi's top managers wanted better cost information to determine where to cut staff and subcontract work done in-house. A market analyst from the Consumer Markets Department observed:

Marconi's staff reduction was very important to decrease operational costs. ... [The 1997 MAS] was important for the rationalisation of Marconi's activities and staff. Based on the cost information coming from ABC we could compare the costs we were incurring with the costs of outsourcing activities. ... On the data generated by ABC we decided to outsource the call centre and other services such as security.

A consultant who implemented ABC commented:

Marconi was going through a phase of internal organisation and restructuring, which led to Marconi's drive to collect data about activity costs and the tasks involved in each of its activities and processes. ... This information was very relevant ... PT having implemented ABC motivated Marconi to do so. ... Besides, there were laws obliging PT and Marconi to adopt an analytical cost system. ... but above all the company was looking for a means to improve its efficiency.

Marconi changed its MAS partly to address economic pressures. However, some major European telecommunication firms (e.g. British Telecom, Telia – now TeliaSonera – (Sweden), and Deutsche Telekom) had adopted ABC [Bad Honnef, 1997, pp. 31-39]. According to managers and consultants, this encouraged smaller operators like PT and Marconi to mimic them.

The boards of PTs and Marconi, and most Marconi managers supported ABC from inception for managerial reasons but they agreed that regulatory pressure was crucial. A Marconi planning manager stated:

ABC implementation is directly linked to the information requests of the telecommunications regulator. ... But I am sure that sooner or later we would have adopted ABC, especially if we had known that other companies were using it successfully.

A market analyst from Consumer Markets said:

ABC was adopted ... to give more and better cost information to Marconi's managers. ... The most proactive interests ... were those of top directors and Commercial managers because data was needed to support investment decisions in cable submarines and to support other commercial decisions. ... However, PT and ICP were also very important factors in ... choosing the cost accounting model. ... I would weigh the importance of the internal informational needs when compared to the external pressures of PT and ICP as 60:40% respectively.

ABC resulted from regulators' demands converging with managers' desires for better cost information. All sought efficiency gains.

4.6 ABC Implementation

Marconi's accountants, with consultants, began implementing ABC in 1997. The first results came in March 1998 and by 2000 ABC was fully operational giving periodic financial data to PT and all Marconi departments. The Board's brief to the consultants was to meet the regulators' and Commercial managers' needs. Following liberalisation and Marconi's integration in PT, Production's influence was rapidly superseded by that of Commercial Departments. Without them Marconi could not compete with aggressive

market entrants, often backed by strong global operators like Vodafone and France Telecom. A Production engineer commented:

There was a big cultural change in Marconi with liberalisation. ... Now, we know that it's no longer good enough to have the best technicians and engineers, and to invest in modern equipment. ... We still need to be very good in the technical area but we also mustn't forget that the market is just there, with new operators competing fiercely every day in terms of quality and price.

'Powerful' engineers resigned and market-oriented managers, particularly at senior levels, were appointed. Conflicts between Production and Commercial managers ensued (Major and Hopper, 2005).

Commercial managers wanted better product cost data for pricing; designing and launching new products and services; and optimising telecommunication traffic and profits. Their concerns matched ICP's: both sought costing that legitimised prices and interconnection rates to external constituencies. Production Department needs were seen as less pressing, thus the ABC system neglected them. Production engineers needed more specific data, especially incremental costs of equipment, comparative costs of networks, and personnel and switching costs. Product costs were irrelevant for technical decisions concerning capacity and network resources. The Director of Telecommunications Infrastructure explained:

*Frequently we need to decide whether the capacity of equipment (e.g., a switch) should be increased to guarantee a certain security margin or to assure we have enough capacity to face forthcoming demands. **I know the ABC system provides information on how much system X or system Y costs but this is not the sort of information we need to manage in the Production Department. We need to know the incremental cost of each unit of equipments' capacity.** If we could get this information from ABC we could decide to keep the 10% margin, though we might prefer to increase it to 20%. It's very important for better decisions. Unfortunately, management accountants don't understand our needs. **[emphasis added]***

The Production Department's Director argued that, "all the Production engineers wanted was timely and specific costing data presented in a user-friendly format to bring an economic view to technical decisions". But the ABC system did not easily yield this.

Production engineers became frustrated because they got effective non-financial data from the engineering databases they maintained, especially SIGIR, which fed ABC. Production engineers now had to allocate costs to transmission and switching systems; operational centres' usage of them; and Production employees' time to activities, *inter alia*. Production were the main feeder to ABC, thus collaboration between Production engineers and management accountants was essential. However, the Production Department severely criticised ABC post implementation, claiming its data was irrelevant for operational decisions and they spent inordinate time feeding it. Collaboration did not occur.

Disclosure of labour time by activity was particularly problematic. The consultants created a PMO system ('Ponto de Mão-de-Obra'- in english 'labour time disclosure'). Every three months employees (only the Board was exempted) had to allocate their time spent on each activity in the consultant's Dictionary of Activities. Obtaining this sensitive information proved difficult. Production employees feared adverse consequences as Marconi was drastically cutting staff. Problems getting punctual and 'accurate' PMOs were exacerbated by Production managers' belief that ABC was a pointless, time-wasting exercise that distracted staff attention from more important matters. They cared not whether workers' PMOs were timely and correct seeing PMO and ABC as overloading staff for no discernible benefit, and producing unreliable information. The Production Director stated:

If ABC outputs are accurate or not is another issue. ... ABC depends on the inputs inserted. ... Probably [the Production Department] don't load the system as we should. ... We cannot take care with PMO as the management accountants would like. ... PMO doesn't make sense. ... It's an illusion to think that people are watching their activities and taking notes about the time they spend on each operation. ... We have told the management accountants that we cannot have a system like this. ... The system (in particular PMO) should be not so demanding. ... I've got a senior manager spending hours preparing data for insertion into ABC. I believe that for the Commercial area [ABC] is of interest but for Production it gives too much work and very little useful information.

Production engineers' dissatisfaction and delayed PMOs meant management accountants frequently received dubious inputs late. From inception, Marconi's ABC system did not generate timely cost data: but it met PT's long lead times for twice yearly cost returns to ICP and Commercial managers, despite complaints of results up to twelve months late, claimed they got relevant cost data previously unobtainable. They were unperturbed with its inaccuracies, claiming no cost accounting system is perfect - all contain indirect and allocated costs - and its results tallied with their knowledge of competitors' costs and prices. Commercial managers were willing to use dated costs when negotiating as "the costs of carriers, tracks and systems do not change overnight" (a market manager).

Commercial managers' confidence was surprising since 23.5% of Marconi's total costs remained common, along with 2.5% of joint costs. ABC only rendered a further 5% of indirect costs variable. Despite management accountants' efforts to identify causal relations between costs and cost objects, common costs remained high and below the EC's and their consultant's predictions of less than 10% (see below). However, Commercial managers maintained that before ABC common costs were higher, and if the system was used "sensibly" (Consumer Markets Department Analyst) it was invaluable.

4.7. THE CONSULTANTS

Regulators knew accounting rules were vital for cost-oriented pricing but, not being expert on this, they sought normative advice from experts, especially Arthur Andersen, a large consultancy company experienced in implementing ABC in telecommunication firms throughout the USA and Europe. The regulators' frequent reference to consultant's advice in Recommendations suggests they perceived consultants as a source of external legitimacy. Whatever, as a consultant to ICP remarked, consultants were influential:

Recommendations and directives drawn up by the EU for the telecommunications sector are often based on studies conducted by specialised consulting firms ... Arthur Andersen is one. ... I think that they were behind the development of the EU recommendation suggesting the adoption of ABC and LRIC [Long Run Incremental Costs] by incumbents.

Following the 1997 EC Interconnection Directive, DGXIII commissioned Arthur Andersen to recommend which systems NRAs should recommend to dominant operators. Andersen's study strongly influenced the EC Recommendations in "Interconnection in a Liberalised Telecommunications Market, Parts 1 & 2". For example, Part 2 (p. 4) stated, "Arthur Andersen proposes a pragmatic approach on accounting separation and current cost accounting information. The proposed framework focuses on the allocation of costs, revenues and capital employed for the purposes of preparing appropriate separate accounts." Part 1 instructed NRAs and operators' to use "new cost accounting systems based on current costs and *activity-based accounts*" and Part 2 recommended that this "be done in accordance with the principle of cost causation (such as ... "ABC")".

These Recommendations closely followed Arthur Andersen's report (1997, p. 9) that stated:

Accounting separation should be based on the principle of causation. ... This requires the implementation of cost allocation methodologies, such as Activity Based Costing. In practice, this requires that operators: review each item of cost, capital employed and revenue; establish the driver that caused each item to arise; and use the driver to allocate each item to individual businesses.

It claimed that: "A well defined cost-allocation system will enable at least 90% of the costs to be allocated on the basis of direct or indirect cost-causation," This is important in an industry with high common and joint costs. Hence ABC was 'sold' as a 'rigorous cost allocation' method that would drastically reduce common costs and help NRAs regulate interconnection charges. ABC was supported by other consultants' reports to the DGXIII, e.g., one by Bad Honnef (1997) stated:

*The costing system traditionally used in telecommunications is Fully Distributed Costing (FDC). ... [T]he approach is increasingly under criticism with regard to its adequacy for managerial as well as regulatory purposes. Because of its analytical approach to the cost causation processes, Activity Based Costing (ABC) is the most suitable approach to the determination of LRIC [Long Run Incremental Cost]. ABC systems **are increasingly applied in the economy. USO [Universal Service Obligations] providers should be required to install such analytical costing. [emphasis added]***

The consultants' influence extended to NRAs. Portuguese legislation required ICP to annually audit and evaluate whether operators with concessions and dominant market shares had valid accounting systems. ICP frequently hired consultants to do this, including Arthur Andersen, who advised Marconi. PT's Regulatory Issues Director noted:

Arthur Andersen ... recommended us to adopt ABC. ... [W]e needed to change our costing system. Arthur Andersen was the Pope of these things in Europe. ... We contacted them because we knew that they were the big players in costing matters within telecoms.

Arthur Andersen played a pivotal role in diffusing ABC. Several major European telecommunications firms, often upon this consultants' advice, adopted ABC, which led to smaller operators like PT and Marconi to mimic them. This was not necessarily irrational. ABC apparently promoted efficiency and satisfied regulators simultaneously. Its widespread adoption rendered firms' costs comparable which, as Marconi's Commercial managers noted, had planning and pricing advantages, and using similar systems as large operators helped rebut complaints of monopoly abuse. Using consultants strategically positioned and influential at the societal, organisational field, and organisational levels helped gain legitimacy. After PT's ABC implementation (apparently the first in Portugal), several large Portuguese companies adopted ABC - most hired Arthur Andersen¹⁰.

5.0 EXTENDING INSTITUTIONAL THEORY

The results of iterating empirical observations with extant NIS theory, especially the Dillard model, and its extension through theoretical triangulation, summarised in Figure 2, are explicated below.

5.1 Applying Institutional Theory

The EU disseminated general, widely taken-for granted accounting principles (C_{PE}) incorporating a dominant ideology and formal substantive rationality of competition and markets (C_{OF} and P_{OF}) to the OF level. The C_{PE} reflected power relations and political negotiations within and between the EU, member states, and lobby associations

representing consumers, trade unions, and firms (Kiessling and Blondeel, 1998). Recursive relations within and between the PE and OF levels were not exhaustively analysed though secondary sources indicated extensive debate (Kiessling and Blondeel, 1998). EU regulators knew ‘the devil lay in detail’ so translating political criteria (C_{PE}) into accounting symbols (C_{OF}) and practices (P_{OF}) occurred at the PE level rather than NRAs at the OF level. EU regulatory bodies had to placate powerful interests, gain legitimacy, and seek normative accounting advice from consultants but the EU’s dominance prevailed.

In Portugal, EU liberalisation policies stimulated reform of the ownership, structure, and regulation of telecommunication firms. For PT and Marconi the resultant privatisation added capital market pressures to regulatory demands for MAS change. The Portuguese government and ICP coercively imposed EU recommendations for accounting symbols (C_{OF}) and practices (P_{OF}), especially for evaluating monopoly pricing. Marconi, ICP, and the EC, used the same consultants for normative costing advice.

The results are consistent with the Dillard model and other NIS work (Oliver, 1992; Scott, 2001) on top-down deinstitutionalisation. Ideological and policy shifts at the EU bringing increased competition and regulation wrought perceptions of crisis in Marconi. Institutionalised practices and production rationalities eroded when new dominant managers were appointed. The 1992 MAS change was ‘revolutionary’: ABC was an evolutionary progression. Nearly all participants believed ABC was (at least until enactment) formally rational, value neutral, transferable, and more accurately calculated costs. From Marconi’s perspective, ABC held the prospect of simultaneously improving managerial decisions and satisfying external coercive institutional pressures, especially from regulators. Moreover, accepting advice from consultants who advised ICP and the EU, and mimicking large firms had advantages. Marconi was no accounting innovator – it might upset regulators - it was a complier.

However, conflicts between functional groups, the brief to ABC designers, and ABC's alleged shortcomings frustrated ABC's institutionalisation akin to 'axioms of tension' in the Dillard model. ABC exacerbated clashes over rationalities, power and material issues. The Production managers' position was complex. From the outset they professed they wanted a better, formally rational MAS but they only nominally co-operated in its implementation (Major and Hopper, 2005). Following ABC's enactment they alleged it neither met their needs nor represented critical variables for production decisions. Moreover, ABC became a symbol of their subordination to Commercial functions, staff reductions, and threats to occupational identity. Thus ABC was resisted and operationally became decoupled: Production engineers used their physical systems for information. But Commercial Departments used ABC enthusiastically: it met their needs, improved the previous MAS, symbolically reinforced their power and domain, and delivered external legitimacy. Thus ABC became a stable, institutionalised routine in Commercial Departments but not Production. Despite trade associations and consultative mechanisms being exploited extensively for lobbying (Gillett and Vogelsang, 1999) Marconi or other firms did not apparently exert upward pressure to amend accounting practices (P'_{OF}) and criteria (C'_{OF}) associated with ABC, possibly because of ABC's newness. However, latent conditions for this were laid: whether to act possibly resided in strategic judgements.

In summary, the Dillard model explicated ABC's institutionalisation and confirmed criticisms of early NIS research. A private company, albeit a regulated utility, can be subject to institutional pressures; and technical (efficiency) and institutional demands were inseparable - not mutually exclusive (Powell, 1991; Fennell and Alexander, 1987; Scott, 2001). Consultants may have advocated ABC for normative reasons, regulators coercively imposed it, and companies accepted it, partly for mimetic reasons but managers,

consultants, capital markets, regulators, and politicians all did so in the name of efficiency. ABC became widely adopted but the process was an expression of power and politics: the social created the economic.

5.2 Theoretical Triangulation

5.2.1 Economic approaches and the Public Interest

Technical doubts about ABC persist (Noreen, 1991; Armstrong, 2002; Kennedy, 2000; Piper and Waley, 1990, 1991), and its definition, terminology, methods, calculations and usage vary (Malmi, 1997; Jones and Dugdale, 2002). Even ABC's originators having switched to ABC/M no longer advocate it for full costing (Jones and Dugdale, 2002). Important technical questions include: does ABC only provide relevant costs for decisions under stringent conditions, including linear cost functions, zero fixed costs at the cost pool level, and no joint processes (Noreen, 1991; Bromwich and Hong, 1999; Noreen and Soderstrom, 1994), and is implementation excessively costly (Bhimani and Pigott, 1992; Malmi, 1997; Shields, 1995)? ABC may merely refine conventional overhead costing (Innes and Mitchell, 1998; Armstrong, 2002; Noreen, 1991; Bromwich and Bhimani, 1994) and arbitrary (but possibly reasonable) cost allocations remain, making ABC's technical merits difficult to evaluate (Innes and Mitchell, 1996; Innes and Norris, 1997).

A central question is, 'Who was right about ABC's technical merits – Commercial or Production managers?' For conventional economics the issue is whether ABC accurately represents full costs of telecommunication services, especially long run incremental costs, leading to economically optimal pricing and production decisions. If not, what distributional repercussions follow? These are valid questions given Production engineers' doubts about ABC's accuracy and its failure to significantly reduce joint and common costs. Economic evaluations of ABC are crucial inputs to debates on whether it serves private and public interests (Bromwich and Hong, 2000).

Covaleski *et al.* (2003) is one of few NIS accounting studies to address this. They argue that TCE based prescriptions promoting deregulation of USA utilities proved inferior to Common's OIE cost-oriented regulatory solutions because economic pragmatist criteria of legitimacy and consensus supersede efficiency reasons (Rorty, 2000). In California deregulation failed because opportunism associated with high asset specificity wrought utility crises. In contrast, cost-oriented pricing and regulation was an ethical solution incorporating justice, fairness, and acceptable values that reconciled interests within legally enforceable, socially produced economic pricing rules.

At this juncture the research faced a conundrum. All parties believed efficiency and legitimacy were intertwined, hence the import of economic analyses. However, Covaleski *et al.* (2003) argue that political criteria outweigh efficiency considerations, whereas the Dillard model predicates that economic criteria will predominate given prevailing Western ideologies. The resolution became apparent on realising that economic and political public interest criteria are not merely intertwined but in dialectic tension. For example, unlike the USA, the EU rejected full deregulation and adopted cost-oriented pricing as Covaleski *et al.* (2003) commend. In Marconi, as elsewhere, almost everyone advocated ABC on the grounds of market efficiency: in NIS parlance, they espoused formal rationality. ABC's antecedents lay in revolutionary change at the PE level, namely the EU shift from monopoly state supply to competition between private providers, which wrought crises at Marconi but bottom up tensions did not appear until general ideologies and criteria became operational. Tensions may stem from technical problems (hence economic analyses are needed), or threats to values and interests, and difficult to understand rules (hence pragmatic analysis is required). Economic and pragmatic criteria lie in dialectical tension, and when they are out of kilter change pressures upwards are greatest. Both Dillard *et al.* (2004) and Covaleski *et al.* (2003) acknowledge contradictory criteria and conflict within

(and without) organisations (unlike many other NIS studies) but their dialectic analysis needed development through theoretical triangulation to address intra-organisational factors, the role of boundary spanners, and how accounting technologies are established.

5.2.2 *Dialectics and intra-organisational dynamics*

Dialectical analysis associated with labour process theory revealed how struggles within production over material issues, autonomy, self identity, and inter-professional rivalry affected accounting practice, differences in institutionalisation, and sowed seeds for subsequent change (Hopper *et al.*, 1987). It shares the Dillard model's scepticism of 'scientific' knowledge claims and unitary organisations, and the subjective and objective being in dialectal tension.

Marconi was not unitary: managers were divided over ABC and production workers were suspicious and bemused by it. ABC's attraction to senior executives lay partly in its potential for identifying non-value-adding activities consistent with 'downsizing' and 'delaying' involving redundancies, work intensification, and external subcontracting (Armstrong, 2002). As elsewhere, some employees perceived ABC as threatening to autonomy, job security, and occupational identities. Also, different functional groups' understandings of critical organisational variables produced conflict and token compliance and resistance, which rendered ABC slower and less accurate (Armstrong, 2002; Hopper, 1994; Malmi, 1997; Norris, 2002). Labour relations are crucial for ABC implementation (Anderson and Young, 1999). For example, Ezzamel and Willmott (1998) and Ezzamel *et al.* (2004) found managers delayed implementing ABC for fear of inflaming industrial relations. When they did, as in Marconi, employees had problems establishing the meaning of ABC definitions of activities and allocating labour time to activities. Consequently, ABC data was perceived as irrelevant, contrary to work orientations, and threatened their self-esteem and occupational identity.

Seo and Creed (2002) illustrate how dialectical analysis can overcome NIS theory's neglect of power, agency, intra-organisational factors, and their micro-level theoretical foundations (Burns and Baldvinsdottir, 2005). They note a central paradox in NIS: if organisational actors' actions, intentions and rationality are conditioned by institutions, then how can they change institutions that form part of their mindset? They use Benson's (1977) dialectical analysis to reformulate institutional change theory. Social expectations, often with a long history, continually reproduced in social interaction, produce widely held beliefs about institutions (totality), e.g., perceptions of the EU telecommunication industry inherent in principles, criteria and practices (C_{PE} , C_{OF} , P_{OF}). However, continuous recursive relations across and within levels can produce mutually incompatible arrangements (contradictions) leading to conflict, e.g., in Marconi ABC was promoted as formally rational but Production personnel's experiences made them believe otherwise.

Actors' experience of contradictions during enactment transforms their consciousness (praxis). Four institutional contradictions precipitate collective action: legitimacy that undermines functional efficiency (e.g. ABC may not accurately represent costs leading to sub-optimal decisions); adaptation that undermines adaptability (e.g. ABC may not help engineers plan networks); intra-institutional conformity that creates inter-institutional incompatibilities (e.g. financial efficiency symbols may displace less tangible 'service' values); and isomorphism that conflicts with divergent interests (e.g. ABC heightened inter-professional rivalries and threatened work intensification and job security). Contradictions do not automatically stimulate institutional change: actors mobilise others only after praxis and they act strategically. For example, in Marconi sceptics of ABC exerted little upward pressure for change possibly because ABC was new, they had no clear alternative, and they feared upsetting powerful senior managers and

regulators. Nevertheless, latent conflict associated with ABC's contradictions may precipitate future bottom up change.

Seo and Creeds' dialectical analysis provides a deeper, dynamic analysis of institutionalisation that resolves NIS's paradox of embedded agency. Consequently, Figure 2 re-labels the organisational level of the Dillard model as 'intra-organisational' to denote how organisations are functionally and hierarchically differentiated, i.e. they are not unitary. A praxis level is introduced to denote agency whereby institutional arrangements constrain behaviour and consciousness but contradictions produce unanticipated experiences that may precipitate change.

5.2.3. Actor Network Theory: the change process

ANT regards economic and institutional theories as overly teleological and deterministic. Instead adoption is seen as contingent: recursive local and global discourses must coincide with local possibilities for action. The Marconi case illustrates the serendipity of ABC's adoption and the role of the state, governance, and consultants therein. ABC was not contentious: it slipped into EU and ICP recommendations and Marconi's practices with little fanfare or opposition. Consultants mimetically herded around the fashionable ware of ABC (Armstrong, 2002; Jones and Dugdale, 2002; Granlund and Lukka, 1998; Abrahamson, 1991, 1996; Innes *et al.*, 2000; Malmi, 1999; Carmona and Gutiérrez, 2003) but their strategic positioning and influence at each level linked micro-economic accounting practices with local, national, and transnational governance discourses on pressing deregulation problems. Consultants were important intermediaries for establishing accounting knowledge and practices globally (Jones and Dugdale, 2002). Their boundary spanning role reinforced beliefs in their expertise and influence, and thence the external legitimacy of regulators' and firms' that followed their advice (DiMaggio and Powell, 1983, 1991b). ABC only became problematised when

consultants fused its possibilities for governance with other entities' programmes. However, the Dillard model, like much accounting NIS research, stresses a "demand view" of institutional creation and neglects the "supply side" (Scott, 2001, p. 109), especially how the institutionalised status of professions helps them diffuse new practices (Meyer, 1994). To redress this, Figure 2 identifies the supply side role of 'epistemic communities' (Haas, 1992), here consultants, in diffusing ABC across all levels.

ANT studies argue that accounting technologies like ABC gain strength by being a boundary object capable of having different meaning across multiple groups. Jones and Dugdale (2002) trace how management consultants and Harvard academics promoting ABC needed to enrol human or non-human allies, especially critical academics and rival consultants. This led ABC's proponents to change its rationale and methods, prompting a second-wave ABC, namely ABC/M, promoted as a means of cost analysis and performance measurement. Its incorporation of contribution analysis abandoned any full costing claims - thus by the early 1990s two ABC systems were circulating. Hence ABC is not a single *thing* (system, theory, practice) capable of acceptance or rejection but a loose alliance of ideas translated according to various interests. Briers and Chua (2001) argue that successful accounting does not necessarily have representational accuracy: rather it coheres diverse 'facts' and interests together, stabilises them (temporarily), and thence they become 'true'. Facts emerge when adopting a technology, not before. ABC's ambiguity established its presence: it appeared sufficiently robust to maintain a common identity across sites whilst its plasticity helped accommodate disparate interests and circumstances. Briers and Chua (2001) found no consensus over the strategy for ABC's adoption, its utility, or what answers it would, could, or should provide in the Australian company they studied. However, networks changed and ABC's ambiguities and contradictions meant alternative translations could render it unstable.

In Marconi, ABC was adopted serendipitously but underwent processes of translation and mediation, and enrolling allies in a chain of actors, technologies, and circumstances. The regulators recommended ABC as a practice (P_{OF}) but it then only existed as a boundary object. Its ambiguity fostered adoption at all levels for actors could discuss and translate their interests into its design (see Benders and van Veen, 2001, on ‘interpretive viability’). Predefinition would have precluded this – the only decision would have been to accept or reject. ABC’s conversion from a boundary object to an institutionalised working practice with explicit characteristics was contingent on translation, mediation, enactment and praxis. For example, Marconi’s implementation team’s brief was to meet the regulators’ and Commercial departments’ interests but either deliberately or by oversight Production personnel were not enrolled as allies. Hence ABC’s translation neglected their rationality, sources of identity and interests, and when enacted ABC precipitated resistance, which impacted on ABC’s characteristics, i.e. slow and possibly ‘inaccurate’. Whether abandonment or further translation will ensue was unclear though management accountants were contemplating this.

NIS accounting research treats practices as homogenous and given at the outset of change processes. This fails to recognise how ABC’s status of a boundary object aids its diffusion, how it only becomes a working technology after continual translation, and the unpredictable, potentially heterogeneous and precarious outcomes this produces, even within the same organisation (Quattrone and Hopper, 2001). Hence Figure 2’s inclusion of the category of internal organisational dynamics to embrace translation, mediation and enactment, and the additional category of practices to denote their problematic and evolutionary status.

Lastly, the research unconsciously followed the ANT mantra of ‘follow the actors and actants’, which unravelled a complex chain of actors mediating and translating their

interests (see Figure 2). Not all these processes, especially at higher levels, were studied in detail but the research traced structures and processes broadly akin to the Dillard model. However, following this model from the outset might have deflected attention from important unexpected factors. ANT eschews predetermined networks or influence rankings, and is suspicious of dichotomising structure and processes. This resonates with this research. For example, it was difficult to allocate entities to levels within the NIS model, e.g. in Figure 2 should capital markets lie at the PE or OF level? This is not damning for NIS and may seem trivial but it raises broader questions about the validity of predetermined NIS structures and processes. NIS researchers increasingly recognise that institutionalisation may be contingent, unstable, and only revealed through grounded study of complex, longitudinal processes - not outcomes (Dacin *et al.*, 2002; Scott, 2001). If so, it is tempting to surmise whether a process inclined, grounded NIS, without predetermined structures, differs substantially from ANT.

[Insert Figure 4 near here]

6.0. CONCLUSIONS

The contributions of this case are several. First, it confirms several practical criticisms of ABC. It provoked resistance, distrust, and conflicts over power, culture, and self-identity, despite top management support and efforts to involve employees during implementation. Furthermore, alleged technical deficiencies of ABC undermined its use and acceptance in some quarters. Choosing activities and cost drivers was a subjective exercise that provoked disagreement and suspicion. Its arbitrariness was reinforced when employees returned inaccurate time sheets late. Moreover, ABC did not directly allocate a significantly greater proportion of overhead costs to products as predicted. However, despite its failings, other employees welcomed and used ABC – perceptions of its failings were not unilateral.

Second, previous criticisms of NIS were confirmed: market and legitimacy pressures proved not dichotomous but intertwined; private firms too were subject to institutional pressures; and economic pressures and symbols were not self evident but socially created. ABC's adoption was not attributable to a single isomorphism but several in a complex chain (see Figure 2). Firms and consultants exhibited mimetic behaviour; regulators and firms followed normative advice from consultants; and Marconi faced coercive pressures from capital markets, regulators, and its parent. However, all parties espoused ABC on efficiency grounds.

Third, the research empirically tests and revises the contemporary Dillard model of institutionalisation. The conclusions follow Figure 4 - a parsimonious revision of the Dillard model derived from Figure 2. ABC's antecedents lay in top-down 'revolutionary' change (C_{PE}) wrought by ideological policy changes at the PE level. The external 'shock' of the EU's embarkation on deregulation, followed by stock market, regulatory, and parent company pressure; and growing competition, precipitated a crisis within Marconi that deinstitutionalised its production ethos and institutionalised new commercial practices, including a new MAS, but not necessarily ABC. Powerful state bodies at the EU and national levels, subject to lobbying from interest groups, diffused regulatory principles (C_{PE}) to NRAs at the OF level and, contrary to the model's expectations, specific accounting criteria (C_{OF}) and principles (P_{OF}), including recommendations of ABC. NRAs enforced these on organisations. Recursive relations beyond the organisation were not studied though secondary sources intimated they were extensive and involved considerable negotiation to gain consensus amongst diffuse and powerful bodies. However, adopting ABC appeared non-contentious. Events can be described using the Dillard model's dimensions of contextual change (legitimation, representational schemes, and domination). In 'quasi' regulated markets of utilities regulators' and operators' legitimacy is pressing

and symbolic representations of 'fair' and 'accurate' costs that are proxies for pricing are crucial, hence their coercive imposition by dominant state organs and thence senior managers within firms, all pursuing or subject to the formal rationality of competitive markets. However, the Dillard model required extension using theory triangulation to explicate agency, differences within organisations, dialectics and praxis, the nature of accounting practices, and the supply side role of consultants.

The organisational level in the Dillard model is relabelled intra-organisational to incorporate organisational dynamics associated with multiple, competing rationalities, power and material issues that led ABC to be institutionalised differently within Marconi. Figure 4 splits the intra-organisational level into functionally and hierarchically differentiated communities to recognise the import of conflicts between departments, and production workers and senior management; and differential responses situated in intelligent, situated institutional action, akin to 'valorising and demonizing' (Lawrence and Suddaby, 2006). Seo and Creed's (2002) application of labour process theory tenets to NIS is added to Figure 4 as praxis. Following ABC's enactment, each 'community' responded differently. Oliver (1991: 45) develops a fivefold typology of strategic responses to institutional processes ranging from active agency to highly passive. For simplicity, Figure 4 compresses these into either resistance or institutionalisation. Commercial managers' praxis confirmed that ABC reinforced their interests and beliefs, hence it was institutionalised, i.e. P_{OF} were translated into a working practice (P). However, praxis in Production identified contradictions that wrought unfavourable perceptions and resistance. Hence ABC was not used, i.e. it was decoupled and 'accounting' practice lay in physical systems (P'), which may create latent conditions for upward pressure for change later.

Nearly all parties were attracted to ABC on efficiency grounds, i.e. its legitimacy derived from formal rationality of market economics. Predictions that ABC would render

costs more accurate by reducing joint and common costs did not materially occur in Marconi. Thus economic analyses of ABC's impact upon pricing, operations and distributional effects are vital for dialogue on ABC's worth. However, conventional economics cannot be the final arbiter as it is constructed and constrained by the social. Economic pragmatist criteria involving dialogue, social consensus, understanding, fairness, and enforcement are essential for public interest judgements (Covaleski *et al.*, 2003). This paper argues that political 'pragmatic' and economic approaches are in dialectical tension in regulated industries. When they coincide institutionalisation will occur, e.g. Commercial managers believed ABC's formal rationality and design reciprocated their market rationality and needs but no such symmetry occurred in Production.

ANT reinforced the need for NIS to pay greater attention to organisational practices rather than rationalities, especially ABC's status as a boundary object. Its establishment as a tangible, working technology requires translation, mediation which can produce multiple and unstable versions of ABC in action. Consequently Figure 4 replaces the Dillard model's distinction between innovators and late adopters with a process whereby P_{OF} as an indeterminate practice is translated to P. Only after enactment does it become a working technology with distinct characteristics. ABC's ambiguity enabled consultants to diffuse and legitimate it as a symbol (and apparently technical practice) of efficiency throughout EU telecommunications with relatively little debate – it slipped in serendipitously as noted by Miller (1991) regarding DCF at the state level and Briers and Chua (2001) regarding ABC at the intra-organisational level. Epistemic communities, in this instance consultants, acted as boundary spanners diffusing and translating ABC within and across levels. Thus Figure 4 incorporates the category of 'epistemic communities' linked to all levels. Professions are often portrayed as competing with market and bureaucratic logics but in this instance they went hand in hand. This is worthy of further study.

Lastly, the paper answers calls for theoretical triangulation and dialectic analysis not only within NIS but between theories to extend empirical and theoretical understanding, and enrich academic and practical dialogue. As expected, theoretical assumptions of competing theories sometimes proved irreconcilable. For example, labour process approaches employ a meta-theoretical frame of analysis incorporating, albeit sometimes implicitly, specific criteria of right and wrong, whereas NIS and ANT either ignore public interest issues or endorse economic pragmatism. However, the theories complemented each other more than anticipated. All except conventional economics incorporate dialectical reasoning to identify conflicts, power structures, transformation points, and agency but labour process and particularly ANT indicate that adoptions of accounting technologies like ABC are more heterogeneous and precarious than recent NIS work on strategic agency presume. This enabled NIS macro-explanations of organisational similarity to incorporate a micro-level focus on practice, action, and interaction that better incorporates agency, diversity, and change, as Lawrence and Suddaby (2006) suggest. Theoretical reconciliation and cross-fertilisation may not be as insurmountable as often presumed given a willingness to try. We hope our paper will encourage others to do so, especially if they share the authors' intuitive doubts in the prologue about the limits of mono-theoretical explanations.

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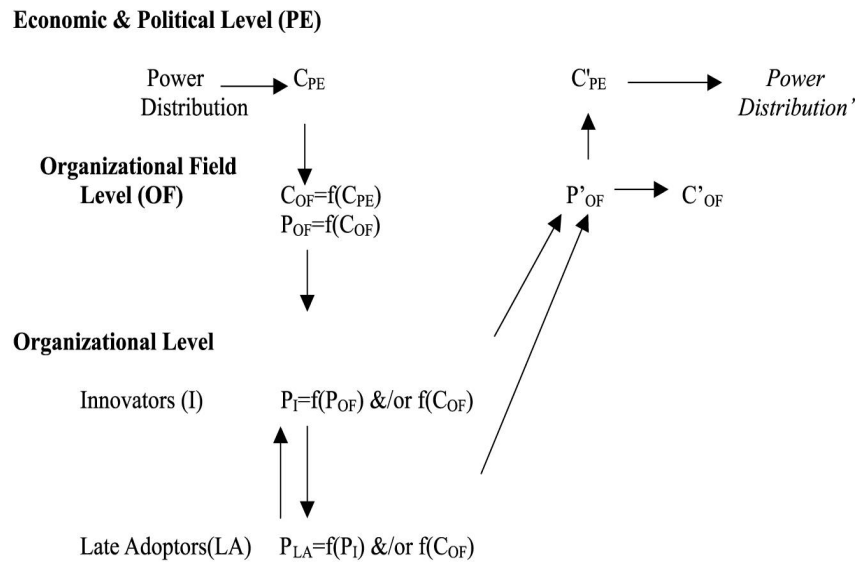
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Figure 1

Institutional Dynamics



C_i = criteria

P_i = practice

Source: Dillard *et al.* (2004)

Figure 2
The Institutionalisation of ABC in Marconi

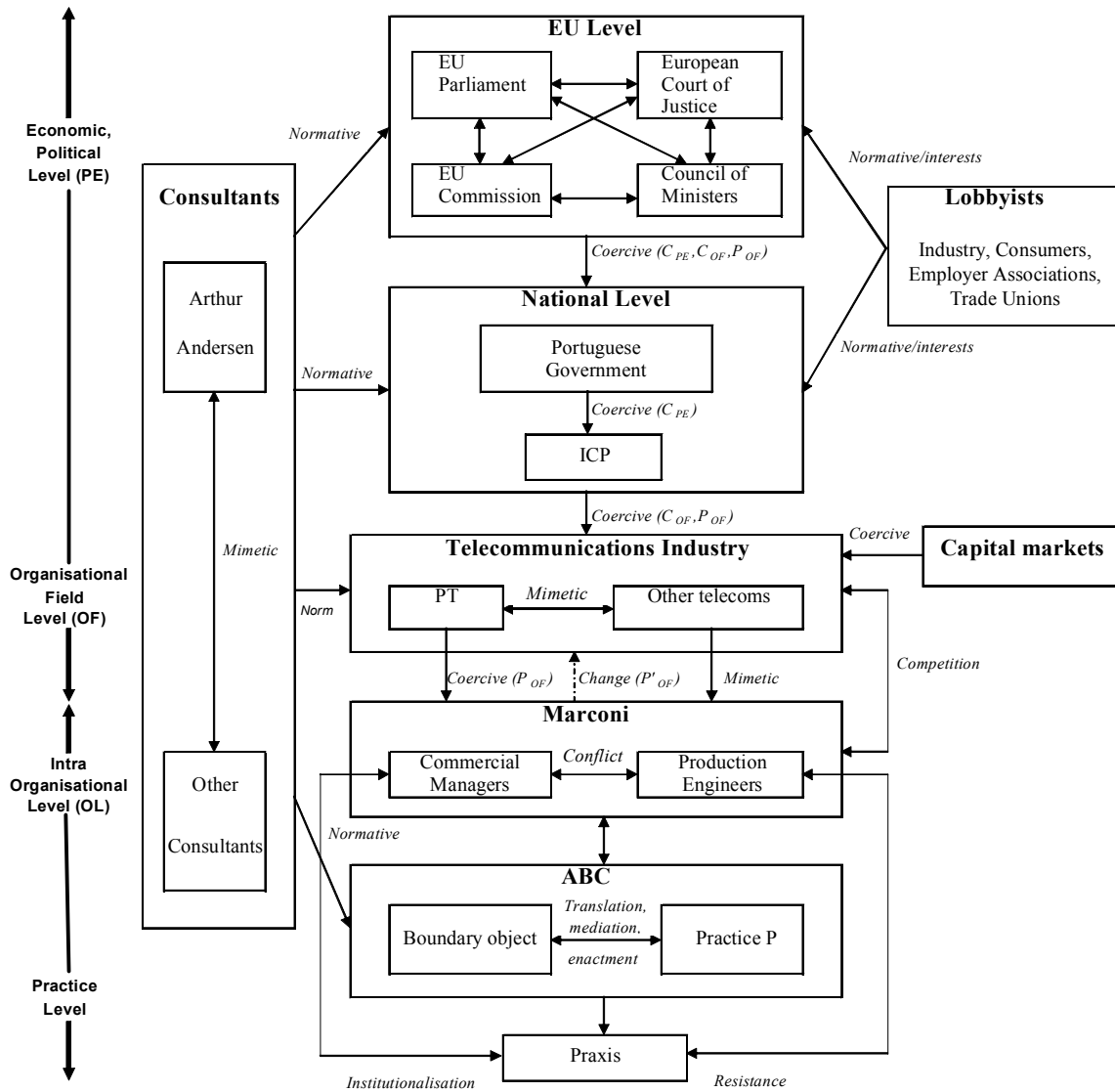


Figure 3

**Chronology of the Portuguese Telecommunications Industry
Reorganisation and Main EU Regulatory Events**

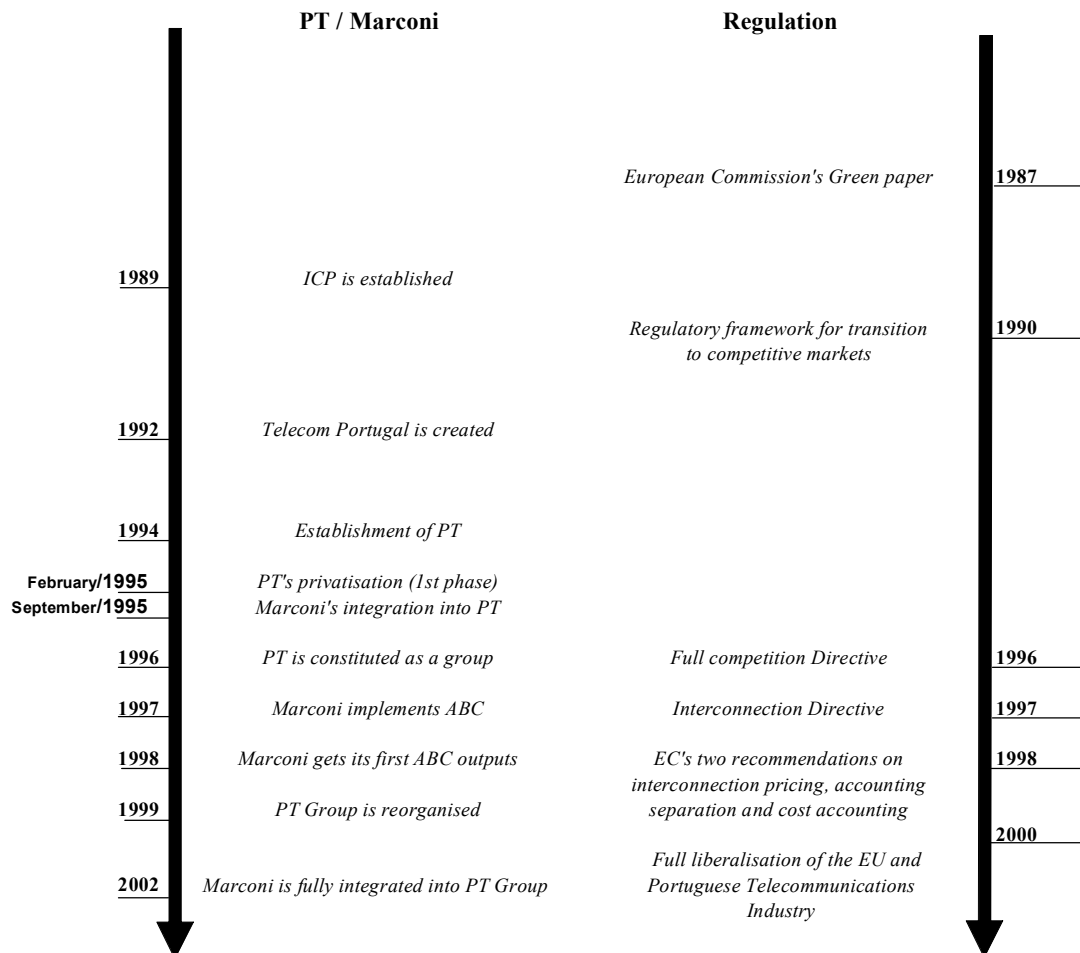


Figure 4

A Revised Institutional Dynamics Model

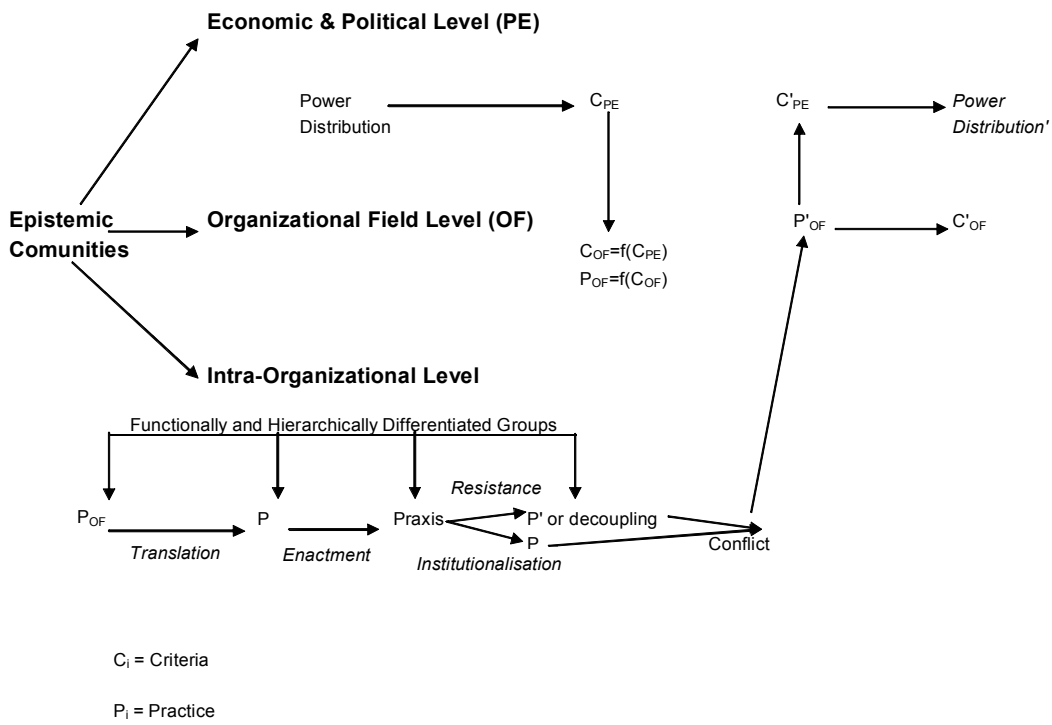


Table 1**Economic and Financial Data for Marconi**

(Unit: PTE Millions)

	1994	1995	1996	1997	1998	1999	2000
1.Turnover	53849	58975	72055	75026	67924	58193	51092
2.Current Costs	39024	48801	69379	71585	64976	56225	57420
3.Net Profits	6186	7362	4321	5607	8433	3854	750
4.Investment	10857	13719	10753	5632	14784	11895	3765
5.Net Assets	67416	78641	101083	116361	122422	128551	104061
6.Shareholders							
Equity	47293	49908	54939	53475	57597	61548	40249
7.Return on Assets	9.2%	9.4%	4.3%	4.8%	6.9%	3.0%	0.7%
8.Return on Equity	13.1%	14.8%	7.9%	10.5%	14.6%	6.3%	1.9%
9.Profitability	11.5%	12.5%	6.0%	7.5%	12.4%	6.6%	1.5%

Note: 7=3/5; 8=3/6; 9=3/1

1 EUR = 200.482 PTE

Source: Marconi's Annual Reports 1994 to 2000.

Table 2**Prices of International Telecommunications Services**

	Unit: Escudos (PTE)				
	1990	1991	1992	1993	1994
EU	183	176	162	142	135
Other European Countries	214	206	189	171	163
United States	428	386	242	223	198
Brazil	583	514	379	342	291

Note: Prices are peak rate prices per minute, set at 1995 constant prices, and exclude value added tax.

Source: Maxitel, "O Mercado das Telecomunicações: Portugal 1996", p. 119.

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1 EUR = 200.482 PTE

Table 3**Prices of International Telecommunications Services**

	Unit: Escudos (PTE)				
	1996	1997	1998	1999	2000
EU (1)	124,2	107,3	80,0	69,8	53,5
Other European Countries (2)	165,3	152,6	144,1	129,8	121,7
United States	182,1	152,6	99,0	71,1	55,3
Brazil	262,1	227,4	177,0	129,8	123,3

(1) Including Switzerland in 1997, 1998, 1999, and 2000.

(2) Including countries in the former Soviet Union, Algeria and Tunisia for 1996. Excluding Norway and Iceland for 1997, 1998, 1999, and 2000.

Note: Prices are peak rate per minute, set at 2000 constant prices, and exclude value added taxes.

Source: PT Group (2001), Form 20-F, p. 61.

1 EUR = 200.482 PTE

¹ There are many strands of institutional theory. That on transaction cost economics is not within our domain. New Institutional Sociology stems from Weberian sociology and sociologists such as Blau (1955), Gouldner (1954a, 1954b), and Selznick (1949). It has many variants. One stems derives from the Old Institutional Economics (OIE) work of Commons (1924, 1934) and others, which has developed as a related but independent research approach from NIS, used in accounting by Burns and Scapens (2000) particularly. The focus of this paper lay in NIS and, to avoid the difficult task of combining all institutional work in one model, this research concentrates on the model of Dillard *et al.* (2004).

² The full name is ‘CPRM – Companhia Portuguesa Rádio Marconi’ but for simplification it is called ‘Marconi’.

³ For simplification Marconi’s parent company is called PT (from 1999 to 2002 it was PT Comunicações).

⁴ In 2000 the Portuguese telecommunications regulator ICP, established in 1989, was the ‘ICP – Instituto de Comunicações de Portugal’ (Portuguese Communications Institute). Its name changed in January 2002 (Law n° 309/2001) to Anacom – an abbreviation of ‘Autoridade Nacional de Comunicações’.

⁵ See plenaries by Cooper, D.; Ittner, C. and Demski, J. at Global Management Accounting Research Conference, University of Michigan, June 2004.

⁶ Our thanks to Martin Carlsson for bringing these to our attention.

⁷ Regulatory impositions on telecommunications operators changed July 2003, following new EU Directives (2002/21/EC, 2002/20/EC, 2002/19/EC, 2002/22/EC, 2002/58/EC). This paper does not analyse these as they occurred after the MAS changes studied here. Laws are quoted only when directly connected to MAS changes in Marconi and PT.

⁸ Section 12 of the American Securities Exchange Act of 1934 requires PT to annually submit a report (Form 20 – F) that includes: a detailed description of the business, its property, legal proceedings, market conditions, exchange controls, other limitations affecting security holders, taxation, selected financial data, management’s analysis of the financial situation and results; quantitative and qualitative disclosures of market risk; company directors’ and officers, their compensation, stock options and interests in certain transactions; and security defaults and changes.

⁹ Marconi previously had a matrix structure that crossed its business areas.

¹⁰ Anecdotal evidence from discussions with Andersen consultants and practitioners during ABC seminars at the Institute for International Research (Portugal) in March, April, October, 2000; and April, May 2001.