

TEXT AND ARTEFACTS FOR CREATING A “WORLD OF INVESTMENT DECISION-MAKING”

An Empirical Study into Investment Procedures

Claire Dambrin¹

HEC School of Management, Paris

dambrin@hec.fr

Anne Pezet

DRM Crefige,

Université Paris-Dauphine

pezet@crefige.dauphine.fr

Abstract: The investment procedure prescribes the stages and tests through which all investment projects must pass before being accepted or not. It governs the conditions of acceptability and constitutes a powerful device of *a priori* control. In this paper, we intend to understand how investment procedures enable grand ideals regarding investment to be institutionalised. In particular, over and above the assumed effectiveness and rationale of these procedures, we identify the mechanisms through which these procedures construct social roles. In this respect, this research goes beyond the procedures' technical functions and focuses on the very form of procedures. Indeed, the form of a procedure presents two features: it is written, generally consigned to a “manual”; and it relies on “*cognitive artefacts*” (Norman, 1991) or “*technologies of the intellect*” (Goody, 1977) such as lists, tables and formulae like Discounted Cash Flow. This paper shows how this specific form takes effect during the process of institutionalisation, through which grand investment ideals (e.g. competitiveness, value creation) are transformed into concrete devices and into roles (Miller, 1991). Thanks to an enquiry conducted in 2003 and 2004, investment procedures in six large companies in a French context are analysed. It is argued that (1) the formalisation of the objectives of the procedures, as well as the definitions of investment through typologies shape the actors' boundaries of action; (2) valuation methods based on the domination of economic-mathematical formula favour short-term over long-term reflection; (3) the setting of decision-making thresholds formalise individuals' tasks and responsibilities. Therefore, the very form of procedures shape each phase of the institutionalisation process <objectivation – stabilisation – subjectivation> as defined by Hasselbladh and Kallinikos (2000) and contribute to create a singular world – that of investment decisions.

Keywords: procedure, investment, written text, artefacts, technologies of the intellect, institutionalisation

¹ Corresponding author

“However, there exists a kind of Ariadne’s thread enabling us to move continuously from the local to the global, from the human to the non-human. It is a web of practices and instruments, documents and translations. An organisation, a market, or an institution, are not objects from outer space made from a matter any different to our poor, local, terrestrial relations.”

(Latour, 1997, p.165).

1. Introduction

At first glance, what could be more banal, more boring and more dust-covered than an investment procedure manual? And yet the most discrete practices often play a role that, although often unrecognised, is no less fundamental to social life (Power, 1997). Shifting our interest to investment procedures first of all means studying a device well embedded in the life of organisations. Indeed, investment procedures benefit from such durability and such a wide dissemination in the corporate world (Pezet, 1998; Segelod, 1996) that some observers do not hesitate to speak of a *“modern paradigm of investment choice”* (Hayes *et al.*, 1988). Empirical research into the subject indeed shows the firm grip of the procedure and its prescribed actions on corporate investment decision-making (Graham & Campbell, 2001; Pike, 1996).

From the point of view of management theories, the investment procedure is one of the pillars of the corporate control system. It ensures *a priori* the coherence between purposeful corporate strategy and investment choices. On a wider scale, it guarantees the effectiveness of corporate governance by enabling the control of strategic decision-making (Bouquin and DeBodt, 2001). The main in-depth empirical works on investment procedures are American (Itsvan, 1961)², Swedish (Renck, 1966; Tell, 1978)³ and French (Engel *et al.*, 1984). A common feature of these works is that they all aim to study investment procedure “manuals” used in companies. These manuals are valuable documents for those who want to study the way in which companies design their investment decisions. They constitute the formalised representation thereof. The fact that they exist, however, does not necessarily mean that each project unfolds in a way that matches the demands of procedure. Drift and diversion often go hand in hand with a framework that is purposefully restricting and which, due to this fact, does not always correspond to the needs of the actors (Pezet, 1998). It is in this way that investment procedure represents a practical norm. As a norm, it institutes the constraint of standardising behaviours; as something practical, it is interpreted, remodelled, and even misused by actors. As a practical norm, the procedure also has the particularity of being formal. It is a *“written administrative routine”* (Segelod, 1998). This status lends it benchmark value as a standardising tool but also as an element of the control system, as a language community or as a “learning driver”. It also ties in with Bower’s conclusions (1970) according to which senior management does not choose investments directly from requests issued by decentralised units, but by constructing the “structural context” that ensures the consistency of requests with strategic goals. In other terms, directors shape the formal

² quoted in Segelod (1995; 1996).

³ quoted in Segelod, (1995; 1996).

organisation, the information and control system, and the incentive system, which will enable them to remotely control projects that generally stem from operational levels.

The question that drives this research into investment procedures, based on an empirical study conducted in France in 2004, is of a different kind. Our research objective is neither to investigate the actual decision made with the help of procedures nor the “real” use made of these procedures. This research focuses on the very form of the procedures and postulates that this form fosters the production of social roles. Indeed, the form of a procedure presents two features: it is written, generally consigned to a “manual”; and it relies on “*cognitive artefacts*” (Norman, 1991, 1993) or “*technologies of the intellect*” (Goody, 1977) such as lists, tables and formulae like Discounted Cash Flow. Drawing on this, our research endeavours to answer the following question: **how does the specific form of procedures take effect during the process of institutionalisation, through which grand investment ideals (such as competitiveness, value creation) are transformed into concrete devices and into roles?** The process of institutionalisation represents a set of mechanisms through which devices take part in producing instituted and generalised conventions. It is this process of <objectivation – stabilisation – subjectivation> as defined by Hasselbladh and Kallinikos (2000) that creates a singular world, that of investment decisions, peopled with actors, techniques and discourses. By demarcating a domain of action (objectivation) and by then establishing performance principles (stabilisation), the form of investment procedures, including written texts and diverse artefacts such as lists, tables and formulae, results in the creation, through social roles (subjectivation), of a world of investment decisions. This world is consistent with the ideals and discourses produced on investment in society and it is the procedure that ensures this consistency.

2. Management Devices and Social Roles: Theoretical Considerations

This research aims at investigating the influence of a particular management device, namely the investment procedure manual, on the institutionalisation process of investment ideals. In this respect, it draws from the research stream studying accounting in its social dimension (Hopwood, 1976; Burchell *et al.*, 1980; Hopwood, Miller, 1994). We propose to study the institutionalisation process of accounting ideals by importing concepts from cognitive and ethnographic sociology dealing with the properties and effects of written texts (Goody, 1977; 1986; 2000; Norman, 1991; 1993). This use of sociological concepts will enable us to account for a part of the institutionalisation process that is difficult to capture and thus still understudied: the subjectivation part of the process, in other words, the influence of accounting devices on the society.

2.1. Studying the social dimension of accounting

This research lies within the scope of socio-institutional studies of accounting, according to the approach defined by Hopwood since the founding of the review *Accounting, Organizations and Society* in 1976 (Hopwood, 1976; Burchell *et al.*, 1980; Hopwood, 1983; 1987; Miller, O’Leary, 1987; Miller, 1990; Hopwood, Miller, 1994; Baxter, Chua, 2003; Hopwood, 2005). It considers accounting (understood in the widest of senses and which, in a French context, may be assimilated to management tools) as a social practice subject to the

influences of society but also having, conversely, effects on that same society. Burchell *et al.* (1985) thus set out to study change in accounting practices (in specific, the introduction of assessment of added value in Great Britain in the 1970's) by investigating the social context and by deploying a double relationship, spanning from society to management devices, but also from management devices to society:

“Although it is now recognised that the social can influence the technical practice of accounting and that that, in turn, can mobilise and change the world of the social, the processes by which these intersections take place have been subject to hardly any investigation” (Burchell *et al.*, 1985, p.381).

For the above statement is recurrent: although management devices are considered a social practice, their links with the social remain relatively uncharted from an empirical point of view. In this respect, investment practices were the subject of one of Miller's founding articles (1991). Basing his work on concepts borrowed from works by Foucault and Latour (problematization, programmes, translation and remote action), Miller analyses the spread of discounting methods in Great Britain in the 1960's. He concludes that a link exists between national policies that promote economic growth and the setting up of techniques that meet this goal as regards investment choices. The research conducted by Miller emphasises the influence of programmes, defined as idealised patterns designed to represent, analyse and solve problems associated with particular aspects of social and economic life, on the modalities of corporate investment decision-making. The link between society and management devices thus appears to span from society to management devices in one dimension. As a general rule, it is the articulation amongst problem perception (problematization), programmes and technologies that is analysed here (Miller & Rose, 1990; Miller & O'Leary, 1994). There remains the second dimension in the relationship to be analysed that spans from management devices to society (the creating of social roles) through the process of institutionalisation.

2.2. A traditional research object to account for social dimensions of accounting: the institutionalisation process

For scholars interested in the social dimension of accounting, the institutionalisation process, meaning the set of mechanisms through which devices take part in producing instituted and generalised conventions, turns out to be a relevant research object.

Studying the process of institutionalisation lead to gain insight in the interactions between accounting and society by deepening the relationship between microscopic and macroscopic perspectives. If management devices are social practices, then they participate in a process of institutionalisation, as Miller (1994) points out:

“Accounting can now be seen as a set of practices that affects the type of world we live in, the type of social reality we inhabit, the way in which we understand the choices open to business undertakings and individuals, the way in which we manage and organize activities and processes of diverse types, and the way in which we administer the lives of others and ourselves. To view accounting in this way is to attend to the complex interplay between ways of calculating and ways of managing social and organizational life” (Miller, 1994, p.1).

Indeed, neo-institutional research has contributed to the development of the research stream considering accounting as a socio-institutional practice since it analyses causal processes that link accounting to its institutional environment (Miller, 1994, p.12). Nevertheless, if the

influence of society on accounting is well captured, the reverse influence still needs further investigation. As Hopwood states in an editorial that assesses 30 years of research in *Accounting, Organizations and Society*, “*insights are starting to emerge of the ways in which accounting relates to wider configurations of institutional processes and designs. [...] The ways in which economic forms of calculation and control interact with new modes of organizing is an area in which much remains to be known*” (Hopwood, 2005, p.585-586).

Following in the “*European tradition [...] that tends to analyse the patterns of formal organizing*”, Hasselbladh and Kallinikos (2000, p.703) denounce the insufficiency of the empirical programme of neo-institutional research (“*the bird’s eye view*” p.700). According to these two authors, the neo-institutional empirical programme has remained too macroscopic whereas the process of institutionalisation of grand ideals (efficiency, for example) cannot afford to do without a technical anchoring in practices. Here, they hint at a traditional critics raised at NIS according to which emphasis is put on inter-organizational diffusion processes to the detriment of the understanding of how these processes translate into intra-organizational contexts. As stated by Tolbert and Zucker (1996), we lack details on *how* the process of institutionalisation occurs *inside* organisations.

Furthermore, adopting a technique can remain a ceremonial act (Meyer, Rowan, 1977; Covalenski *et al.*, 1996). As NIS states, for an institutionalisation process to be completed, there is a need for internalisation (Kostova, Roth, 2002). Changing ideals have to be objectified, but objectivation does not exhaust institutionalisation (Hasselbladh, Kallinikos, 2000, p.712). A more invisible side of institutionalisation consists in subjectivation, or the internalisation of evolving ideals by organisational actors, meaning the way actors understand their roles and enact them into their daily practices according to, against, or regardless of, these ideals (Dambrin, Lambert, Sponem, 2006).

To go beyond these criticisms, Hasselbladh and Kallinikos propose an analysis tool (“*an analytical device for disentangling the composite totality that makes up the processes of institutionalisation*”, p.704). Their ambition is to account for the mechanisms by which ideals are concretised into practices. Three phenomena constitute the whole process according to them (Hasselbladh and Kallinikos, 2000, p.700-701):

- Objectivation, by constituting a clearly defined and delimited domain of action (for example quality or corporate social responsibility) around which one can develop systematic ideas and measurable propositions;
- Stabilization, by establishing performance principles, specific rules of conduct and control techniques that are stable but also durable and communicable;
- Subjectivation, meaning the construction of recognizable and recurrent social and organizational roles through management devices.

2.3. Accounting for the subjectivation part of the institutionalisation process

Drawing from the analytical device proposed by Hasselbladh and Kallinikos (2000), this research ambitions to better capture the influence of accounting on society. More precisely, we aim to study **how accounting techniques shape society** and, therefore, participate into the subjectivation part of the institutionalisation process.

In this paper, **accounting** is tackled through management devices. More specifically, procedures are chosen to characterize one of these devices, and investment procedure is the

type of procedures which is empirically analysed. Thus, accounting is considered in its normative dimension. We do not claim to study accounting in its real practices: the actual decision made with the help of procedures and the post evaluation of those decisions are not the subject of this research, which focuses on how procedures might influence the actors independently of the actual decision-making and how procedures contribute to the emergence of social figures that constitute an ideal world of investment making. Therefore, in this research, capturing the influence of accounting on **society** means capturing its influence on ideals that shape investment decisions in organizations as well as on the creation of social roles around investment decisions.

To highlight these mechanisms of influence, we intend to analyse how a singular world – that of investments – is created, describing the three “stages” that are objectivation, stabilisation and subjectivation. In this particular world, the domain of action will be objectified by a definition of what an investment is and by a detailed description of the stages of decision-making. Stabilisation relies on performance principles (profitability of investments, their strategic coherence), on rules of conduct (procedures) and on techniques (Discounted Cash Flow (DCF), Internal Rate of Return (IRR), or pay back, to mention only the most well-known). These techniques present the characteristics of stability, durability and communicability that are necessary for institutionalisation (Townley, 1995, Hasselbladh, Kallinikos, 2000). The DCF, for example, has been widely used in companies since the 1960’s and its wider dissemination has been ensured internationally through teaching. Finally, the subjectivation phase, meaning the creation of social roles, covers the defining of roles for each person concerned using a certain number of artefacts. This last phase is definitely the one of which this research aims to enrich the understanding. However, it is postulated that for subjectivation to be understood, objectivation and stabilisation must be studied as well. On the one hand, one phase of a process cannot be analysed independently of the others. On the other hand, we will show that objectivation as well as stabilisation set the conditions for subjectivation, they configure the role that are about to develop in the subjectivation phase. Therefore, if our main objective is to account for the subjectivation phase in the institutionalisation process, the whole process (objectivation, stabilisation, subjectivation) needs to be analysed to satisfy this objective. It is this process that we will be studying using an empirical study dealing with investment procedures.

2.4. Applying sociological concepts to the study of accounting influence on social roles and ideals

To highlight accounting devices’ role in the institutionalisation process, we build on sociological concepts stemming from cognitive science (Norman, 1991; 1993) and from social ethnography (Goody, 1977; 1986; 2000) dealing with the characteristics of written texts. As stated in the introduction, a basic motive for this research has been to consider that the form of accounting devices in itself has a great influence on individual’s roles in organizations. The empirical object that has been studied for this research, namely, investment procedures, is a specific set of texts and artefacts. We consider that studying an accounting device such as investment procedures according to its written properties (textuality and cognitive artefacts) will enable us to reveal some social dimensions of the institutionalisation process and to better capture how techniques shape society. More precisely, we intend to show that the written properties of procedures contribute to strengthen social ideals that found

investment-decision-making, shape decision-making criteria and create social roles that populate the ideal investment world.

To characterize the written properties of a procedure, we will use the terminology of Goody (1977), “*technologies of the intellect*”, and of Norman (1993), “*cognitive artefacts*“, without distinction: that is to say, “*artificial tools designed to preserve, reveal and handle information with the aim of satisfying a representational function*”, “*an artefact is what amplifies human aptitudes*” (Norman, 1993, p.18-21). Written texts of procedures are studded with these technologies or artefacts. Furthermore, writing itself produces “*effects (...) on the organisation of human societies*” (Goody, 1986, p.171), in particular through the storage of data that it enables.

According to Goody (1977, 1986), the written form actually produces three significant consequences. First, the writing of a text authorises **interpretation and manipulation**. However, the text is also a reference, because: “*literacy encouraged, at the very same time, criticism and commentary on the one hand and the orthodoxy of the book on the other.*” (Goody, 1977, p. 37). So the text offers an opportunity to be translated, even to be betrayed, but is also presented as an indispensable benchmark. The second consequence is that writing, and in particular the modes of communication adopted (texts but also tables, lists and formulae), produces **effects on the cognitive capacities** of individuals. Goody analyses the “*role of changes in the mode of communication in the development of cognitive structures and processes, and in developments in the growth of human knowledge and in the growth of man’s capacities to store and augment that knowledge.*” (Goody, 1977, p.36). In this regard, the example of lists is revealing: on the one hand, they enable information to be stored and so facilitate spatial and temporal communication, recording and recall; on the other hand, they enable a shift from the aural to the visual domain and so “*enables it to be inspected, manipulated and re-ordered in a variety of ways*” (Goody, 1977, p.76). Lists thus not only promote new technical skills but also new intellectual aptitudes. Lists are “*cognitive artefacts*” (Norman, 1993) and, in their form as an artefact, shape the individual’s cognition. Check-lists “*improve the memory and facilitate performance, but from the point of view of the person, they modify the task*” (Norman, 1993, p.23). Indeed, we now have to draw up a list, understand that it is the list that we must consult rather than doing the tasks directly and, finally, read and interpret the list’s content. Finally, the third consequence of the textual form is that “*the growth of bureaucracy clearly depends to a considerable degree upon the ability to control ‘secondary group’ relationships by means of written communications*” (Goody, 1977, p.15), as Max Weber has already shown. In other words, beyond the individual aptitudes that they produce, written forms of communication, the “*technologies of the intellect*” (Goody, 1977, p.244), **support power organizing** and the corresponding modalities of control.

As for any kind of procedure, the investment procedure’s form is based on the recourse to the written word and on a series of intellectual technologies or cognitive artefacts. The **investment procedure** is a key device in investment decision-making. It therefore plays a role in the process of institutionalising ideals, discourses and programmes, by creating a singular world around investment decision-making. The investment procedure manual is the master document, the investment’s score that conducts the orchestration in its slightest details so that it may take place without excessive improvisation. Indeed, procedures outline the steps

that an investment project must follow before being accepted and the conditions of its acceptability, and they constitute a powerful device for formalising the financial paradigm. Addressed to all corporate actors, and in particular those who instigate investments, this veritable “*management machine*” (Girin, 1981) aims to standardise behaviours and establish a norm of conduct. Procedures integrate the whole of the decision-making process, including valuation and post-valuation, and thus represent the “practical norm” used in companies. They therefore constitute a remarkable yet discrete instrumentation; who could be concerned about a document that, at first glance, comes straight out of what modern management would see as well worn and slightly obsolete bureaucracy? However, the procedure governs the whole device of investment decision-making through a text that is based on a series of prescribed actions, the majority of which are in the form of artefacts. This text and these artefacts – these “*technologies of the intellect*” (Goody, 1977) – produce effects on behaviours within a company and contribute to shape social roles. The three consequences of the written form that can be identified in Goody’s work (1977) turns out to be extremely relevant as far as investment procedures are concerned. First, texts authorize interpretation and manipulations but, at the same time, serve as references. This tension between plasticity and rigidity epitomises the investment procedure manual: as a written text, it embodies the “law” as it is currently applied; but, as with all texts, it includes grey zones in which the reader may exploit, consciously or not, margins unforeseen by the author. Second, written forms and their associate communication modes (e.g. lists) develop alternative technical as well as intellectual skills. Investment procedures contain lists that classify investments into type (strategic, maintenance, productivity, etc.), or that oppose operational and investment capital expenditure, or checklists (strategic alignment, functional alignment). In addition to lists and checklists, investment procedures also contain tables, diagrams, drop down lists, economic-mathematical formulae (discounted cash flow, internal rate of return, pay back, discounting rate). It is these cognitive artefacts – amplifiers of aptitudes and competences for those who use them – that we will study in more depth. Third, beyond the individual skills they contribute to produce, written forms of communication shape power distribution. Investment procedures as tangible techniques are certainly auxiliaries to power; however, the written form confers on its users the faculty of interpreting the text. Here, we find the tension between the plasticity of a text and, conversely, its capacity to lay things out. The procedure and its artefacts are therefore tools for exercising power, even if the latter may be subordinated to unexpected “deviant” behaviours. An empirical study into investment procedures conducted in France in 2004 will enable us to show how writing in conjunction with technologies of the intellect produces effects on the social organisation of investment decision-making and on the social roles of each actor, thus creating a singular world.

3. Methodology of the Empirical Study

This article is based on empirical research conducted in six multinational corporations of French or European origin in 2004. Our study refer to six cases, whose level of analysis is the company and whose unit of analysis is the investment procedure. As a qualitative piece of research, our empirical study aims at accounting for a subjective reality on the world of investment decision-making rather than revealing what could be called its objective reality. As claimed by Ahrens and Chapman, we believe that “*through their specific ways of*

engaging data and analytical categories and, very often, of arranging data to become suggestive of analytical categories, qualitative field studies can frequently question common sense notions of management accounting phenomena.” (Ahrens and Chapman, 2006, p.831)

3.1. On the relevance of the cases constituting the qualitative empirical study

We adopted a multi-sites empirical methodology based on six company cases that were selected on an empirical and theoretical ground and not at random (Eisenhardt, 1989). The six cases fit with the conceptual framework by offering active procedures that seem to be internalised by managers and fashion their roles. Even if we observe some similar phenomenon, we didn't intend to reach literal replication (Yin, 2003) in the first place. We actually believe that convergences in observation are not an essential condition to lead to theoretical development. As pointed out by Ahrens and Chapman (2006), replication is inappropriate for qualitative research since, for the latest, social reality is emergent, subjectively created and objectified through interaction. Identical results cannot be expected from two different studies. At best, compatible results may be expected. Therefore, we didn't look for objective validity nor reliability in our six qualitative case studies. In such type of research, validity and reliability are difficult to distinguish. What counts is the plausibility of the conclusions that can be strengthened by the prior knowledge of the scholar on her empirical field, the multiplicity of standpoints and the reflexive ability of the scholar to question her own results (Ahrens and Chapman, 2006, p.833).

Our empirical study is used as a tool for theory development on the subjectivation part of the institutionalisation process. As suggested above, our approach differs from a positivistic tradition because testing and verifying are not part of our procedure. On the opposite epistemological positioning, our work also differs from Glaser and Strauss's position because we reject the assumption that a researcher begins with a clean slate. We argue that a researcher's subjectivity is not a true problem, since *“we are all producing orderliness in our writings, sequences of relationships [...] putting pieces together, picking and choosing to pay attention and ignore”* (Calás and Smircich, 1999, p.664). What is more problematic in research writing, according to these authors, is unrecognised partiality, which leads them to advocate “modest narratives” that make researchers' partial choices clear. Let us clarify these partial choices.

Each large in size, the six companies belong to different sectors of activity (see Table 1). They have been chosen among listed companies having stable investment. We selected companies for which investment constituted a regular annual flow because regularity in ordinary investment tends to establish investment procedure as a routine. The stability of annual investment (in its occurrence and its nature) was an important empirical selection criteria since we believe it is in such context that norms rise and may get internalised by organisational actors. As shown in Table 1, the six companies have investment spending comprised between 4 and 9% of their turnover. Moreover, these investments are strategic in order to maintain or expand their major activities. That's why four of them carry out industrial investments for the most part and the two others expend mainly in marketing and R&D investment. We have assumed that the steadiness and core business orientation of investment in these six companies are related to the existence of an active investment procedure. Investment procedures are lively or active in the organisation when they are regularly updated. We assume that such updating leads to a change in social roles that corporate management wants to promote. In that respect, the liveliness of investment procedures is

linked with our research question dealing with the creation of social roles and as such, it was another essential criteria to select the cases of our empirical study (see Table 1).

Company	AERI	PHAR	ALU	AUTO	MAT	PARTS
Sector	Airline	Pharmaceuticals	Aluminium	Automobile	Materials	Automobile
Dominant Type of Investment	Marketing	R&D Marketing	Industrial	Industrial	Industrial	Industrial
Turnover (2002, billion €)	12,5	18	12	36	30	10
Tangible and intangible Investment (2002, billion €)	Non available	1,1	0,5	3,1	1,4	0,8
Investments' part in the turnover (2002, %)		6%	4%	9%	5%	8%
Last updates of the investment procedure (in 2004)	1999 & 2003	2002/2003	1998 & 2002	1999	1999 & 2002	2002
Nature of contact for our study	Management Control – Marketing Department	Corporate control Capital investment	Divisional Financial Control	Board of Investment Control	Planning and Strategy Board	Divisional Financial Control

Table 1: The Companies Studied

3.2. On the observed data and the methods chosen to analyse them

“Data are not untainted slices of objective reality but aspects of recorded activity that a study finds significant for theoretical reasons” (Ahrens and Chapman, 2006, p.820). As developed in sections 2.3 and 2.4, our theoretical project in this paper is to account for the social dimension of accounting by studying the effects of accounting devices' written properties. In that respect, investment procedures seem a highly relevant unit of analysis. As shown in the end of section 2.4, they are key devices in investment decision-making and, as such, contribute to the formalisation of the financial paradigm. Second, they are based on the recourse to the written word and on a series of intellectual technologies or cognitive artefacts (see end of section 2.4). Investment procedures prescribe the stages and tests through which all investment projects must pass before being accepted or not. As suggested in Exhibit 1, they govern the conditions of acceptability and constitutes a powerful device of formalization. Procedures establish the definitions, categories and typologies entailed in investment. They describe the hierarchical or functional stages through which projects must imperatively go according to their features (e.g., corporate responsibility center management, financial management, human resource management, etc.). Furthermore, procedures lay out the compliance tests that projects must undergo: financial profitability, strategic or even social compliance.

Table of contents

1.	Introduction	3
2.	Authorization Policy	4
2.1	Key principles	4
2.2	Project authorization policy	6
2.2.1	New Projects	6
2.2.2	Project pre-planning	7
2.2.3	Project overruns	7
2.2.4	Non-consolidated projects	7
2.2.5	Authorizations for acquisition and disposal of Real Property	8
2.2.6	Authorization of IS investments	8
2.2.7	Review and authorization procedure	10
2.3	Capital Authorization Request (C.A.R.)	11
2.3.1	Front Page	11
2.3.2	Review Page	13
2.3.3	Executive Summary : Description & Rationale	13
2.3.4	Economics	14
2.3.5	Capex funding for IS projects	17
2.3.6	IS projects in P.B.C.	17
2.4	Economic Evaluation	18
2.4.1	General principles	18
2.4.2	Discounted Cash Flow (DCF)	19
2.5	Check-lists	21
2.5.1	Interface Check-List	21
2.5.2	Strategic Alignment Check-list	22
2.5.3	Roles & Responsibilities	23
3.	Budget overrun policy	24
4.	Glossary of Authorization Process	25
5.	Appendices	27
5.1	List of abbreviations	27
5.2	Definition of Fixed Assets	28
5.3	Cost categories (general projects)	29
5.4	Cost categories (IS-projects)	31
5.5	Project categories	32

Exhibit 1: The Contents Page from an Investment Procedure (PHAR)

In each of the six companies selected for our study, the procedure common to the whole of the company was available for consultation as well as specific procedure manuals when this was deemed necessary. The six procedures that were studied vary in size, form and content as shown in Table 2.

	AERI	PHAR	ALU	AUTO	MAT	PARTS
Size (hard copy)	34 p + 9 appendixes	154 p (text) + 10 p (computation tables)	34 p (corporate) 10 p (SBU)	69 p	37 p + 3 appendixes	11 p + 6 appendixes
Availability	Intranet	Intranet	Intranet	Intranet	Intranet	Intranet
Electronic computation tools attached to the procedure	Yes	Yes	No	Yes	No	Yes
Didactic material to explain how to use the procedure	No	Yes (116 slides)	No	Yes (42 slides)	No	No

Table 2: Characteristics of the six investment procedures

A content analysis was completed for each procedure. After having conducted some readings of procedures, we constructed an initial coding framework composed of five main codes: the procedures' form, definitions, involved actors, thresholds and methodologies for investment valuation. This initial coding framework drew from the academic literature on investment and our initial reading of some of the six investment procedures. It was broadly supplemented over the course of on-site observation of the procedures and evolved still further during their analysis. Rather than structuring the reading of the procedures around many predefined categories, our intention was to identify from the issues emerging during reading and triangulating interviews⁴ what the categories for coding should be. As Anderson-Gough *et al.* (2005) state, this is one way of addressing the issue of 'dynamism' in the research process. A monograph was eventually drawn up for each company and subsequently validated during an interview or a written exchange with the company⁵. In short, the research protocol was conducted in five phases:

<p>Phase 1: browsing the texts (on-site – 5 cases; off-site – 1 case)</p> <p>Phase 2: interviewing holders of the procedure manuals</p> <p>Phase 3: coding according to characteristic items</p> <p>Phase 4: drawing up a monograph</p> <p>Phase 5: validating the monograph (interview or written exchange)</p>
--

Exhibit 2: Overview of the research protocol

As the initial coding framework⁶ suggests, the theme of the institutionalisation process performed by investment procedures was not central to our research initially. It did, however, prove to be highly relevant over the course of our empirical study to understand the social dimensions of these procedures. It is for this reason that we have chosen it as the central axis of analysis. The gap between what our codes describe and the angle of attack finally chosen to analyse these codes may seem troubling. In fact, this echoes a frequent misconception regarding qualitative data analysis: the assumption that the coding somehow constitutes analysis (Anderson-Gough *et al.* 2005). In the following part dedicated to the results of the empirical study, we will see how the formal features of investment procedures participate into the three conditions of the production of social roles through institutionalisation, namely the objectivation, the stabilisation and the subjectivation.

4. Social roles emerging from investment procedures

From this empirical study, we intend to analyse the process of institutionalisation through investment procedures as much in their form as in their content. Investment procedures actually present two major features of form: use of the written word coupled with recourse to

⁴ To triangulate data collected in the investment procedures, interviews were conducted in the departments supervising procedure (management control, departments specifically managing investments or financial departments according to each case).

⁵ The complete results from this study are available in the following report: Pezet A. (2004), "Les procédures d'investissement des entreprises. Une étude comparative", *Cahier de recherche du Crefige*, Université Paris Dauphine. This report includes the six monographs, summary tables and a comparative analysis of the investment procedures.

⁶ As written previously, the initial coding framework is built on 5 codes: the procedures' form, definitions, involved actors, thresholds and methodologies for investment valuation

technologies of the intellect. These two features play a full role in the process of institutionalisation as defined by Hasselbladh and Kallinikos (2000) by delimiting the domain of action (objectivation), by defining the principles of performance and the rules of conduct (stabilisation), and by producing social roles (subjectivation).

4.1. Objectivation: Defining a Delimited Domain of Action

The procedure plays a role in defining a delimited domain of action by objectifying ideals and discourse through written formalisation. Ideals and discourses⁷ are, here, of two orders: firstly, a national or international level – macroscopic; secondly, a corporate level – mesoscopic⁸. The first level may be spotted in political and administrative discourses. A case in point, a report by the French Senate (Senate Report, 2002/2003) contains several indications of national ideals regarding investment: the link with growth, the growing intangibility of investment, the need to promote innovation, and the perception that France (and Europe) is lagging behind the United States. The mesoscopic level, i.e. the corporate level, may be seen in the strategies and policies developed by senior managements. A brief investigation of the six companies in the empirical study (annual reports and Internet sites) shows that the most frequently used categories in strategic discourses are: growth and internationalisation, value creation and profitability, competitiveness and leadership, innovation, and a client orientation. National ideals and corporate discourses therefore overlap to a large extent and constitute a framework for demarcating the procedure's domain of action.

In the procedures studied, the domain of action appears in two forms: defining the procedure's goals and defining the investment. The procedure's goals are of different natures: framing the investment process(es) within a company; defining a common vocabulary or ensuring the methods used are homogeneous; guiding operational managers in how to design investment projects; presenting commitments made by operational managers in the requests themselves; or implementing strategy, creating value or controlling profitability.

Two large categories of goals emerge from this succinct inventory. Firstly, the procedural text underlines the scope of the device for operational managers (on one hand: framing – guiding – commitment; on the other: language – homogeneity). This is, therefore, a matter of creating conditions for the production of social roles by implicating and controlling operational managers and by establishing a common reference, in other words, by creating a world of investment decision-making with its own rules, codes and role-types. Secondly, the formally drawn-up goals written down in procedure manuals create conditions for investment decision-making that are consistent with the ideals and discourses uttered by corporate management boards (growth and internationalisation, value and profitability, competitiveness and leadership, innovation, and a client orientation). We can therefore see that the defining of the domain of action that is delimited by the investment procedure hinges on the formulating of its goals. This formulation may take the form of a diagram like ALU's "*virtuous cycle of investment*" as illustrated below.

⁷ This task of analysing ideals and discourses would demand a specific work of research. Here we will limit ourselves to giving several snapshots.

⁸ We will hold the term microscopic in reserve for a future study into management devices.

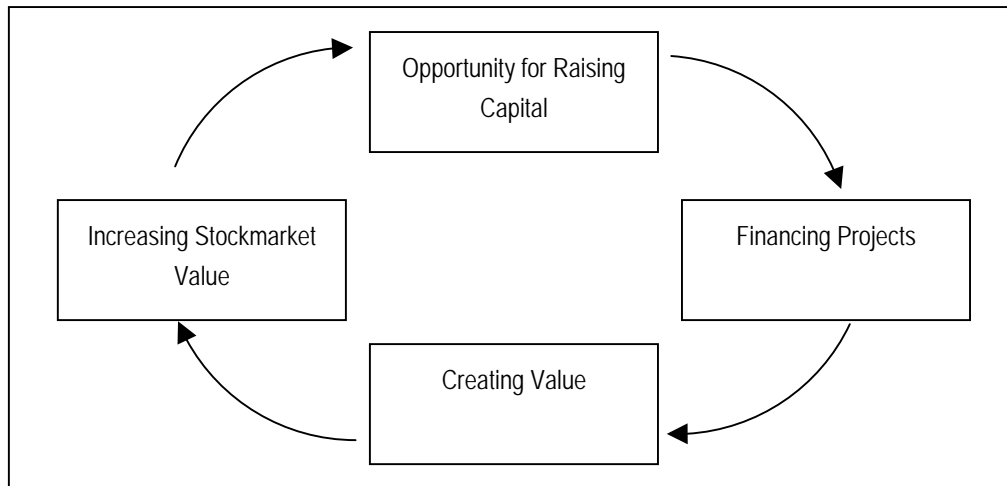


Exhibit 3: ALU's "Virtuous Cycle of Investment"

In one glance, the actors visualise the major aims of investment according to ALU's senior management. This formalisation facilitates the transcribing of these aims into the ways actors think in the form of a cycle that regenerates in a virtuous manner. Positioned as the header to the procedural document, this diagram configures the reader's way of thinking (the person who will request an investment project, the person who will control it, or the person who will approve it) by placing him or her at the heart of the main aims set out, in particular, the creation of value. This first configuration of the actors' roles can be found in another form in the definition of the investment itself.

The definition of the investment, as presented in the procedures we have studied, appears polymorphous: using accounting terms (fixed assets, current assets, asset base), economic terms (a set of expenditures, capitalised or not, a project with its own economic justification), and through opposition (capital expenditure costs as opposed to running or maintenance costs). However, the most salient feature is the scope of the boundary set in all of the companies and, in particular, with regard to intangible costs and IT systems.

The boundary of PARTS' investment procedure covers capitalised expenditure whose fixed assets are produced internally, leasing contracts and long-term leases but also non-capitalised expenditure: investments partially taken on by the client (equipment), the cost of studies linked to the project, social and restructuring costs, and the costs of leasing real estate, strategy and communication consulting, purchasing, leasing or the internal and external development of IT programmes.

(PARTS Monograph)

Defining the investment no longer just covers physical capitalised expenditure, but also encompasses all tangible resources or resources that will yield neither tangible nor intangible future gain. The domain of action is considerably enlarged, submitting numerous expenses to the procedure, to its rules, codes and measurements. This extension of the domain of action is in line with new investment ideals – see above – and, in particular, the growing intangibility of investments (Senate Report, 2002/2003).

The main forms of concretization at this stage are the text and the typology. The text enables boundaries of what an investment is to be set in principle, and consequently the boundaries of action of those who use it as shown the following definitions extracted from two procedures:

“We call an [investment] project a set of capital expenditures and/or charges that are involved in achieving a determined goal, possessing a justification and/or its own profitability.” (AERI Monograph)

“Capital expenditure traded for creating or acquiring assets designed to serve the company’s activity in a sustainable way.” (ALU Monograph)

However, the definitions are sufficiently loose to leave actors margin for maneuver: capital expenditure *and/or* charges, justification *and/or* profitability, the use of “and/or” leaves actors with considerable freedom; “*to serve the company’s activity in a sustainable way*” is sufficiently imprecise to cover a variety of projects⁹.

In addition to the written form, defining the investment also relies on cognitive artefacts. The investment may be classified according to diverse typologies: previous / current; strategic / non-strategic (depending on a monetary sum or a group decision); by targeted function (growth, renewal or maintenance, compliance, productivity, energy savings, R&D, quality, anti-pollution, health and safety, social, administrative or commercial investments); or by categories internal to the company in question (inside or outside a product range in the automobile sector, a client project or not in the automobile equipment sector, or a technical category in the Airline industry). PHAR thus has three large “project categories” from amongst which the project supervisor must choose:

Project Category	Description
COMP Compliance	<ul style="list-style-type: none"> Investments made to address regulatory matters, to prevent or reduce damage to the environment, to improve safety and working conditions, to promote good manufacturing practices The economic benefits of those investments are mostly measured by the risk taken if they were not implemented.
MIB Maintenance / Improvement of Business	<ul style="list-style-type: none"> Replacement of an existing asset that has exhausted its useful life Investments with qualitative benefits such as software update Site infrastructure improvement The economic benefits of those investments are mostly measured by the risk taken if they were not implemented.

⁹ In this respect, definitions of procedures broadly correlate to IFRS norms. IFRS 16 deals with “Property, Plant, and Equipment”, meaning the “*tangible assets held by an enterprise for use in the production, supply of goods or services, rental, or administration purposes, and are expected to be used during more than one period*”. IFRS 38 deals with intangible assets, meaning “*identifiable, non monetary assets without physical substance, held for use in the production, supply of goods or services, rental to others, or administration purposes.*” (Van Greuning & Koen, 2000).

RPG Revenue and Profitability Growth	<ul style="list-style-type: none"> • New capacity or increase of an existing one • Investments with quantitative benefits such as product/process feature improvements driving immediate cost savings. • The economic benefits of those investments can directly be identified and measured
---	--

Table 3: An Example of an Investment Typology (PHAR)

Depending on the category to which it belongs, the project may be subject to a different treatment (a multi-criteria analysis, for instance, for projects whose financial profitability is impossible to calculate). These lists (that can be mechanised and transformed into drop down lists) guide operational managers and limit their range of choice. The development of a project begins with a closed choice from the categories proposed; this choice may then determine the direction the project takes. We can thus see, behind the desire to control projects from the moment they are defined, that an opportunity has been left open for operational managers to qualify their project and so to “play” with the delimited domain of action. This is all the more so since defining this domain entails specific correlating performance principles and rules of conduct.

4.2. Stabilisation: Defining Performance Principles

Procedures play a part in defining performance principles and rules of conduct in several ways, and particularly through the compiling of a request for each project, the use of valuation techniques, and the implementing of a process of post-valuation. Procedures contribute to define two levels of performance: the performance of the investment decision-making process and the performance of the investment itself.

The first level of performance is shaped by the degree of automation characterizing the procedure. All of the six studied procedure are available via an Intranet. Throughout the procedures, numerous artefacts rely on automation (PHAR, AUTO, PARTS), where a series of IT tools supplement the procedure (online investment requests, support in calculating, strategic and functional interfacing, etc.). What varies here is how the IT tools are used: from simply making the procedure accessible via a network to designing tools for calculating, supporting decision-making and controlling.

PHAR has set up control and interfacing tools which constitute real instruments to support decision-making. The *Capital Authorization Request*, a benchmark request for investment projects, and the *Interface check list*, an exercise in strategic prioritisation, are available in the form of Word or Excel sheets. The different actors fill out the relevant data fields and/or sign the document electronically for approval. The documents are designed both to gather open opinions (comments, justifications, explications) and to validate closed choices (using numerous *drop down lists*). The coherence of the choices is equally ensured using automatic links between data fields, enabling an opportunity for heightened control.

(PHAR Monograph)

The second level of performance, namely the performance of the investment itself, is defined with the support of valuation techniques. In all the procedures studied, the prescription of one

particular technology of the intellect dominates: the economic-mathematical formula. Classical profitability criteria are used in all the companies studied. Discounted Cash Flow (DCF), Internal Rate of Return (IRR), and pay back, make up the benchmark toolbox, with various particularities depending on the company: the use of the profit index - DCF/I – either as a complement to, or in place of DCF, or even as a norm for approving or rejecting projects; the calculation of discounted pay back; the non-use of DCF and the priority accorded to pay back using a norm determined by senior management; the priority accorded to DCF for strategic projects and to pay back for minor projects. Overall, the DCF formula dominates to a large extent.

Goody (1977) qualifies the formulae as “*fixed statements of relationships in abstract form; indeed, they [...] bear a minimal resemblance to the speech of ordinary [...]*” (p.198). Expressing DCF derives from the mathematical formalisation:

$$DCF = \sum [CF / (1+i)^n] - I$$

Yet its content is essentially economic: the project’s forecast cash flows (CF), over the duration of the investment (n), discounted at the discount rate i, minus the amount initially expended (I). DCF is therefore based on forecasts of demand, production, price, costs, etc.; on the average weighted cost of capital; on a provisional estimate; that is to say, on economic data. The mathematical formulation is only auxiliary, translating an economic reflection to produce an “abridged version” that is readable, adaptable and comparable¹⁰. Deploying it produces several consequences.

The first consequence concerns the very composition of artefacts such as DCF or IRR: only quantifiable data have their place here. This primacy granted to figures over qualitative data (strategic, social or environmental) significantly limits the actors’ analytical capability. It fosters an all-too-narrow vision of how a company really runs (Adler, 2000). Calculating DCF and IRR generally does not take into account the transverse consequences of the investment on the whole of a company’s processes (the productivity of operations outside the process targeted by the investment, for example). This is the reason why companies develop in parallel complementary methods. Beyond these essentially financial metrics, all the procedures analysed in the study recommend the use of non-financial, even non-quantitative data – soft data. A series of data on markets, competition, technology, scheduling, social and environmental impact, etc., is called upon in decision-making on a par with financial values. Their significance is generally reiterated as well as their complementarity, even superiority, to financial criteria.

Even though profitability analysis criteria aim to “*give in easily understood terms an idea of the profitability of the investment considered*”, MAT’s procedure states that, “in practice, contrary to the situation-type often chosen for academic presentations, we can see that *the role of profitability criteria is rarely to classify the set of investment projects open to a company by order of decreasing profitability and thus to optimise the use of available funds. In fact, more often, investment decisions made by a company present themselves sequentially over time*”. As a general rule, financial criteria are considered non-preponderant: “*We should keep in mind that the profitability criterion is a*

¹⁰ We will not enter here into the technical debate over the comparability of DCF or IRR measurements.

generally necessary but insufficient criterion in itself and that it may sometimes be dominated by the strategic criterion”.

(MAT Monograph)

An awareness of the limiting of actors' analytical capabilities to numerical data alone is therefore strong in the companies studied. The adoption of soft data as a complement to financial devices improves the actors' analytical capabilities, but also makes more complex operations of data manipulation that are the foundation for dialogue between actors and for comparing projects.

The second consequence can be found in the actors' capacity to perceive time. Investment projects are conjugated in the future tense. Data are provisional and the horizon may be more or less distant, even unpredictable (calculations of profitability are generally done using conventional durations whereas certain investments – a production site, for example – will have very long life spans). Artefacts such as DCF or IRR, and especially pay back, brutally shut down the temporal horizon: DCF, and so the IRR, through the choice *ex ante* of an often reduced lifespan for the investment; pay back by its very outcome since any period following the moment of pay back is not considered. The visionary capacity of the actors is therefore limited by these intellectual technologies. This effect is strengthened by the use of a discount rate that mechanically reduces the value of the investment's gains from year to year. Finally, the traditional toolbox may induce behavioural bias: managers will tend to favour short-term profits and thus the most profitable projects within this timeframe for which managers will be judged.

The third consequence springs from the conversion, using a mathematical formula, of economic data that is “living” because it is provisional, into an object that has certainly become more malleable but also far less comprehensible in its entirety. We thus trade off complexity for apparent simplicity or, to use Latour's (2004) imaginative terminology, “*hairy*” objects with plenty of potential snags for “*bald*” unassailable objects. Actors thus lose out in analytical capability what they gain in apparent ease of reading, comparability and opportunity for dialogue. Project valuation therefore errs between economic-mathematical artefacts (smooth, but fostering operations of manipulation like comparison) and more complex data (rough, but preserving the intrinsic qualities of a project). However, the search for a balance between financial criteria and soft data remains affected by a context that leans heavily towards the modern paradigm of investment choice.

The methods used in companies are in fact strongly linked to the system of decision-making rules: according to Kogut and Kulatilaka (1994), these rules are based on heuristics that reflect the “*conventional wisdom*” that lead us to expect the best performances. A heuristic is a trade-off between ease-of-use and relevance. Thus, stating that projects with a strong DCF will be carried out is a heuristic. The heuristic described by Kogut and Kulatilaka resembles a genuine programming of decision-making (and of minds?). The strength of the paradigm derives from the community of thought that is reinforced, again according to the authors, by other factors from inside and outside the company. The integration amongst investment choices, budgetary systems and strategic planning is strong (this point appears in the research as being particularly verified). So, budgetary rules, enforced in the majority of companies, are based on the toolbox (DCF, IRR and pay back) when it comes to programming investments. These methods attain a high rate of reoccurrence in the budgets calendar (generally annual)

and become routinised. Furthermore, heuristics of strategic planning (strategic matrices or structural analysis) based on decreasingly relevant patterns (economies of scale, market share, etc.) reinforce the effects of traditional devices for investment choice.

A common logic stands out from these related devices, which favours existing activities to the detriment of new products or processes. In parallel, the division of companies into *Strategic Business Units*, which partition companies according to the dichotomy products / markets, is a brake on the development of transversal capabilities and points managers towards short-term profitability, thus accentuating one of the effects of artefacts such as DCF. Finally, the financial markets demand that companies produce short-term rather than long-term profits.

These different heuristics are mutually strengthening to favour the short-term over the long-term, what already exists over innovation, and routine over change. As a general rule, it is uncertainty and a long-term vision that are sacrificed and, as a result, the most innovative investments that are also often the most profitable:

“In growing but uncertain markets, a heuristic that says accept projects that promise to pay 20% on invested assets (or on operating income) conveys the message, ‘Exit the market when uncertain’” (Kogut and Kulatilaka, 1994, p. 56).

Technologies of the intellect that are the foundations of investment project valuation therefore impose structure on actors’ social roles, whether expected or not, and all the more so since these technologies are supported by a context that, itself, imposes strong structure.

4.3. Subjectivation: Producing Social Roles

By delimiting a domain of action and defining performance principles, and through the intermediary of written texts and other techniques of the intellect, investment procedures produce considerable effects on decision-making (a strong or limited analytical capability, a facilitated, or not, comparative activity, etc.). Furthermore, social roles are forged in the procedures in three ways: first, by setting the context in which roles will be delineated, through a choice between bureaucratic formalization and pedagogical purpose; second, by establishing decision-making thresholds and, third, by defining formally the tasks and responsibilities of each person. These features are found in all the procedures studied.

Firstly, companies set the context in which everybody will act as a participant to the investment decision-making process. Two ways of doing were found in our sample: three of the companies establish such a context by a bureaucratic process, two others by pedagogical means. When the bureaucratic way is chosen (AERI, ALU, PARTS), the procedure is signed by its authors, approved by the hierarchy, and provided with a closed list of recipients, etc (see Exhibit 4). The bureaucratic presentation aims to attribute the responsibilities, the powers, and the scope of the procedure’s recipients, and to do this on an individual and nominal basis.

INVESTMENT PROCEDURE

	Name	Title	Date	Visa
Author	Mr X	MC	12/01	<i>mp</i>
Validation	Mrs Y	FD	12/01	<i>er</i>
Approval	Mr Z	MD	11/01	<i>&</i>

DOCUMENT HISTORY

Date	Modification
02/02	Version 1 – Revision 0

LISTS OF UPDATED PAGES

Page	Version	Revision	Date
1 to 50	1	0	12/01

LIST OF RECIPIENTS

Recipient	Number of Copies	Recipient	Number of Copies
Service A	1	Service B	1
Management C	2	Service C	1
ETC.			

Exhibit 4: The bureaucratic style of Procedures, Cover Pages from AERI and ALU

Another way of setting the general context of social roles goes through the adoption of a pedagogical approach. In two companies (PHAR, AUTO), procedures possess a pedagogical character: specific materials supplement the procedure (slide presentations, “leaflets”, etc.). The procedure may also include pedagogical or didactic material to communicate with and to train users.

Pedagogy is an integral part of managing investment at AUTO: pedagogical sheets in the form of small leaflets with humorous illustrations and materials aimed at training demonstrate this point. AUTO also provides, in addition to its formal procedure, a set of documents designed for communication and training.

(AUTO Monograph)

Secondly, the progress of investment projects amongst the different decision-making actors is always a function of monetary thresholds. The delegation of powers is the rule for investment up to an amount defined by senior management. These thresholds are variable from one company to another, and from one type of investment to another. The project may be approved at the business unit level, the branch or division level, or else at the senior management level. Certain companies distinguish approval or granting consent from sponsorship, endorsement or project review. The table below illustrates this delegation of power through thresholds’ setting at PARTS.

On condition of pay back in < 3 years	Budgeted	Non-budgeted
Branch	< = 3 million euros	< = 1 million euros
Branch + Group	> 3 million euros	> 1 million euros

The thresholds are firstly monetary but can also depend on other criteria: here, on pay back and the budgeting of the investment.

Table 4: Delegation Thresholds at PARTS

Thresholds are generally defined on a monetary basis. However, other criteria, and in particular the nature of the investment, may also be taken into account. Thus, subject to lower thresholds are IT projects in several cases, but also real-estate investments, patent-purchasing or expenditure of a social or environmental nature. These are costs that are generally more difficult to control and whose profitability is not easy to qualify, hence the need to monitor them closely. Setting specific thresholds is a means of strengthening control over these investments.

In one of ALU's divisions, lower thresholds are defined for purchasing patents and licences, land and real-estate, and risky projects such as health, safety or the environment, software, IT hardware for management and communication.

(ALU Monograph)

Furthermore, thresholds that are not strictly monetary are used either to determine the strategic character of certain investments or for specific or low-yield projects.

During the development meetings of the five-year plan at MAT, a list of the main investments the group wishes to validate is drawn up. This enables managers to take into account, over and above the expenditure amounts alone, inexpensive but strategic investments; in particular in the small companies within the group. Indeed, the diversity of business units that make up the group would not allow us to spot investments that are important or not, by imposing rigid delegation thresholds. A role is therefore granted to judging on a case-by-case basis, as well as a role played by the wider context of managing a diverse group.

(MAT Monograph)

At PARTS, the threshold is higher (and so delegation is more widespread) for projects linked to the client's needs. On the other hand, all projects with payback of 3 or more years are supervised by senior management. Furthermore, decision-making on redundancy plans, which are subject to investment procedures, is delegated according to thresholds defined by staff.

(PARTS Monograph)

By setting decision-making thresholds, we create roles and at the same time clearer boundaries delimiting the domain of action. Roles and domains of action are mutually enmeshed resulting in each actor having a precise corresponding function, with a precise level of involvement, monetary or not. Setting thresholds is a matter of remote action. Recourse to

procedural texts and the technologies of the intellect that thresholds represent follows on from this remote action, very accurately delimiting the actors' areas of implication, with the head of the hierarchy defining the roles remotely.

In addition to thresholds defining the areas and levels of actors' implication, investment procedures include important developments focusing on actors' different functions, missions and responsibilities. Several major features emerge from the study. The first is the existence of departments managing investment. Indeed, although management control remains a major actor in the process, departments managing investment appear in two companies. In both cases, they are nonetheless supervised by central management control.

PHAR has thus set up functions and structures aimed at investment: *Capital investment manager*, under the authority of the *Corporate controller*, *Capital management committee*, *Capex coordinator* or *Corporate Capex team*, for example.

(PHAR Monograph)

AUTO has set up a management team dedicated to managing investment, the Board of investment control that counts around thirty people. Supervised by the management control board, it plays a role in the whole process from preparing the outline of investment policy to managing the accounting of assets. Its role is important when drawing up and appraising investment requests. Its action is relayed by correspondents throughout the different management teams and professions. It is also charged with managing procedures and training with respect to investment.

(AUTO Monograph)

Committees to manage investment are sometimes set up. They differ from *ad hoc* committees or planning and budgetary meetings that occur in other companies because of the permanent nature of their composition. This first feature translates the need to coordinate and control investment projects highly.

Thirdly, an important characteristic concerns commitments made by operational managers. If validated at a competent level of the hierarchy, the investment project also particularly implicates the responsibility of the project manager or the principal investment supervisor. This person is committed to providing quality data for decision-making, to ensuring the best implementation of the investment and then overseeing the effective achievement of the programmed outcomes. This role is therefore central to all procedures. However, it may be more or less formalised.

The decision-making process at AUTO is based on an investment project contract, a document of approximately thirty pages that implicates operational managers. This document was first released in 1999, replacing the investment project request: the change in terminology clearly marks a desire to contractualise the process.

(AUTO Monograph)

In a way that is consistent with the idea of contractualisation, the definition of the investment is also complemented with the definition of the project as a coherent set of capital

expenditures with specific goals or a strategic investment that, due to its size, nature or impact on the company's activity, may be treated in a specific manner. This second feature translates the need for *a priori* commitments made by operational managers to their hierarchy.

Finally, the last feature is present in all the procedures analysed. Consultation with functional departments is always required. Project managers are called to consult with experts from the marketing, sales, technical, information-technology, staff management and financial fields. Once again, this is done in a more or less formalised manner. Certain procedures include this consultation in the request itself; others mention it as a mandatory step but without formalising it explicitly. PHAR has formalised the interfacing process through a specific document that includes mandatory and optional interfaces:

MANDATORY INTERFACES

These interfaces confirm the need for implementing this project; they are mandatory and must be completed when applicable before submission of your project.

	Interface checked?	Actions taken
<ul style="list-style-type: none"> • Engineering (if applicable) <u>Objectives:</u> Justify the needs for the project related to replacement of equipment and site infrastructure 	Yes No <input type="checkbox"/> <input type="checkbox"/>	<i>e.g. Statement from Engineering</i> •

Exhibit 5: Mandatory Interfaces in the Investment Procedure at PHAR

This third feature translates the need for consultation with a wide range of experts when faced with the complexity of decision-making.

The involvement of individual or collective actors is therefore well framed in all the procedures. The roles and responsibility of each one are well defined. Three types of relationship are thus envisaged: a coordination and control relationship which governs the progress of projects amongst those implicated; a hierarchical relationship that submits projects and commitments made by managers to the agreement of intermediary or superior levels of the company (generally according to the amounts – see above - with the support of a sponsor in certain cases); and a functional relationship which submits the project to the expertise of support functions (marketing, purchasing, technical, finance, etc.). The social roles forged by the procedure therefore stem from a three-fold necessity: coordination and control, implication and hierarchy, and expertise.

We can therefore spotlight the major figures (associated with one predominant function) who populate the idealised world of investment decision-making:

- The figure of project manager through his commitments;
- The figure of decision-maker through his/her power (generally hierarchical) to approve, or not, the project's go-ahead;
- The figure of sponsor characterised by the political support that s/he brings to the project manager thanks to his/her intermediary position in the hierarchy;

- The figure of expert characterised by his/her technical competence, whether that be in the financial, legal, marketing, social or production-process fields;
- The figure of coordinator characterised by his/her involvement in ensuring the appropriate use of the procedure and by his/her power to control its form if not also its content.

These major figures define as many ideal roles in the mind of the observer as the corporate world and its managers may care to create around investment. Personification through social roles of the ideals tied to investment is the completion of the process of institutionalisation. It is because these roles internalise *in fine* the ideals and discourses through the mediation of management devices that these very ideals and discourses may be put into practice. This process of institutionalisation maps a pathway between levels of analysis that are commonly kept apart: the discourse, the social and the technical. Investment procedures thus appear as quasi-objects (Latour, 1987) ensuring mediation between the local (the company, even the investment project) and the global (the national or world economy) and between what economic theories would like to explain as a “natural” phenomenon¹¹ (the investment as a response to determinant factors such as forecast demand, the costs of production factors, etc.) and society (how the investment becomes a social phenomenon through its effects on the economy, on employment, etc.).

5. Conclusion

This research has been driven by a strong assumption: considering that the form of accounting devices in itself has a great influence on individual’s roles in organizations. Indeed, studying an accounting device such as investment procedures according to its written properties (textuality and cognitive artefacts) has enabled us to increase the understanding of social dimensions of the institutionalisation process and to better capture how techniques shape society. Thanks to an empirical study conducted in 2004, investment procedures in six large companies in a French context have been analysed. In particular, we have shown how their specific written form takes effect during the process of institutionalisation, through which grand investment ideals (e.g. competitiveness, value creation) are transformed into concrete devices and into roles (Miller, 1991). To highlight accounting devices’ role in the institutionalisation process, we have drawn from sociological concepts stemming from cognitive science (Norman, 1991; 1993) and from social ethnography (Goody, 1977; 1986; 2000) dealing with the characteristics of written texts. In particular, this paper shows that the procedural device closely associates written texts and the use of technologies of the intellect of different kinds. The text of investment procedures is in fact “studded” with cognitive artefacts that go from the simple list to elaborate codifications (financial profitability criteria, for example). Moreover, this text can be automated by using IT tools and the Internet. This meshing of written texts, more or less codified technologies of the intellect, and IT tools produces a complex device whose effects on the institutionalisation process are powerful. In brief, it is argued that (1) the definitions of investment through typologies shape the actors’ boundaries of action; (2) valuation methods based on the domination of economic-

¹¹ Along the lines of the natural or the so-called hard sciences.

mathematical formula favour short-term over long-term reflection; (3) the setting of decision-making thresholds formalise individuals' tasks and responsibilities. Two features of the procedure itself (degree of formalisation of its objectives, degree of automation) sets the context in which social roles will be delineated, through a choice between bureaucratic formalization and pedagogical purpose. Therefore, the very form of procedures shape each phase of the institutionalisation process <objectivation – stabilisation – subjectivation> as defined by Hasselbladh and Kallinikos (2000) and contribute to creates a singular world – that of investment decisions.

The two main limitations of this paper are (1) not to explain how society has come to this shaping of the world of investment decision by the financial paradigm and (2) to focus solely on a norm. About the first limitation, the omnipotence of the financial paradigm for investment decision-making is actually taken for granted in this paper. The story of the process leading to this omnipotence is in fact the subject of another paper in progress dealing with the historical evolution of grand investment ideals. As far as the second limitation is concerned, the investment procedure is definitely a normative device. It doesn't mention anything about what practices are really like. However, the goal of this work is precisely to focus on the norm, on its structuring impact, and on what leaders want in terms of investment, rather than on what they actually get. Furthermore, the analysis of real capital authorization requests (three companies on the six that participated into this research gave us access to them) leads us to the conclusion that practices are ahead of the norm. Organizational actors give much more information than required in investment procedures when they initiate an investment decision-making process confirming the importance of the procedural device in the shaping of investment decision-making. Indeed, the few requests that we were able to consult include developments that go beyond the requirements of the procedure: for instance, calculations of EVA or comments provided on social or environmental impact do appear in the requests. However, a more in-depth analysis of their content would require another article.

Eventually, this article explores one of the boundaries of neo-institutional studies. Overly macroscopic (or mesoscopic), most neo-institutional studies do not study microscopic devices through which grand ideals and discourses are institutionalised (Hasselbladh, Kallinikos, 2000). How can we shift from an ideal of growth and competitiveness and a discourse of value creation or innovation, to its concrete practice with respect to investment? It is to this question that we have attempted to sketch some elements of an answer. Studying ordinary procedures – such as an investment procedure or a DCF as above – has enabled us to understand how the actors' roles are forged. Studying the particular forms of this procedure – the recourse to the written word and to cognitive artefacts or technologies of the intellect – has enabled us to understand how individuals' capabilities are stretched between analysis and synthesis, between long- and short-term vision, between autonomy and control, etc. This complex and largely hybrid blend of individuals, roles, capacities, artefacts of all kinds, discourses and ideals, shapes the world of investment decision-making. This world has consequences on the outcomes of decision-making (Porter, 1992; Hayes *et al.*, 1988) in terms of national competitiveness, the allocation of resources between the short-term and the long-term, between the tangible and the intangible, between the old and the new, etc. This is why it is necessary to fully understand its causes.

Bibliography

- Adler R. (2000), "Strategic Investment Decision Appraisal Techniques: the Old and the New", *Business Horizons*, November-December.
- Ahrens T., Chapman C.S. (2006), "Doing qualitative field research in management accounting: positioning data to contribute to theory", *Accounting, Organizations and Society*, 31/8, 819-841
- Anderson-Gough F., Grey C. and Robson K. (2005), "'Helping Them to Forget.' the organizational embedding of gender relations in public audit firms", *Accounting, Organizations and Society*, 30/5, 469-490
- Baxter J., Chua W.F. (2003), "Alternative Management Accounting Research-Whence and Whither", *Accounting, Organizations and Society*, 28, 97-126.
- Bouquin H. & DeBodt E. (2001), "Le contrôle de l'investissement", in Charreaux G., coord. (2001), *Images de l'investissement*, Paris, Vuibert.
- Bower J. (1970), *Managing the Resource Allocation Process: a Study of Planning and Investment*, Boston, Harvard University Press.
- Boussard V., Maugeri S. (2003), *Du politique dans les organisations. Sociologies des dispositifs de gestion*, Paris, L'Harmattan, coll. "Logiques sociales".
- Burchell S., Clubb C., Hopwood A.G., Hugues J., Nahapiet J. (1980), "The roles of accounting in organizations and society", *Accounting, Organizations and Society*, 5/1, 5-27.
- Burchell S., Clubb C. & Hopwood A. (1985), "Accounting in its Social Context: Towards a History of Value Added in the United Kingdom", *Accounting, Organizations and Society*, 10/4, 381-413.
- Calás, M. B., Smircich, L. (1999), "Past Modernism? Reflections and Tentative Directions", *Academy of Management Review*, 24/4, 649-671.
- Covaleski, M. A., Dirsmith, M. W., Samuel, S. (1996), "Managerial accounting research: The contributions of organizational and sociological theories", *Journal of Management Accounting Research*, 8.
- Dambrin C., Lambert C., Sponem S. (2006), "Control and Change – Studying the Process of Institutionalisation", *Cahier de recherche*, CR842, HEC School of Management, Paris.
- Engel F., Fixari D., Pallez F. (1984), *Logique des choix d'investissement dans les grands groupes industriels. La place du calcul économique*, Paris, Ecole des Mines.
- Eisenhardt K.M. (1989), "Building theories from case study research", *Academy of Management Review*, 14/4, 532-550.
- Girin J. (1981), *Les Machines de gestion*, Paris, Ecole Polytechnique.
- Goody J. (1977), *The Domestication of the Savage Mind*, Cambridge University Press.
- Goody J. (1986), *The Logic of Writing and the Organization of Society*, Cambridge University Press.
- Goody J. (2000), *The Power of the Written Tradition*, Washington, Smithsonian Institution Press.
- Graham J., Campbell R. (2001), "The Theory and Practice of Corporate Finance: Evidence from the Field", *Journal of Financial Economics*, 60, p. 187-243.
- Hasselblad H., Kallinikos J. (2000), "The Project of Rationalization: A Critique and Reappraisal of Neo-Institutionalism in Organization Studies", *Organization Studies*, 21/4, pp 697-720.
- Hayes R., Wheelwright S. & Clark K. (1988), *Dynamic Manufacturing – Creating the Learning organization*, New York, The Free Press.
- Hopwood A.G. (1976), Editorial, *Accounting, Organizations and Society*, 1, 1-4.
- Hopwood A.G. (1983), "On trying to study accounting in the context in which it operates", *Accounting, Organizations and Society*, 8, 287-305.
- Hopwood A.G. (1987), "The archaeology of accounting systems", *Accounting, Organizations and Society*, 12, 207-234.
- Hopwood A.G. (2005), Editorial- After 30 years, *Accounting, Organizations and Society*, 30, 585-586.

- Hopwood A.G., Miller P. (eds) (1994), *Accounting as Social and Institutional Practice*, Cambridge University Press.
- Kogut B., Kulatilaka N. (1994), "Options Thinking and Platform Investments: Investing in Opportunity", *California Management Review*, 36/2, p.52-63.
- Kostova, T., Roth, K. (2002), "Adoption of an organizational practice by subsidiaries of multinational corporations: institutional and relational effects", *Academy of Management Journal*, 45, 215-233.
- Latour B. (1987), *Science in action*, Harvard University Press
- Latour B. (1996) "Que peuvent apporter l'histoire et la sociologie des sciences aux sciences de gestion", conférence aux XIII^e Journées Nationales des IAE, ESUG Toulouse.
- Latour B. (1997), *Nous n'avons jamais été modernes. Essai d'anthropologie symétrique*, Paris, Editions La Découverte / Poche, 1st edition in 1991.
- Latour B. (2002), *La fabrique du droit. Une ethnographie du Conseil d'Etat*, Paris, Editions La Découverte, coll. "Armillaire".
- Latour B. (2004), *Politiques de la nature. Comment faire entrer les sciences en démocratie*, Paris, Editions La Découverte / Poche.
- Meyer, J. W., Rowan, B. (1977), "Institutionalized organizations: formal structure as myth and ceremony", *American Journal of Sociology*, 83, 340-363.
- Miller P. (1990), "On the interrelations between accounting and the state", *Accounting, Organizations and Society*, 15/4, 315-338.
- Miller P. (1991), "Accounting Innovation beyond the Enterprise: Problematizing Investment Decisions and Programming Economic Growth in the UK in the 1960's", *Accounting, Organizations and Society*, 16/8, 733-762.
- Miller P. (1994), "Accounting as a Social and Institutional Practice: an Introduction", in Hopwood A. & Miller P. (ed.), *Accounting as Social and Institutional Practice*, Cambridge University Press, 1994.
- Miller P., O'Leary T. (1987), "Accounting and the construction of the governable person", *Accounting, Organizations and Society*, 12/3, 235-265.
- Miller P., O'Leary T. (1994), "Accounting, 'Economic citizenship' and the Spatial Reordering of Manufacture", *Accounting, Organizations and Society*, 19/1, 15-43.
- Miller P., Rose N. (1990), "Governing economic life", *Economy and Society*, 19/1, 1-31.
- Norman D.A. (1991), "Cognitive Artifacts", in Carroll J.M. (eds), *Designing Interaction – Psychology at the Human-Computer Interface*, Cambridge University Press.
- Norman D.A. (1993), "Les artefacts cognitifs", *Raisons Pratiques*, 4, 15-34.
- Pezet A. (1998), "La procédure d'investissement en pratique : l'impossible contrôle ?" *Entreprises et histoire*, Décembre.
- Pike R. (1996), "A Longitudinal Survey on Capital Budgeting Practices", *Journal of Business Finance and Accounting*, 23/1, 79-92.
- Porter M. (1992), "Capital Disadvantage: America's failing capital investment system", *Harvard Business Review*, 70/5, 65-83.
- Power M. (1997), *The Audit Society. Rituals of Verification*, Oxford University Press.
- Segelod E. (1995), *Resource Allocation in Divisionalized Groups. A study of Investment Manuals and Corporate Level Means of Control*, Avebury.
- Segelod E. (1996), "Corporate Control of Investments and Management Styles", *International Journal of Production Economics*, 43, 227-237.
- Segelod E. (1998), "Capital budgeting in a fast-changing world", *Long Range Planning*, 31/4, 529-541.
- Senate Report n°35 – Ordinary Session, (2002/2003), Kergueris J., France.
- Tolbert, P. S., Zucker, L. G. (1996), "The institutionalization of institutional theory", in Clegg S. R., Hardy C. & Nord W. R. (Eds.), *Handbook of organization studies* (174-190), London, Sage Publications.

Townley, B. (1995), "Managing by numbers: accounting, personnel management and the creation of a mathesis", *Critical Perspectives on Accounting*, 6, 555-575.

Van Greuning & Koen (2000), *International Accounting Standards. A Practical Guide*, Washington, The World Bank.

Yin R. (2003), *Case Study Research*, Sage Publications.