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Nathalie Mitev, François-Xavier de Vaujany, Martin Giraudeau

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**INFORMATION SYSTEMS
AND INNOVATION GROUP**
Department of Management



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Department of Accounting

3rd Organizations, Artifacts and Practices (OAP) Workshop

Time, History and Materiality

in Management and Organization Studies

13th and 14th June 2013

London School of Economics, London, UK

Event in partnership with the French Institute

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CALL FOR CONTRIBUTION

The OAP workshops were launched in 2011 with the goal of facilitating discussion among scholars from various disciplines (e.g. management, organization studies, accounting, sociology, ergonomics, computer science, information systems, psychology...) who collectively share an interest in understanding the dynamics that exist between organizations, artifacts (ICTs, managerial technologies, calculating machines, accounting devices, cognitive schemes, buildings, symbols...), and practices. They are particularly focused on the debates about sociomateriality and sociomaterial practices in organizations (Leonardi and Barley, 2010; Orlikowski and Scott, 2008).

The second workshop focused on space and materiality and our keynote speakers were Andrew Pickering, John Urry, Stewart Clegg, Dick Boland and Lucas Introna. The workshop in 2013 will concentrate on time, history and materiality. How do researchers in management and organization studies make sense of time? How do sociomaterial practices and material artifacts evolve through time? How are material traces used to follow organizational dynamics? Does using a long-term perspective lead to different conceptualizations of organizations and material practices? OAP 2013 will focus on the theoretical and epistemological studies on time and historicity in management and organization studies.

This third workshop will aim at exploring the following topics:

- Time and temporal orientation of organizational change;
- Time as a (control) tool in organizations;
- Historical perspectives about organizations;
- Long-term perspectives about sociomateriality and material spaces;
- Historiography and material artifacts;
- Phenomenology and time in organizations;
- History of IT, IS and managerial techniques;
- The entanglements between the material and social dimensions of organizational practices, and their dynamic;
- Post-Marxist perspectives on materiality and time in organizations;
- Material time vs. organizational time;
- Material artifacts and organizational temporal dynamics;
- History of managerial techniques and devices and their cultural/material underpinnings;
- History of service vs. industry oriented activities and their material significance.

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WELCOME

We are delighted to welcome you to the third OAP workshop! After Paris in 2011 and 2012, it is a pleasure to now meet in London, for a new series of exciting presentations and debates on organisations, artefacts and practices.

This year's theme is a challenging one. Time flies: nothing is less material than time. And yet the past is all around us, as historians and archaeologists know well: it is right here, materialised into archives and remains. The future itself surrounds us, in the shape of budgets and projects, forecasts and plans. Making sense of the relations between 'time, history and materiality' therefore requires shrewd observation and acute conceptualisation, as well as a broad diversity of approaches.

We are particularly pleased with the quality of the submissions we received, and with the high number of disciplines, of intellectual traditions, of research methods that are being represented in the workshop. Thanks very much to all of you for your interest in the project, and for joining us at LSE for these two days. We look forward to meeting you in person, to listening to your presentations and questions, and to engaging with your research. We hope that you will enjoy the event and gain useful insights from it.

Special thanks are due to the three inspiring speakers who have kindly accepted to deliver the keynote lectures: JoAnne Yates, François Hartog and Michael Rowlinson. We have no doubt that their presentations will shape debates in all other sessions of the workshop and impact us all. We are also especially thankful to those of you who have agreed to chair sessions and ensure the coordination of exchanges within these. A couple of other individuals were instrumental in the organisation of the workshop and their contribution must be acknowledged publicly: Justin Adams, Magda Hercheui, Wifak Houij-Gueddana, H el ene Lambrix, Pierre Laniray, S ebastien Lorenzini, Eliel Markman, Yesh Nama, Florence Parent, Christine Vicens – and Frances White, without whom none of this would have taken place.

The event would also have been impossible without the full institutional support of the London School of Economics and Political Science, which is hosting it. More specifically, the Information Systems and Innovation Group at the Department of Management and the Department of Accounting have contributed resources to the workshop and we are thankful to their heads, Wim Van der Stede and Chrisanthi Avgerou for this support. The Universit e Paris-Dauphine as well has continued its generous support to the OAP workshop and deserves our thanks. This French-English collaboration is particularly noticeable this year. The French Institute and Embassy in London have acknowledged it by hosting the main social event of the workshop. May H el ene Zajdela-Insel be thanked for this kind initiative.

The next OAP workshop will be held in Rome in 2014. It will be coordinated by Nathalie Mitev, Fran ois-Xavier de Vaujany and Paolo Spagnoletti and deal with a new exciting topic: 'Materiality, technology and social structures: are we moving towards a liquid world?'. But for now: have a great 2013 OAP! And do please get in touch directly with us organizers if we can be of help in any way during the workshop.

Nathalie, Fran ois-Xavier and Martin

Thursday 13th June 2013

12h00-17h00

Registration

32 Lincoln's Inn Fields, Lower Ground Floor

14h00-16h30	32 Lincoln's Inn Fields Building, Room LG 03 Parallel Session 1 Theme: Historical perspectives on materiality Track chair: Michael Rowlinson (Queen Mary University)	32 Lincoln's Inn Fields Building, Room LG 04 Parallel Session 2 Theme: Historiographies, data and materiality Track chair: Susan Scott (LSE)	32 Lincoln's Inn Fields Building, Room LG 08 Parallel Session 3 Theme: Social and material entanglements across time Track chair: Stefan Haefliger (Cass Business School, London)	32 Lincoln's Inn Fields Building, Room LG 10 Parallel Session 4 Theme: Information technology, information and materiality in organizations Track chair: Geoff Walsham (Judge Business School, Cambridge University)
14h00-14h30	‘Our large business is flourishing.’ Pierre Samuel Dupont de Nemours, projector (1739-1817) Martin Giraudeau, LSE	Data and Time at the Large Hadron Collider, CERN Will Venters, LSE	Tracing materiality or materialising the traces: an investigation into rules, scripts and organising practices Christine McLean and Jeremy Aroles, Manchester Business School	Ignorance-based management and non-information systems as sources of organizational inertia Philippe Lorino, ESSEC, Paris
14h30-15h00	What impact do various sociomaterial assemblages have on collective thinking activities? Philippe Eynaud, Institut d'Administration des Entreprises, Paris and Julien Malaurent, École de Management de Lyon	Mutability and Becoming: Materializing of Public Sector Adoption of Open Source Software Maha Shaikh, Warwick Business School	Producing Outputs to Materialized Time: An Issue of Organizational Time Making Anthony Hussenot, Université Paris-Dauphine and Stephanie Missonier, HEC Lausanne	Social media as a trigger of organizational time speed-up Kseniya Navazhylava, HEC Paris
15h00-15h30	BREAK	BREAK	BREAK	BREAK
15h30-16h00	Fairtrade standards, traces of faire trade history Nadine Arnold, University of Lucerne	Applying the “Biography of Artefacts” Approach to an Organizational Technology: The Case of Contract Management Software Carolyn Paris and Susan Scott (LSE) and Wanda Orlikowski (MIT)	A matter of time! Maintaining reputation when the Omerta is broken: an historical approach of hazing in French universities Helene Lambrix, Université Paris-Dauphine	Epistemic Actions in Visual Strategy Ideation: Exploring the (re-)appropriation of visual artefacts for strategy making Alice Comi, University of Reading and Martin Eppler, University of St Gallen

16h00-16h30	Memory and sociomateriality Lucas Introna, Lancaster University	Quality Vs. Quantity and the Open Source Biography Wifak Houij Gueddana and Nathalie Mitev, LSE	The principles of campuses development: a morphological and functional genealogy. What kind of knowledge can we use from an historical analysis for the design of a new campus in Saclay? Caroline Scotto, École des Mines Paris-Tech	Examination of the Strategic Alignment Literature in IS: A Case of Dissociation Alexandre Renaud, FBS and Paris-Dauphine, Isabelle Walsh, Rouen Management School and Michel Kalika, Université Paris-Dauphine
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17h00-17h30

**Opening by Professor Peter Miller (Department of Accounting, LSE)
Welcome address by the French Ambassador in London**

New Academic Building Wolfson Theatre Lower Ground LG01

17h30-18h30

Keynote Address
Professor François Hartog (École des Hautes Etudes en Sciences Sociales–Paris)
“The Historian’s Present”

New Academic Building Wolfson Theatre Lower Ground LG01

19h30-21h00

Social event at the French Institute, South Kensington

Friday 14th June 2013

9h00-9h30

Welcome coffee (and registration)
New Academic Building, Lincoln's Inn Fields Entrance, 8th Floor

9h30-10h30

Keynote Address
Professor JoAnne Yates(MIT– Cambridge, Mass.)
“Time, materiality and organizational histories”

New Academic Building Wolfson Theatre Lower Ground LG01

10h45-
12h15

32 Lincoln's Inn Fields Building,
Room LG 03
Parallel Session 5
**Theme: Measuring and
accounting for time in
organizations**
**Track chair: Andrea
Mennicken (Department of
Accounting, LSE)**

10h45-
11h15

The Spatial downgrading of
accounting clerks. The case of Pont-
à-Mousson
**Pierre Labardin, Universite Paris-
Dauphine**

32 Lincoln's Inn Fields Building,
Room LG 04
Parallel Session 6
**Theme: Space and time in
organizations**
**Track chair: Philippe Lorino
(ESSEC, Paris)**

The transfer of organizational space
in globally dispersed organizations:
Organizational members' diverse
experiences across national sites
**Sara Värlander, Pamela Hinds and
Bobbi Thomason, Stanford
University**

32 Lincoln's Inn Fields Building,
Room LG 10
Parallel Session 7
**Theme: Theoretical and
methodological perspectives on
time in organizations**
**Track chair: Lucas Introna
(Lancaster University)**

The Phenomenology of Time:
Reflections from the *Lebenswelt*
**Gabriel Costello, Galway-Mayo
Institute of Technology and Brian
Donellan, National University of
Ireland**

32 Lincoln's Inn Fields Building,
Room LG 18
Parallel Session 8
**Theme: Identity and materiality
in organizations**
**Track Chair: Philippe Eynaud
(IAE Paris Universite Pantheon
Sorbonne)**

Where is Affect, and Why Does This
Matter?
**Mark Thompson, Judge Business
School and Hugh Willmott, Cardiff
Business School**

11h15-11h45	Numbers and managerial work in inter-organizational performance evaluation meetings: Moments and their Men Damien Mourey and Géraldine Schmidt, Institut d'Administration des Entreprises, Paris	Playing with material and symbolic space to legitimize an organization: A tale of the NATO commandment room Francois-Xavier de Vaujany, Paris-Dauphine University and Emmanuelle Vaast, McGill University	Exploring the Role of Time in Bricolage Processes: A Human Agency Approach Jessie Pallud, École de Management de Strasbourg and Elie Dit Cosaque, Université Paris-Dauphine	Materiality and Identity: exploring the tiles of practices Pierre Laniray and Stephan Pezé, Université Paris-Dauphine
11h45-12h15	Materialization of 'Integration' Policy: A Case Study in Translating a Template for Action in Conditions of Uncertainty Mikolaj Pawlak, University of Warsaw	How material traces can be used to follow organisational dynamics Emilie Berard, École Supérieure de Commerce, Paris	Tracing time, space and materiality through discourse: the case for critical discourse analysis in the studies of organisation and technology Carla Bonina, LSE	ICTS and changing rhythms of work Ela Klecun, LSE

12h30-14h00

Buffet Lunch

Address by **Professor Arnaud Reynouard**, vice-président, Université Paris-Dauphine

Lincoln's Inn Fields Entrance, NEW ACADEMIC BUILDING 8TH FLOOR

14h15-17h00	32 Lincoln's Inn Fields Building, Room LG 03 Parallel Session 9 Theme: Accounting, time and materiality Track chair: Alan Lowe (Aston University)	32 Lincoln's Inn Fields Building, Room LG 04 Parallel Session 10 Theme: Institutions, institutionalization and materiality in organizations Track chair: Andrea Resca (LUISS, Rome)	32 Lincoln's Inn Fields Building, Room LG 10 Parallel Session 11 Theme: Critical perspectives on time and materiality Track Chair: Peter Clark (Queen Mary University, London)	32 Lincoln's Inn Fields Building, Room LG 18 Parallel Session 12 Theme: Artefacts, organizations and time Track Chair: Joanne Locke (Open University)
14h15-14h45	In search of the poor's box in the eighteenth century Church of Scotland: artefacts, accounting and the archive	Co-evolution of technological artifacts and new organizational forms across time and space: combining historical and co-evolutionary perspectives	The oxymoronic character of inter-organisational routines: on time, materiality and organisation design Federico Iannaci, Canterbury Christ	A mythological approach on consulting practice and artefacts Eliel Markman, Université Paris-Dauphine

14h35-15h15	<p>Alistair Mutch, Nottingham Trent University Uses and transformation of a calculative device in the revaluations of nuclear fuel cycles in the United States: the case of levelized cost of electricity</p> <p>Basak Sarac, École des Mines ParisTech</p>	<p>Aljona Zorina, École Supérieure de Commerce de Paris Temporalities in the institutionalizing of E-government systems</p> <p>Noora Alghatam, University of Bahrain</p>	<p>Church University Path-dependence in technologies and organizational routines: a critical realistic perspective</p> <p>Luisa Errichiello, Institute for Service Industry Research-national Research Council of Italy</p>	<p>Exploring patterns of imbrication through human and material agency modeling and simulation</p> <p>Paolo Spagnoletti, LUISS Rome</p>
15h15-15h45	BREAK	BREAK	BREAK	BREAK
15h45-16h15	<p>Time machines are invented by accountants</p> <p>ZsuzsannaVargha, LSE</p>	<p>Ten years of an 'ICTD' project: the social construction of a community multimedia centre in rural India</p> <p>Savita Bailur, LSE</p>	<p>Mirages of organizations. From the historiography of management to the management of historiography</p> <p>Mathieu Mandard, Université de Rennes</p>	<p>Decision-making process and enterprise mobility: An analysis of individuals on the move</p> <p>Fabio Junges and Amarolinda Kein, UNISINOS, Brazil and Silvia Elaluf-Carderwood, London School of Economics</p>
16h15-16h45	<p>Discounted future. The conception(s) of a valuation and management device</p> <p>Liliana Doganova, École des Mines ParisTech</p>	<p>Rehearsing the History of National Health Service's Information System in England: Exploring the Ways Forward</p> <p>AmirhosseinTakian, Brunel University and Tony Cornford, LSE</p>		

17h15-18h15

Keynote Address

Professor Michael Rowlinson (Queen Mary University– London)
"Historical perspectives in management and organization studies"

Lincoln's Inn Fields Entrance, New Academic Building Wolfson Theatre Lower Ground LG01

Session 1 - Historical perspectives on materiality

Michael Rowlinson (*Queen Mary University*)

Room:32 Lincoln's Inn Fields Building, Room LG 03

**‘OUR LARGE BUSINESS IS FLOURISHING’ Pierre Samuel Dupont de Nemours, projector
(1739-1817)**

Martin Giraudeau, *London School of Economics & Political Science*

This paper is a chapter in the long-term history of new venture business plans. It questions the methods used for the construction of the future in such plans during the “age of projects”.

It is based on the study of the series of projects devised by Pierre Samuel Dupont de Nemours from 1797 – when he decided to move with his family to the United States – to 1802 – when he finally went back to France, letting his sons Victor and Irénée run the family business and found what is now the well known DuPont Company.

Over the said period, Dupont successively wrote and circulated an “Outline for an establishment in the North of America,” an “Extract of a plan for a rural and commercial operation to be executed in the United States of America,” an “Overview of the rural and commercial establishment that the Dupont de Nemours Father & Sons company is about to form in America,” followed by a dozen of other “Memoranda” and “Proposals” put together in a “Catalogue of memoranda.”

These projects ranged from mostly agricultural ones to plans for establishing ocean liners across the Atlantic. They also, and most interestingly, varied in terms of how each of them derived the proposed future from the observed present. Some did so in a merely numerical way influenced both by accounting techniques of the time and the modern calculative practices of physiocracy – the “new science of political economy” that Dupont had actively contributed to defining and promoting over the previous decades. Others were inspired by the narrative genre of utopia. And most mixed text with accounting figures in what we describe in the paper as countexts.

In all of them, however, the empirical evidence used by Dupont to support his plans for the future proved to be rather scarce, including from the point of view of investors at the time, who generally refused to back him – which eventually led, contrary to what history ended up remembering thanks to his sons, to the failing of all of his projects.

The paper concludes on a comparison between the plans of Pierre Samuel Dupont and the (successful) one of his son Irénée. It highlights in the latter a use of evidence and demonstration that seems to originate less in the calculative physiocracy of Pierre Samuel than in Lavoisier’s – another physiocrat and Irénée’s mentor, who had been influenced directly by Quesnay and sensualism. The influence of emerging economic science on business planning practices is thus questioned.

What impact do various sociomaterial assemblages have on collective thinking activities?

An empirical analysis from a heterogeneous group acting toward knowledge sharing in the organic farming field

Philippe Eynaud, *IAE Paris*

Julien Malaurent, *EM Lyon*

Key words: *Collective thinking activities, Organic farming, Extended cognition, multimodal analysis.*

Research Context

The association "Pole Bio" has created a multi-tenant project called "Melibio" to support organic agriculture in the Massif Central region, France. Pole bio is intending to manage this project for a three years period (2011-2014) to improve knowledge sharing in the organic farming field. And this focus group is specifically interested in meadows composed of a variety of flora or forage crops. It brings together a group of heterogeneous actors: researchers in biology, computer scientists, Chamber of Agriculture officials, trainers, agricultural experts, farmers' associations. The project is funded by the region and aims to find new techniques to tackle the climate change.

The project has two main objectives: the first one consists in producing a decision-making model to assist seeding. This decision-making model will be embedded within an online platform to assist farmers to calculate the ideal mix for seeding flora in meadows. The ideal-type process is the following: farmers will have to enter local data into the software (such as location, soil type, weather conditions), and will get back advices for seeding recipes.

The second objective is related to the creation of a wiki-based knowledge platform to articulate both expert and lay knowledge to improve the collective expertise of the organic farming community in that region. In order to build these two objectives, the actors of this group have to collaborate closely despite their differences to come up with collective and collaborative decisions.

Given the complexity of the relationships between group members due to a number of factors such as personal interests, institutional interests, and geographic distance, we wish to focus our interest in the role played by sociomaterial assemblage for collective thinking activities. To do so, we suggest the adoption of a slightly different research paradigm compared to the classic sociomaterial apparatus (Leonardi and Barley, 2010; Orlikowski, 2007) based on a Cultural Historical Activity Theory (CHAT) framework, suggesting an original perspective to look at the role of material artefacts during thinking activities.

Literature review

Through this section, we present the theoretical basis of our research project, largely embedded within CHAT literature on extended cognition. It aims to suggest an original perspective to look at thinking activities through the construction of a materialized and volitive apparatus, built upon extended cognition.

According to CHAT literature on extended cognition and cognitive niche (for a synthesis see Menary, 2007), human beings thoughts are consciously resulting from an entanglement of the human body with a social and material context (Barad, 2007). CHAT and AT suggests an extended and external view of cognition where the location of mind is non-exclusively distributed but also volitive situated. Thus, drawing on Vygotsky's researches on semiotic systems, we understand that all sorts of signs and tools arrange self-conscious propositional thinking activities. This volitional use of extended cognition needs a responsive social context for scaffolding the use of language, words, things and gestures. Following CHAT reasoning, thinking activities can therefore be considered as a goal directed activities where practical actions including psychological or mental acts performed by humans are oriented within a material context.

By following the recent turn of extended cognition, we suggest to consider language and symbolic tools as material artefacts (Wertsch, 1998) playing a major role in thinking activities. These artefacts can be both considered as psychological tools that control human behaviours in context, but also external and public concepts that permit collective significances, for triggering cognitive activities (Engeström, 1999; Leontiev, 1978).

In CHAT an “artefact is an aspect of the material world that has a collectively remembered use” (Holland and Cole, 1995, p. 476). Artefacts combine a conceptual face with a material one for existing in context. Thus, they mediate the interactions between humans and cognitive activities and “have necessary this material aspect [...] in the sense that they are created in the process of goal directed human actions” (ibid.). These artefacts are considered by Vygotsky as psychological tools and are often materialized as texts, presentation slideshows, drawings, words, sounds, and physical gestures, or contextual material constructions such as things, posters or furniture’ arrangements.

Based on this stance, we define a thinking activity as a proposition, or a propositional attitude, materialized in any language including natural, conceptual or physical language, gestures, images or schemas. Therefore, we suggest understanding thinking as an entanglement involving praxis, practices and the material skills of a practitioners to engage collective activities. Given our stance, our paper aims to analyse the material arrangements where thinking activities of Melibio focus-group emerge concretely and collectively.

Consequently, if we seek to understand a thinking activity as an open and collective activity system, we must understand how mental acts are affected, interrelated and connected in nature between material contexts and agents’ cognition. We believe that this relational view between mind, body and context is an original but necessary framework to understand thinking activities.

Empirical dataset

The empirical dataset discussed in this paper is part of a larger research action-research project aiming to bring reflexivity and self-evaluation to the focus-group. Data used in this paper includes 10 interviews with Melibio members. A number of participant observations and secondary data (meeting minutes, official documents, etc.) were also recorded. Additionally, the first author attended different workshops of the Melibio project, always acting as action-researcher. Thanks to his official integration in the group, he was allowed to record and collect data without limitation. At first the first author recorded the meetings through audio recordings only. However, since the level of confidence between the whole group was high, the latter was soon allowed to record the workshops with a video camera.

A multimodal methodology

As stated earlier, we believe that a comprehensive understanding of collective thinking activities requires the understanding of the embodied interactions between human agents with their organizational settings. Our underlying assumption is: more than what is said shapes our perception of human interactions. Thus, we aim to draw on both verbal and non-verbal behaviours to analyse the interactions that took place during Melibio meetings.

The basic assumption of a multimodal research approach (e.g. Goodwin and Goodwin, 1996) is that to study human interactions, researchers should take into account different modes of complementary communication such as language, gesture, gaze, and even material objects. As Kress and Van Leeuwen (2001) have noted, language is merely one mode among many, which may or may not take a central role in an interaction.

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Fairtrade¹ standards Traces of Fair Trade² history

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Building on the seminal work of Brunsson and Jacobsson (2002) studies about standards and standardization have increased and standardization has developed into a rapidly growing research area in organization studies. To date, organization scholars limit their focus on the production, implementation and effects of standardization. Hence written standards demonstrate “absent presence” (Orlikowski, 2010, p. 127ff.) in organization analysis. Against this background I investigate written Fairtrade standards with an evolutionary approach (Kieser, 1994) and raise the question: How do Fairtrade standards evolve through time, 1988-2011. The aim of the analysis is to identify profound changes in the formal standardization system of Fairtrade, which shall later be placed in a larger framework.

Studies of different strands of research emphasize the importance of the context of the standard-setting process and claim a strong connection between the formal standardization system and its contextual setting (e.g. Abraham & Reed, 2002; Bowker & Star, 2000; Tamm-Hallström, 2004). In accordance Lampland and Star (2009, p. 14) present a comprehensive and inclusive understanding of standards and standardization: “Standardization is a recursive practice, necessarily historical and embedded in a series of complex events and social structures.” Taking into account standards’ embeddedness, I relate detected modifications in the written Fairtrade standards to the historical development of Fair Trade. Thus, I investigate Fairtrade standards as infrastructure (Star, 1999), which traces Fair Trade’s history and the movement’s activities.

An excursion into the history of Fair Trade shows that Fair Trade standards are embedded in a dynamic institutional environment. An economic rationalization of the original Fair Trade movement has led to an escalation of governance structures (Arnold & Hasse, 2012): Fair Trade started as a social movement in the 70ies. This initial phase of alternative trade, based on direct partnership between Southern producers and Northern importers/consumers, was followed by the emergence of numerous national labeling initiatives in the early 90ies. The related introduction of a formal standardization system has led to an expansion of Fair Trade products and constant growth in their sales. In the course of these developments, the field of Fair Trade has demonstrated an overall increase of density and competition between multiple Fair Trade actors as well as foundations of several higher-level associations.

A qualitative content analysis of the standards shows that the first standard work of 1988 was composed merely rudimentary. The standards resembled guidelines that united Fair Trade’s principles. They formalized the Fair Trade ideology without considering aspects of control in depth. Parallel to Fair Trade’s history and the emergent involvement of independent certification and accreditation

¹ „Fairtrade refers to all or any part of the activities of FLO eV, FLO-CERT, Fairtrade producer networks, Fairtrade labelling initiatives and Fairtrade marketing organizations. Fairtrade is used to denote the product certification system operated by Fairtrade International (FLO).“ (WFTO, 2011)

² “The term Fair Trade defines a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in developing countries.“ (WFTO, 2011)

bodies, new requirements in terms of the examination of the standards' compliance had to be met. From then on, standards did not only describe Fair Trade principles but also aimed at enabling credible and accurate control. At the same time, the standards became more nuanced in order to foster progress and to demonstrate effective impact. Moreover, Fairtrade standards broadened their scope. Initially, they were pure social standards that focused on social issues. Later, they started to incorporate defined dimensions of sustainability (social, economic and environmental). The corresponding restructuring has also entailed an implementation of meta-standards for sustainability standard-setters, which aim at enhancing credibility and collaboration among these private standardizers. As a result of these revisions, the standard systems have increased in volume. For example, the Fairtrade coffee standard counted seven pages in 1991. Twenty years later, the same standard comprised fifty-three pages. Further indirect reading indicates that the evolution of the Fairtrade standards exhibits certain characteristics of "standardization fashion". This trend seems to occur regardless of institutional field change and refers to questions of presentation and ordering. In the beginning, the standard work included all information with regard to one specific product; it later became divided into generic standards and product-specific standards.

A long-term perspective on written Fairtrade standards shows material modifications that trace the history of Fair Trade. The economic rationalization of Fair Trade has not led to shorter standard frameworks but to standards, which are more detailed and precise and intend to downsize the room for interpretation. These findings suggest that not only the governance structures of Fair Trade but also the written standards have increased in complexity over time. Moreover, the standardization framework exhibits a trend of segmentation, which could be contrasted with other established standardization systems – as for example ISO-standards.

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Memory and sociomateriality

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In this paper I will discuss accomplishment of temporality in the context of sociomateriality. I will explain why sociomateriality, with its ontology of becoming, is an appropriate perspective for understanding relationship between organising and sociomaterial assemblages. I will draw mainly on the work of Whitehead, and in particular his notion of the flow of experience and affectedness. I will argue that this flow performatively produces time through the “the origination of the present in conformity with the ‘power’ of the past” (Whitehead, 1978, 210). This ‘power’ of the past, which forges relations from one point in space to another, as an enacted transition—is the force of repetition (Shavario, 2009). In this sense of transition and flow “[e]very ‘present’ moment forcibly ‘inherits,’ and thereby repeats, what came before” (Shaviro 2012, 59). Thus, the moment of experience is not just an incidental and fleeting moment of contact, which leaves the flesh, within the contact, undisturbed. To be affected is in a sense also to be infected—through the inheritance from the antecedent moment of contact. Thus, it is to become folded, or thread, into the flow of becoming. Being touched by the other will not leave the subject undisturbed. To touch, and be touched, is to be implicated in a becoming that is not entirely ‘mine’ to possess. Moreover, in inheriting from the past the past is in some way iterated. That is to say, in some sense remembered—but not in consciousness (the ‘mind’) but in the flesh of contact. Thus, to experience is to remember, or differently stated, contact is the condition of possibility of memory. Memory is the inheritance, in the flesh, from the past. It is the past giving something of itself to the present as an inheritance—but not in an obvious way. In ‘giving’ something is gained and something is lost, that is the nature of iteration. Or, as Latour might say, ‘every translation is also a transformation’. I will illustrate the performative production of temporality and memory through a number of examples.

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Session 2 - Historiographies, data and materiality

Susan Scott(*London School of Economics*)

Room:32 Lincoln's Inn Fields Building, Room LG 04

Data and Time at the Large Hadron Collider, CERN.

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Within the paper I will discuss time using a case study of particle physics research at the Large Hadron Collider at CERN.

The case study describes different ways in which time might be conceptualised within such experiments. Firstly I quickly discuss the particle collisions themselves (around 600m per second) within the particle accelerator. Einstein's special relativity's effects on the passage of time for these particles are well understood, and taking these into account is a routine occurrence for particle physicists. What is interesting to consider though is how time (as they define it) is understood and managed for the experiment once particle collisions occur. Within the LHC's experiments time is managed in data-taking, and time is restricted to the computing and storage capacities available for its recording. Time is broken into manageable bit-streams; time is transmitted, sequenced, simulated and controlled. Globally a Grid infrastructure has been constructed with the purpose of analysing these collisions – reconstructing time (and modelling what was expected at that time) is restricted based on the computing capacity available. Throughout this, time is pressing – Nobel prizes are available for those “first” to discover results.

The case study is based on a detailed field study of the development and use of Grid computing infrastructure at the LHC between 2006 and 2010. The case is analysed using Andrew Pickering's mangle of practice (Pickering 1995; Pickering and Guzik 2008) to explore the temporally emergent becoming of data and its relationship with time. Data (and perhaps time) are mangled within the LHC and its computing Grid and lessons from such mangling offer important opportunities for future research. This work contributes by providing a detailed study of the social issue of time within a science for which time is an important physical dimension. The paper's focus on information technology and time contributes to other studies which have explored the impact of technology on time (e.g. (Wajcman 2008)). The case study will also contribute to elaborating what time means within the mangle of practice (as explored by (Turner 1999)).

Finally the case study is used to consider the relevance of different ideas of time for current interests within information systems including real-time data analytics and cloud computing (Venters and Whitley 2012).

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Mutability and Becoming: Materializing of Public Sector Adoption of Open Source Software

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Juxtaposing two local council cases of open source software adoption in the UK we highlight their differences and similarities in open source adoption and implementation. Our narratives indicate that for both cases there was strong goodwill towards open source yet the trajectories of implementation differed widely. We draw on Deleuze and Guattari's (1987) ideas of becoming, and multiplicity to explain how becoming occurs at different speeds. Our data shows that the becoming (performative understanding (Law and Singleton 2000; Tsoukas and Chia 2002)) of adoption can be both constrained and precipitated by various forms of materiality (of the assemblage of the open source ecosystem). The interesting point of departure of our study is how open source software – a much touted transparent and open phenomenon – is by its nuanced and layered mutability (Mol and Law 1994; Moser and Law 2006) able to make the process and practices surrounding it less visible.

Our contribution lies in unpacking the adoption and procurement of open source software (OSS) by two different local councils in the UK sensitized by ideas of becoming, mutability, temporality and materiality. We recognize and show how the becoming (complicated, uncertain, never stable or complete) of OSS adoption indicates that the process of becoming occurs at different speeds (Colville et al. 2012). The speed of becoming is managed and controlled and can be purposively directed. We show how management in the local councils reined in (or otherwise) the process of becoming via material instantiations of OS. The nature of materiality was manipulated in both cases to different ends, and results.

Our relational ontology implies that information technology and users are not defined outside their relationship but in their relational networks (Latour 1999). This consideration moves the focus of the analysis from the actor, either human or non-human, towards a more complex and less defined phenomenon, which is the interaction (Callon 1986a; Callon 1986b; Latour and Johnson 1995). It has a “relational materiality” (Law 1999). This reflects an aversion to accept a priori the pre-existence of social structures and differences as somehow intrinsically given in the order of things, or what Barad terms “agential realism” (Barad 2003, p810). This ontological predisposition sensitizes us to the idea that more than one reality is possible. Indeed successful software adoption is never a certainty but drawing on ideas of becoming takes our analysis further by laying bare both successful and unsuccessful possibilities that are attempted, but perhaps never quite become. The relevance of such an approach lies in its ability to unpack various criteria, actors, relations and material considerations that a simple adoption study would do little justice to as ‘performativity leaves open the possibility of events that might refute, or even happen independently of, what humans believe or think’ (Callon 2007, p323).

Our research was thus motivated by a desire to make sense of OS adoption while deliberating on politics and other heretofore ignored actors. More specifically we were driven by a need to understand how open source software adoption was being managed by public sector organizations and why, when the circumstances and reasons for adopting open source for both councils were so similar the results were so very different. Thus, our main research question is: How can, and is the becoming of open source software adoption managed and controlled?

We conducted 32 in-depth interviews over the course of late 2010 to early 2012 in two local councils in UK. The personnel interviewed ranged from the open source policy writer, IT and developer team, floor-walking members, users, and strategy level staff, but also those involved in making procurement decisions and strategy of open source use in the organization.

Camden Council (CC) can now be distinguished by its ‘success’ whereas Bristol City Council (BCC) has undergone a very mixed engagement with open source. Camden Council guided the open source process internally with a strong manager as leader. He built up a team of IT staff over the last ten years that progressed from a simple interest in open source to what is now considered to be an evangelist team of highly skilled developers. Camden co-created on an open source project and is now able to

offer its expertise to other local councils that share an interest in moving to open source software and platforms.

Bristol City Council was in the media spotlight from the moment it announced its open source intentions. There was a grand move to open source desktop software use. However, this euphoric open source sentiment did not last for more than a year, after which stories of open source failure began to leak. Open source software was then discarded and Bristol was forced to return to proprietary software. More recently Bristol has shown a renewed interest in open source but this time there is a more cautious approach to such change.

Table 1: Becoming and Materializing		
	Areas and Level of Mutability	Materializing Time
License	<ul style="list-style-type: none"> • Choice of license • Version of license • Level of reciprocity involved • Level of transparency 	License is the Constitution – written and Multiple parallel in practice. times <ul style="list-style-type: none"> • Changing license • Practicing the license • Implementing the license
Community	<ul style="list-style-type: none"> • Skill level of members • Core team size • Turnover rate • Number of company backed employees 	Community traces, voices, decisions, sense of belonging (expressed through T- shirts, brand, etc). <ul style="list-style-type: none"> • Community in flux • Sponsoring employees • Training of developers Future present time
Code	<ul style="list-style-type: none"> • Level of stack • Reusability • Language • Modularity 	Code, requirements, functionality and Hiding time use ••• Revisiting time Changing requirements Greater encapsulating Reusing code
Coordinating Mechanisms	<ul style="list-style-type: none"> • Public or private discussion groups • Face-to-face meet-ups • Levels and types of mailing lists • Access level of version control software 	Coordinating Mechanisms <ul style="list-style-type: none"> • Making discussions transparent • Increasing security level of access • Varying governance structure to cope (change) access levels Traceable time
Documentation and Metadata	<ul style="list-style-type: none"> • The type of (detail) documentation provided • Level of updating documentation • Access to metadata • Search-ability of documentation and metadata 	Documentation and Metadata <ul style="list-style-type: none"> • Making the search algorithms visible (or not) • Maintaining documentation • Detailed documenting and instructions ‘Moment’ of time (capturing)

Open source software and its development process have a number of key elements (see Table 1) such as license (Benkler 2002), community (O'Mahony and Ferraro 2007), the code (Fitzgerald and Feller 2002), coordinating mechanisms (Crowston and Kammerer 1998), and documentation (von Krogh et al. 2003). This is a fairly familiar characterization of OSS but we want to highlight how all these characteristics are not fixed – even within the same project. They are changing, indeed in a state of constant becoming. Scant attention, if any has been paid to the idea of how OSS mutates within a project or over time (Kavanagh and Araujo 1995). This in turn affects the ability of code to mutate and restricts the variation in becomings possible. The materializing of each element matures the becoming and expedites it in a manner that makes further (variations in) becomings less likely. Thus open source use and adoption can be controlled and managed. In the case of BCC their choice of enterprise open source software was based on an open core model rather than a more ‘pure’ open source license. Such a model implied that the enterprise edition of the software being procured by BCC was actually not

strictly open source as the code was not necessarily viewable. Our paper includes a full analysis and discussion but for the sake of brevity we have summarized the main ideas in Table 1.

It may well be considered that when anything becomes more materialized that it would be less vague and opaque, however, we found that this was not necessarily true. In fact, there was little ability to trace all the possible trajectories of becoming when the situation was as complex as a politically infused public sector organization. There were more than one possibilities for mapping but experienced bureaucrats in both councils were able to manage the possible rupturing of the adoption process. The ability to manipulate open source (in spite of its transparent nature) merged different time dimensions where the past, present and future could be located in the 'now' of the code (Mead 1932). Instead of building transparency into the system with a greater reliance on materiality, the local council IT staff and policy writers were able to contain the opaqueness in a strategic manner to their advantage.

Considering each element of open source individually (albeit artificially) is useful to understand mutability, materializing and transparency (or lack of) but as one interviewee explained open source is complex and has 'vectors of lock-in'. It is an entanglement of all these elements in proportions that are beyond complete control that build in uncertainty to make the becoming of open source software so challenging. Literature on open source procurement and adoption in the public sector has not only ignored this idea but we find that it is in general (though not true for all) often atheoretical. We have attempted to redress this issue by sensitizing our data collection and analysis with ideas of becoming. Such an ontology allowed us to move beyond a focus on only the human (Feldman 2000), or practices, or likening change to merely improvising (Orlikowski 1996). There has been more recent work in IS that shows concern for a relational ontology where the social and material are understood to be entangled (Orlikowski and Scott 2008) and imbricated (Leonardi and Barley 2010) but there has been little use of such ideas to understand OSS in the public sector, and how this implicates the process of becoming.

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Applying the “Biography of Artefacts” Approach to an Organizational Technology: The Case of Contract Management Software

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Abstract

In this paper we show how the “biography of artefacts” approach can be used to trace the trajectory of an organizational technology through time and thereby explore and theorize the nature of its materiality. Following Kopytoff (1986), the “biography” approach has been applied in Material Culture Studies to the study of things that people make and consume (see Hoskins 2006). In terms of organizational technologies, Pollock and Williams (2009) cast their study of ERP as a “biography” of a technological artefact, taking into account multiple sources at multiple levels over a relevant period of time (e.g. from emergence to obsolescence) and foregrounding the technological artefact and the processes entailed in its production. In this paper we describe the application of the biography approach to another packaged software product, contract management software (CMS).

For our study, we frame the biography approach from the perspective of Barad’s (2007) agential realism, which envisions the world in terms of “a process of materialization that stabilizes over time to produce the effect of boundary, fixity and surface we call matter” (citing Butler 1993). We also relate Barad’s notion of apparatus to technologies that appear in many instantiations, that may be dispersed, that are rapidly changing, and that may be intangible, such as the travel website TripAdvisor (Scott and Orlikowski 2012), or an organizational technology like CMS.

From a variety of data sources – interviews, a site visit, survey data and archival material – and following the biography approach, we can trace the “life” of CMS. CMS was introduced toward the end of the dot.com era, around 2000-2001, and in 2002, Gartner, a technology research firm, predicted that contract management would be a \$20 billion software and services market by 2007 (Kyte 2002). The concept attracted large amounts of investor funding and benefited from millions of dollars in research and development and sales and marketing expenditures. However, CMS revenues have fallen well short of \$1 billion (IACCM 2007, Jones and Connaughton 2011). Yet CMS has been successfully adopted by many customers, and did not fail in a technical sense. Instead, the case of CMS is about a failure to meet expectations (Pollock and Williams 2010; cf. Lyytinen and Hirschheim 1987) – specifically the failure to meet market expectations. By the conclusion of the study, in 2012, four of five key vendors of CMS had been absorbed into cloud-based e-procurement programs.

Following the biography approach sequentially across two different bodies of data yielded key insights regarding the “life” and nature of CMS. From interview and archival data we constructed a preliminary biography of CMS as an organizational technology for contract. This preliminary biography was both disrupted and informed by a superseding version of the biography taking into account the coverage of CMS by technology analyst firms and the histories of key CMS vendors. The emergent multiple biographies of CMS showed that different versions of “CMS” had different trajectories, pointing to the ontological multiplicity of the biographical subject, which in the case of CMS was not, ultimately, reconcilable or resolvable. This ontological multiplicity was directly implicated in, and materialized as, the failure of market expectations. By drawing out the potential ontological multiplicity of the biographical subject, this study goes further than Pollock and Williams (2009, p. 116), who distinguish their approach from that of Kopytoff on the basis that software is not a “bounded object” but is instead materially and not just symbolically dynamic and provisional. In addition, this study, when read in

conjunction with Law (2002), raises the question as to whether apparent tangibility, boundedness and fixity are only ever relative.

The ontological multiplicity of CMS was not only implicated in the failure of market expectations but pointed toward three separate but entangled products and markets: CMS as an organizational technology, CMS as a software category, and investments in CMS vendor firms. The data indicate that for an extended time CMS as a software category led CMS as an organizational technology through a dynamic we theorize as a “substitution of performance”, which we relate to studies of markets from economic sociology (e.g. Cochoy 2010) as generalizable beyond the software or technology domain.

From this study we argue that the biography approach can be a useful and productive way to study the temporal dimensions and materiality of an organizational technology. From a methodological perspective, the approach as we have applied it supports the investigation of a relatively dispersed and intangible phenomenon “by the life it leads” – by tracking and tracing the biographical subject’s multiple appearances and instantiations over time while holding aside or suspending conclusions as to its attributes and nature. This case illustrates how applying this approach across data gathering and analysis can yield novel and potentially generalizable theoretical and practical insights.

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Quality Vs. Quantity and the Open Source Biography

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The tension between Quantity and Quality has a long history in social sciences and was often regarded as a decision that a researcher has to take individually. Yet, social scientists are today, increasingly lured to analyse tantalising quantities of data sprouting out of vast and interconnected networks, bundling people, locations, objects and ideas in ever growing combinations of social meaning (Hansen et al. 2011, p.3). To understand this new 'Internet of Things' (Kortuem et al. 2012) –which permeate our life today- they seek the tools that can synthesize our digital footprints and scrutinise the billions of human logs' activity every day. Their approaches and designed algorithms aim at making visible the Meta-structure underlying users' daily processes and recreate a global overview of the social media forest, instead of just trees, branches and leaves.

Although I subscribe to the idea that it is important to visualise the 'big forest', I also argue that the only possible way to make sense of its wholeness –crystallised and already there- is by traversing back and fro the time line of the forest, linking its growth and long-term concretisation with the daily practices, routines and micro processes of its inhabitants (Latour 2005, p.5). Accordingly, I suggest a way through the epistemological challenge of studying a macro phenomenon –here, the global development of open source software- and accounting at the same time, for its timely and context-dependent circumstances of design and use. Such a methodological approach establishes a trade-off between quality (rich, context-based narrative) and quantity (the micro-historic processes of sustained community participation). It also grounds and is grounded in an understanding of open code, as a mode of 'becoming' and a long-term process of individuation (Simondon 1980), which is brought to our knowledge through the Open Source Software (OSS) biography retrospectively.

My study is based on a unique and longitudinal case study of an open source initiative, named Mifos. Mifos is a web-based application targeting microfinance NGOs and grassroots in developing countries. It is born in 2005 under the direction of a Washington-based microfinance expert, Grameen Foundation. Since its creation, the Mifos project was sponsored by an extensive network of donors and international software corporates globally. It was also host to a dense and durable ecosystem, including organisations and individuals from multiple domains of knowledge and specialities, such as international software corporates, software professionals and volunteers, as well as project managers, civil society, and users (microfinance NGOs and local IT intermediaries). Gradually Mifos has developed –in addition to code logs- a mature open information platform that contains the project's data and history (road map, commits, online documents and wikis). Since 2011, Grameen Foundation transited its control of the Mifos initiative to a fully community-led project that is administered by some of its most active members.

Over the research observation period (five years), community members have continuously used Mifos facilities to commit code, report errors, offer peer-support, coordinate and organise their inputs. Progressively, the Mifos platform (an interconnected web of web 2.0 technologies, data repositories and websites) –see Figure 1- has preserved vivid token of their transient membership, participation and socialisation.

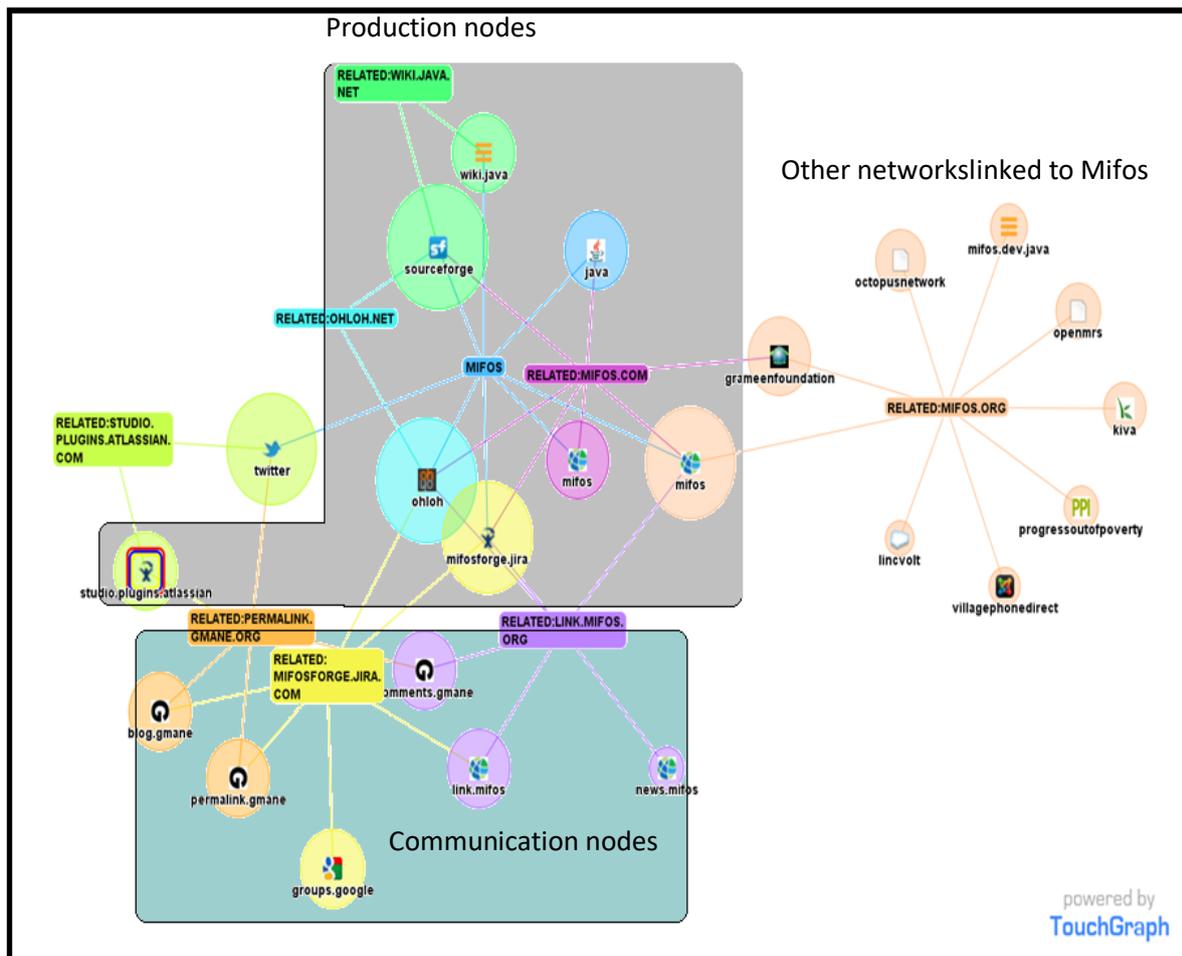


Figure 1

Mifos Online Platform -Snapshot captured in May 2011

These nodes (see picture above) point to hundreds of piles of code logs, posts, links, chat lines, wikis and online documents that are saved in hundreds of servers. They are extremely noisy as their signals go in all directions; yet each one of these digital units is a link in the life thread of the OSS biography, informing cycles of transformation and becoming. Among the nodes –or group of nodes- constituting the Mifos platform, I select the project’s mailing lists as the research proxy, mainly because they act as a gateway reflecting a major part of the project’s social dynamic, and echoing the activity of Mifos production websites and other networks. Limiting the scope of the research to Mifos MLs subdues the need to make sense of multiple types of digital artefacts; however, it does not reduce quantity per se.

On the one hand 20,000 records of communication covered my period of observation and stressed the longevity and maturity of such an instance of social production (Mifos). On the other, my data corpus was primarily constituted by posts, which are textual and inherently qualitative –problemsolving discussions, task allocation, broadcast messages, etc. Translating them into measures of participation through posting frequencies and posters’ connectivity obstructs the nature and quality of participation and does not permit explaining the collective mechanisms of knowledge production and code long-term development. At the same time, there was no denying how crucial it is to develop a holistic sense of the project’s community, to ‘see’ it as what it is: a distributed, yet synthetically unified assemblage, brought together by communication and networking technologies.

Respecting the dual nature of post-exchanges is somehow the answer to the epistemological macro-micro challenge of documenting the Mifos biography, while providing an interaction-level granularity.

In this presentation I should describe a three-level methodological approach to analysing post-exchanges in a case of open source software long-term development. This approach combines quantitative and qualitative methods in synergy, complementing and reflecting on the limits of each other. The first method uses the power of the image where words can fail to convey a sense of togetherness or materiality. The second method is a eulogy of time, tracking the project's growth through a montage of time-waves, participants' stories and pictures of major events in the project's life. The third and final method is a zoom inside the micro-structure of post-exchanges and mechanism of sustained participation and collective knowledge negotiation. Finally I conclude the presentation with some of this research results: how it informs the challenge that I set originally, and what are the insights it provides a study of the OSS biography.

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Session 3–Social and material entanglements across time

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Room:32 Lincoln's Inn Fields Building, Room LG 08

Tracing materiality or materialising the traces: an investigation into rules, scripts and organising practices

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Exploring organizational complexity involves encounters with various actors, outcomes and relational processes which serve to repeat and differ through various forms of action and interaction. When entering an organization, a whole range of issues emerge. These include assumptions about how we view the objects of our study, the spaces they are seen to occupy, as well as the different times and forms of action which underlie this complex process of becoming (Deleuze, 1994; Latour 2005). Within this paper, we wish to examine the ways in which Actor Network-Theory (ANT) and Deleuzian thinking can help us explore these issues by focusing on ideas of repetition and difference. In particular, we wish to examine how a post-representational approach to management and organization studies can provide alternative ways of thinking process, repetition and materiality with regards to ideas of space, time and action (Jones et al. 2004).

When considering ideas of repetition, questions are raised concerning how materiality may be incorporated into our studies? In contrast to viewing the material as merely some form of non-human substance associated with durable, tactile and/or fixed characteristics, how can we examine the relational and semiotic aspects of materiality? ANT in particular calls for a greater recognition of those missing masses within our accounts by extending our focus to include non-human actors. While for Latour this was an important rhetorical move to shift our thinking away from focusing on human agency, he also wished to avoid falling into a deterministic version of the material - as something existing out there in a discrete and distinct form. Lost in some accounts of translation and actor-networks, however, is the relational, temporary and distributed forms of agency and the continual process of becoming associated with the process of translation. Even though agency may be extended beyond the human sphere, the boundaries and divides between ontologically distinct non-humans and humans or material and non-material elements can remain fairly stable in a systems view of ANT.

The important point here is not to discount the ways 'objects' and 'subjects' may be performed through particular sets of relations and practices as taken for granted as given, stable and durable entities existing within different organizational settings, but to acknowledge that this involves a continual process of translation and mediation. For the process of black boxing and simplification can be key to many different practices of organizing that inhabit our daily lives and many different truths, facts, entities and objects as intermediaries may be enacted and taken for granted in the process of achieving specific outcomes and effects. In fact, in some cases, this black boxing can create openings and closings which enable further sets of relations, action and agency to emerge through different spacings, timings and actings (Latour 1997). For example, when we drive along the road and approach a set of traffic lights, many of us (although perhaps not emergency vehicles or a 'joyrider' in a stolen car) will not question the system of traffic lights and the associated signs and imagery of the junction or intersection. The materiality associated with this event relies on complex assemblages of actions, practices, standards, and symbols. Additionally, even though intermediaries such as traffic lights require situated knowledge often this event relies on a process of repetition where such devices remain apparently black-boxed. This apparently mundane event or action seems to perform a mere repetition of the Same (i.e. mere information without transformation as each driver may stop at the red light and then will go when the light turns green). These events, and the 'repetition' of these apparent 'intermediaries', however, requires much work and mediation in terms of becoming and the

production of stability and simplicity relies upon complex assemblages or agencements of mediators and actions coming from a diversity of spaces, times and forms of actions. By unpacking the diverse construction process of becoming through these action assemblages we can begin to explore the many performances and the complex multiverse of foldings and relations. Furthermore, while certain traces of actions may appear in a more obvious and apparent way, certain actions may emerge in a more discontinuous form, and finally other traces of actions which may appear as ‘dark precursors’ as they act in apparently silent and unobtrusive ways. In fact, in some cases the process of assembling may only be possible as long as these remain effaced and black boxed. Therefore, by exploring organizing scripts and rule-making through a focus on action assemblages and material memory traces allows a more extensive examination of these complex sets of actions, relations, practices and events, and the assembling of many different spaces, times and forms of action in the creation of particular outcomes and effects.

Another crucial point when considering the role of action assemblages and memory traces concerns the ways in which we may account for the material qualities which underlie these complex networks of relations. This raises questions of how the ‘material’ is viewed and encapsulated within our accounts (Law 2004). Firstly, materiality is not merely a non-human aspect or thing which exists out there in some durable and independent form; materiality is relational and as such, not only does the role of the material in terms of its relational characteristics need to be studied, but also the way it is conceptualised with regards to issues of space and time. As materiality leaves the realm of inertia, this opens up a new domain of possibilities as materiality become an active and productive force with the capacity to act relationally. Secondly, when considering issues of space and time, the material raises another set of issues in terms of tracing alternative forms of action and interactions. This is particularly important when attempting to encapsulate the many different intensities and actions as they fold together in complex networks of practices, relations and repetitions. For instance, when exploring the materiality of memory traces, what specific characteristics are we concerned with in terms of enabling actions to ‘travel’ differently through specific spaces, times and actions?

A further example which helps to illustrate some of these points relates to the action assemblages associated with the use of university passwords. As I type in my password each day to log onto the computer (something which often appears to emerge automatically through my finger tips and onto the keyboard with little apparent thought), where is action, agency and materiality located? Is it in the keyboard, the computer system, the skin and fingers which press the keys, something hardwired into my brain and neurons as habit, or through the different action assemblages and many different memory traces emerging from different spaces, times and action performed through this event? While someone may be seen to be an active participant in this process of repetition in a ‘primary’ sense (e.g. setting up the password), many actions are assembling through the many different memory traces and complex sets of relations which underlie this event. These material memory traces can influence how things emerge in specific settings and the possibilities and potentialities of becoming, however, they may also be hidden or distributed in the sense of actions coming from elsewhere which may not be apparent within particular events. In other words, while all repetitions emerge via different forms of interaction and a process of becoming, they emerge through the assembling of spacing, timing and acting often in discontinuous and unclear ways. In fact, in order to enable particular forms of articulation to ensue, it is sometimes paramount that previous forms of action become shadowy or invisible figures which linger in the background. For instance, in terms of organizing practices within newspaper printing, we can see examples where actions coming from different spaces, times, and action are continually assembled and repeated through everyday manufacturing practices. The making of apparent intermediaries in the forms of standards and routines becomes part of the everyday

practices of making things happen within the factory setting. However, during times of controversy or investigation we may also see cases of how different practitioners themselves seek to open up black boxes to examine certain issues and problems of organizing: shifting them from matters of fact to matters of concern (Latour 2004). Therefore, when study organizing practices in relation to the process of repetition, an understanding of how we view objects, materiality, action, agency and the heterogeneous assembling of relations coming from a variety of spaces, times and other forms of actions is required within our accounts. Conceptual tools such as action assemblages and material memory traces can assist in providing insights into these issues, including the materiality, stability and change associated with the repetition of organizing practices, rules and scripts, and the complexity underlying this relational process of becoming.

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Producing Outputs to Materialized Time: An Issue of Organizational Time Making

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Organization scholars have long recognized time as a primary research object and a key issue in management; however, there is a lack of consensus concerning the conceptualization of time (Clark 1985; Orlikowski and Yates 2002). The major dividing line lies within the notions of *chronos* – which refers to objective time (homogeneous, clock-based, linear and measurable time) – and *kairos* – which refers to subjective time (heterogeneous, cyclic, experienced time and event time). Other scholars have rejected this dichotomy, demonstrating that *chronos* and *kairos* are not entirely distinct (Bergson 2010 [1907]; Jaques 1982; Blyton et al. 1989; Adam 1990; Orlikowski and Yates 2002; Poole 2004; Roe 2009). Still others, such as Clark (1985) and Bluedorn (2002), hold that *chronos* (called “fungible time”) and *kairos* (called “epochal time”) are not mutually exclusive, as they may indeed coexist for actors.

Nevertheless, as Ballard (2009) has noted, outside of a number of notable exceptions (Ancona et al. 2001b; Blount 2004; Waller et al. 2002; Zaheer et al. 1999), the most neglected aspect of these issues concerns how objective time shapes and is shaped by a subjective sense of time. This gap in the literature may be due to past investigations’ tendency to treat time as if it has an existence of its own (Bluedorn 2002; Roe 2009). Consequently, time is separated from lived experience and temporal studies are disconnected from everyday events, while in our daily lives, we often conflate the two.

Filling this gap in the literature is an important step in improving our conceptualization of organizational time. This conceptualisation of organizational time is particularly relevant in today’s work context, in which suffering at work and organizational dysfunction both indicate that the temporalities, timescales and deadlines shaped and imposed by actors impact the quality of the working environment. It therefore seems important to understand how teams objectify organizational time in an ongoing process, i.e. how actors share a sense/construction of time about their activities.

Pivotal attempts to conceptualize this process of objectification can be found in the work of Zerubavel (1981), Boden (1997), and Orlikowski and Yates (2002), who have additionally dealt with the temporal frameworks (also called “temporal structures”) developed by actors. Such research has pinpointed the ongoing creation of various temporal frameworks, which are produced, negotiated and shared through activities. Moreover, other scholars have underlined the role of tools used by actors in managing time, such as GANTT (Yakura, 2002), and the role of management tools in the making of organizational time, such as information technologies (Sahay, 1997). By highlighting the social creation of temporal frameworks and the role of management tools, these researchers have provided important insights into the objectification of time. More precisely, these studies have opened the door to a greater understanding of the relational ontology of organizational time, notably by revealing the entanglement between organizational time and management tools.

Our research builds on these results in arguing that actors also objectify time by producing and using heterogeneous outputs such as deliverables, reports, etc. As such, our research question is: How do actors continuously objectify organizational time through their everyday production of heterogeneous outputs?

By responding to this question, our aim is to extend the process-relational approach of organizational time by showing both the entanglement between organizational time and any activity performed, as well as the materialization of organizational time through heterogeneous outputs produced by actors.

With this aim in mind, our theoretical framework develops the perspective developed initially outlined by Butler (1995), Bluedorn (2002) and Roe (2009) regarding the conceptualization of organizational time as an ongoing result of the experiences lived by actors. From this perspective, any separation between lived experiences and time serves a strictly analytical purpose. Accordingly, we hold that actors conceptualize and objectify time through their experiences in order to coordinate and perform activities. For this reason, we rely on the notion of experience, as developed by Whitehead (1920, 1929), in order to understand organizational time as an ongoing process of objectification over time. Following this perspective, organizational time is defined as a workable social construction that is based on actors' past, current and expected events. More precisely, the events lived by actors are perceptual temporal entities that allow for the structuring of organizational time. Organizational time is also objectified through the events lived by actors, and consequently, the outputs produced and/or mobilized during these events enable actors to objectify both events and time. Following Whitehead (1920), the objectification of time via heterogeneous outputs can be defined as the particular mode in which the potential of events of objectified time are realized through the outputs produced by actors as they perform their activities.

Finally, this article provides at least two contributions to the conception of the creation of organizational time.

First, Whitehead's understanding of organizational time enables us to extend our understanding of the social construction of time by highlighting the role of experiences and events in the making of organizational time. Our research also confirms the assumptions of Bluedorn (2002) and Roe (2009) by showing that organizational time is entangled in every organizational experience.

Second, this research highlights the role of the outputs produced by actors in the objectification process of organizational time. Moreover, we claim that organizational time can be entangled with any entity produced by actors. Time is not only a social construction experienced in the mind, but is defined, objectified and materialized through the outputs that are produced.

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A matter of time! Maintaining reputation when the Omerta is broken: an historical approach of hazing in French universities

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At the end of October 2011, during the middle of a rainy afternoon, a group of young students begins the recruitment of new members for their society. Because of its celebrity and good reputation, numerous candidates have applied. Since its creation in late 1968, the board itself has always selected new comers. Few people are able to tell what happened in this room. Some gossip and words of mouth say that new members have been hazed, but since now, the ‘Omerta’ keeps the recruitment process secret. However, 2011’s cohort is different. Coming back home with scarifications at the back, one student tells to the police his trauma and file a complaint against person unknown. Journalists of all major French media got to hear of the event and then ask an interview to the dean to reveal some explanations.

The day after, more than a thousand of newspapers and websites reveal the event to the public. The week afterwards, we account more than a thousand of sources, and more than ten thousands debates, feedbacks and opinions across virtual platforms. In fact, the university in question has a very good corporate reputation because of its history, its labels and certifications, its position in the rankings, and also because of its strong recognition in the business environments.

We set our narrative with institutional theories (Suchman, 1995; Scott, 2008) and sociological studies, more especially with Bourdieu (1989) works on French Elites schools. Sociological studies explain that hazing activities took parts of the social and cultural fabric of the elites (Bourdieu, 1982, 1989; Nuwer, 1999; Larguère, 1995, Houseman, 2001). Bourdieu suggests that hazing constitute “the most visibly ritualized aspects” of the process of auto-consecration or institutionalization (Bourdieu, 1989: 152). In other words, hazing as institutional rituals are legitimated traditions that enhance identity creation for members in an institutional camp (say the elitist institution) (Suchman, 1995; Scott, 2008). However, in spite of all the benefit of these institution rituals, hazing activities deflect the societal rules since the life of students is jeopardized, and since members could violate a coercive rule established in 1998. If a death or serious injury would result from a hazing activity and other ethical scandal (Turner, 1976 in Sims, 2009), a university would face an amount of unwanted negative attention, which in turn could seriously damage the institution’s reputation (Hollmann, 2002; Rhee and Kim, 2012).

Scholars in reputation management mostly claim that reputational crisis management focuses on the activities of managers or spokespersons (e.g. Caroll, 2009; Elsbach, 2006, 2012; Sims, 2009). However, in the Internet age, whereas everybody can express their opinions powerfully, to what extent the responsibility for maintaining organization reputation is limited to a top management group? How did other key stakeholders (students, alumni students, politic parties, competitors, etc.) have reacted to the event (and contributed to the preservation of organizational reputation)? What are their roles in the case of reputation damage that affect their own reputation, or identities or legitimacy? Although we know that reputation reside in the perception of groups of stakeholders (Fombrun, 1996) and that as elements of information they must be manageable to the organization through interactions to be evaluated and adopted (Fombrun, 1996; Dowling, 2006), we know little about the actions of audiences and the process/information/discourses/histories they use within a virtual context to adopt and change their opinions. Thus, our research question is as follows: What are the reactions of constituent

stakeholders in the context of a reputational crisis? More specifically, we seek to understand the way they see, adapt and co-adapt organizational image and identity in the context of a reputational crisis.

This paper focus on a historical perspective and a longitudinal study of the hazing as an evolving controversy overtime and seeks to illustrate what are the reactions of various key stakeholders in the context of a reputational crisis. The unit of analysis is time and long durée (Braudel, 1958; Mitev and de Vaujany, 2012). We choose to divide our data collection in two perspectives. First, we conduct a retrospective data collection through the history of Hazing in educational sector. Second, we did a real-time data collection in the course of the scandal. Our main finding reveals that during a reputational crisis the responsibility could be transferred to many other levels: micro-level - individuals and groups (the association in question, and students) or macro-level - organization and institutions (government and the French Society). To understand the latter, a long durée perspective is particularly useful. Who is responsible and in charge of the crisis is highly disputed and appears to be at the core of the reputation crisis itself (and its identity dimension). In other words, the trigger event has not only reputation damages for one organization, but also it has consequences in all the institutional camp (identity threats for internal members, legitimacy cost for regulators). By doing so, we contribute to the recent improvements in understanding reputational crisis.

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The principles of campuses development: a morphological and functional genealogy. What kind of knowledge can we use from an historical analysis for the design of a new campus in Saclay?

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This proposal is part of the thesis, which is looking at the Campus Paris-Saclay (France) project. The aim is to analyse the conception of the new campus being part of the implementation of a nation wide public policy which main purpose is to give France a higher education and research system of excellence, at the world's best level, in order to allow to national visibility and competitiveness. A series of reforms have been introduced crossing several dynamics: the implementation of structures to evaluate and finance research, groups to stimulate the scientific cooperation, the development of a territorial policy, a system of competitive bidding and the promotion of cooperation between public research and the economic world. The thesis project consists of the analysis of the concept of the Saclay model and its implementation. How does this model of territorial organization come to life, is justified and contributes to national public policy?

The starting point of the research is to question what involves the notion of campus by looking at the hypothesis that a historical approach can create knowledge about the link between an ideological context, planning principles, functions, spatial organizations, and geographical establishment. In this paper, we will try to define the campus by looking at its different forms.

Therefore, we propose to focus on the principles of campuses development through a historical analysis in order to establish a morphological and functional genealogy of this object. The aim is to confront the origins and the evolutions of the campuses to the conception of the campus in Saclay and to try to represent the relationship between the different models and the new campus in construction.

The analysis starts at the end of the eighteenth century when the term "campus" seemed to appear at the New Jersey College -later Princeton College. It looks at two particular reforms periods of the higher education system; the nineteenth century and the sixties. Looking at the examples of the University of Virginia, (Turner, 1984), the model of « University community » (Olmsted, 1997), the Massachusetts Institute of Technology (Mitchell, 2007) or the campus of Konstanz in Germany (Muthesius, 2000), we observe that the campus is related to a specific ideology which influences the principles of conception. The functions are the result of these context and principles and we distinguish two morphological variables; the spatial organization and the geographical establishment. The analysis of the principles reveals that the priority of the first campuses was to build and organize a community or to bring together several communities and create a social link between them. Traditionally, the campus is a defined outfit outside the city. Sometimes it is linked to its social, geographical and economical environment and sometimes it lives as a microcosm. We also observe that the choice of planning tools – master plan, sociogram – is the result of the development principles and influence the shape of spatial organization.

The idea is to use this genealogy as a comparative tool to discuss how the design of a new campus could depend, on one hand, on the channelling of ideas about the campus and the conditions of reception of these ideas, and on the other hand, on both specific ideology and territorial context. What are the organizational stakes and the shape responses to build a new community? How the history and the accumulation of stratum of a given territory do have an impact on the conception of a new campus? What kind of knowledge can we use from the past several models to question the management of the new project?

The final aim is to test out the case of the new campus in Saclay looking at management (project), sociology (organization theory) and town planning literature.

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Session 4–Information technology, information and materiality in organizations

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Ignorance-based management and non-information systems as sources of organizational inertia

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Organization research have focused on knowledge and information for a long time. This paper will analyze the roles of ignorance, as the complement of knowledge, and of non-information, as the complement of information, in allowing organizational action and change but also in generating organizational inertia.

Narrative genres and ignorance-based organizing

In this article, organizing will be characterized as a narrative process (Boje, 1995; Boje & al., 2004), involving acting and learning dynamics. Socially organized groups learn and organize themselves by acting collectively and, at the same time, telling the meaning-making story of their action, with or without words. This organizing process makes meaning through the complementary combination of what is said (narrative discourses) and what is not said, what is informed and what is ignored. The boundary between information and non-information, knowledge and ignorance, depends on the narrative / organizational "genre" (Bakhtin, 1986) to which this particular organizing process refers (e.g. "designing", or "manufacturing", or "servicing", or "treating patients" genres).

The "genre" involves two classes of non-formulated information. Firstly, what is tacit: there is a whole array of meanings, generic characters, spatial and temporal frames, which are taken for granted, linked with the tacitly referred genre. Secondly, what is deemed irrelevant: entire areas of action characteristics, conditions, environment, etc. are tacitly considered as un-topical for this type of organizing process. Organizational worlds are narrative worlds which are "incomplete and semantically non-homogeneous: they are 'small worlds'" (Eco, 1990: 225). In such small worlds, spheres of meaning, identities and values are selected and counter-balanced by areas of silence, non-information, blanks, mostly linked with irrelevance or untopicality.

The untopical and the taken for granted classes of meaning play an important role in the characters' capacity to act: by discarding, framing and channeling, they simplify the meaning-making process, they make it manageable and actionable by lowering its level of complexity and thus they support action (Swieringa & Weick, 1987). They express a form of deliberate ignorance which is also a performative ignorance: procedures discard as much as they bring to light, and this is a key condition of action (Congleton, 2001), by avoiding complexity and dilemmas (Ehrich & Irwin, 2005).

Deliberate ignorance plays an important temporal role. Firstly, by discarding some forms of meaning, they discard the corresponding temporal frames. For example, by ignoring slow effects, it focuses attention on short term horizon (Pestre, 2013). Secondly, the ignored aspects of organizing and the blanks of information are an important source of inertia. They impose social habits to action in ways which remain un-discussed and un-debatable, hence uneasy to transform. For example they can stabilize or even rigidify the social definition of functions and professions, professional identities, frontiers between functions, organizational roles and values.

Information systems as non-information systems

Information systems are also non-information systems. By defining the boundaries and the segmentation of information, they tacitly define what is excluded from information ("non-information" areas) and they constrain spatial and temporal narrative frames.

This role of information systems as delineating areas of non-information is easy to interpret in a semiotic perspective. Any system of signs (e.g. language, music, accounting) is a segmenting system. It segments the continuum of reality to get a semantic structure which can be socially shared and recorded. For example, the accounting system segments time in periods, expenses in accounts, organization in costing centers. In doing so, the system of signs leaves aside other forms of segmentation, based on other distinctive attributes. The segmentation logic thus impoverishes the infinitely rich continuum of reality, but it gives access to new categories of meaning and potentials to act. It is a tit for tat exchange, limiting content to create new content.

The relationship between ignorance and information systems is recursive. What is ignored must not be taken into account in the design of information systems. Once deliberate ignorance is translated into information architecture, the corresponding classes of meaning are indeed ignored. For example, if engineering modifications are not considered as a relevant cost-driver and are deliberately ignored, the accounting system does not include them as a cost-driver in the accounting structure, which will make the cost of engineering modifications difficult to evaluate in the future.

Two examples

First example

In the production of Ariane spatial launcher, hundreds of modifications of the design of the product per year are labeled as "costless modifications", and as such are accepted, in spite of the high cost of that practice. Actually, this derogation procedure emerged originally as the deliberate ignorance of the economic dimension of product modifications. This deliberate ignorance was related with a specific narrative about the production activity: production is the prolongation of engineering, such a complex product never stabilizes, the human resource of engineers is strategic and should be maintained, modifications are an effective way to maintain their competence, modifications have a minor marginal cost, on the horizon of launching projects the engineering cost is mostly fixed, anyway there is hardly any competition in this activity. Thus evaluating the cost of modifications seemed untopical for many reasons. As a result, it is not surprising that the accounting system does not allow the costing of engineering changes.

Conditions have changed; there is a fierce competition, public subsidies diminish, new space programs need engineers, the launcher is now produced by a private firm which requires financial returns. There is a wide consensus for change, but nobody seems to really control the situation. The procedure of "costless modifications" still produces its effects as if it had its own political views (Winner, 1980).

Ariane engineers do not consider costing as a legitimate activity for them. Actually, the procedure of "costless modification" tacitly separates technical criteria from economic criteria, freezes the definition of functions, excludes economic considerations from the engineering mission, and the general intellectual consensus to change the practice bumps into material obstacles (the accounting structure) but also into social habits.

Second example

At Electricité de France, purchasers were measured by a performance indicator called "gain rate". It measured the theoretical economic gain from one triennial contract to the following one, for a given purchased article, for a conventional volume. It was an indicator focused on the negotiating mission of purchasers: were they effective in bargaining with suppliers and getting price decreases? It did not refer in the least, either to actual purchasing costs, or to the cost of using purchased articles. Actually,

it reflected the deliberate ignorance of the corporate accounts and the actual expenses by the purchasing department, and the purchasers' will to define their mission as an exclusive negotiation mission.

The two examples will be discussed to draw conclusions from a theoretical point of view: the role of ignorance and non-information in the meaning-making and organizing processes, and in particular in stabilizing systems of meanings and creating organizational inertia; from a practical point of view, it will stress the importance of taking into account ignored dimensions to manage organizational change.

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Social media as a trigger of organizational time speed-up

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For years mystery of time challenged organizational scholars. Macro level research and theory related time to such substantive areas as organizational culture, strategic planning, contingency theory. Within these works time had been analyzed in its material manifestations, in a functional fashion. Population ecologists described time negatively and externally (Hannan&Freeman, 1977). It'd been seen as a natural inevitability, writing out a death sentence for the organizations that were too big or too inert to adapt. Institutional scholars emphasized path dependency (Arthur, 1989, Mahoney, 2000), isomorphic pressures from historical choices made by organization in the early years. Process view had been adopted by behavioral scholars, who looked at evolution of firm capabilities, organizational learning or routines (Zbaracki, Bergen, 2010, March, 1991). However, elaborating on the material nature of time had for a long time been left to philosophers and social scholars. Structuralist perspective proclaimed temporal structures internal and social - created and enacted by humans (Giddens, 1991). Developing this position, Orlikowski underlined that time as a category has dual nature, both shaping and being shaped by individuals (Orlikowski, Yates, 1999). Different temporal structures materialized in the artifacts like software release timetables, flight schedules, university calendars, holiday seasons, and career milestones enable different types of meaningful and coordinated actions. 21st century advanced diversity of the artifacts, which allow tracing the materiality of time and present a challenge to the habitual temporal practices.

Andrew Pickering showed in his classical work how bubble chamber allowed shedding light on existence of quarks (Pickering, 1993). Social media represent a metaphorical bubble chamber, full of meaningful, though chaotic, details, helpful in tracing organizational change markers. At the same time materiality of the technology (accessibility, privacy settings, server-dependent nature) constrains possibility to accumulate and analyze these data. However, emergence of social media triggered curious processes in organizational life (media corporations being the first frontier).

Time manifests its materiality by diversity of artifacts illustrating order, sequence and frequency. Organizational time is represented by employment of change in the chronicles (Richardson, 2002). Therefore sometimes hi(story) is hard to capture, if no one takes responsibility to keep track of secondary data. Apparently, time is hard to trace in an informal organization; even during the interviews with the top management in the beginning of my research I was presented with the absence of dominant narrative (“No one bothered to keep chronicles; I would have to hire someone to tell you the story...” - told the CEO). Organizational time here escaped materialization; it resisted to become human to the extent that it wasn't articulated through a narrative mode (Carr, 1991). At the same time, semantic (in its on-line, virtual form) space was full of the various accounts of time – website updates, Facebook and Twitter postings, map locations, photographs, videos... as if hundreds of personal chronicles sought to overcome the boundary of richness between reality and narrative and allow open-source history co-creation. This instant updating seemed to question possibility of one dominant narrative on the history of the organization, and presented the whole new variety of artifacts for the researcher to analyze.

Not only narrative time was subject to decomposition. Daily organizational time also crumbled. Social media, messengers and emails afforded communication over distances and time-zones. No longer solid and unified, time zones became momentary and personal. The same happened to timetables. Mobile workers were active in different hours from office clerks; the last adapted working hours to the ones of their partners abroad. Time became established not by the natural cycles but by number of

agreements and trade-offs between the employees living in different parts of the globe. This was partly the product of technological affordances for instant communication independently of the “official” time in the region, and partly the act of human agency.

Similarly, social media triggered a quality paradox in product manufacturing. “With emergence of the online representation of the newspaper, we all had to work more and faster. Because the website has to be updated frequently no matter what, all the types of product were requested - both good features and slag. Site efficiency was impressive, but quality of the online newspaper suffered terribly”- tells professional reporter. This account emphasizes two details. First, that organizational time in the newspapers became denser. And second, given frozen wages, employers appeared to accept lower quality for the same reward in pursuit of frequency.

Therefore, given the fission of dominant narrative and unified time zones, pursuit of frequency and growth of working hours density, I argue that social communicational media enacted process of time decomposition, making time more personalized and instant than ever.

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Epistemic Actions in Visual Strategy Ideation: Exploring the (re-)appropriation of visual artefacts for strategy making

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In a recent review of the strategy-as-practice literature, Vaara and Whittington (2012) called for a closer examination of the role of materiality in strategy making. In this article we approach this gap, by uncovering the dynamics whereby strategy tools – such as strategy maps, technology roadmaps, and strategy canvas – are (re-)appropriated in strategy making workshops. To this end, we build on previous studies on the “epistemic culture” of strategy making (Kaplan, 2011) – broadly defined as the arrangements and mechanisms by which strategy is produced in a situated context. In this perspective, the re-appropriation of strategy tools to accommodate for the here-and-now of strategy making should not be regarded as “incorrect”, but rather as a situated practice assisting both analytical and imaginative thinking. Adaptive uses include, among other things, integrating or combining multiple tools, revising the dimensions or labels of the tools, and changing the tempo and scope of their application (Jarratt & Stiles, 2010).

Whereas previous research has focused on the discursive practices whereby strategy is formulated in interaction with material artefacts (Kaplan, 2011), we recognize the inherently visual nature of strategy tools and suggest adopting a “visual turn”. We therefore approach materiality from a visual angle, and consider strategy tools as embedded in the visual practices of strategy makers (Eppler & Platts, 2009; Whyte, Ewenstein, Hales, & Tidd, 2008). In particular, we address the following questions: What visual practices do underlie the (re-)appropriation of strategy tools? How do strategy tools mediate and influence strategy decisions, by virtue of their visual structure? In order to address these questions, we rely on a large empirical base consisting of direct observations of practitioners engaging in strategy formation workshops with the aid of innovative – yet simple – strategy tools (examples in Figure 1). We have in fact conducted action research with strategy making teams from 12 European companies, with the aim to assist strategy formation and the creation of innovative strategic options for their businesses. The workshops (4-12 participants) were facilitated either by the researchers or by one of the participants, and involved the use of strategy templates – hand-drawn on large brown paper, or loaded as digital files on visualization software.

Building on this empirical base, we suggest that the (re-)appropriation of strategy tools occurs along the lines of four “epistemic actions” (i.e., following, questioning, transcending and revising) – consisting of physical interactions with the visual material that stimulate thinking. At first, the engagement with the visual structure fosters new insights, leading participants to initiate a reflexive practice whereby the reality of the business context is reappraised in light of the tool dimensions (following). While formulating their strategy, practitioners may start questioning the very usefulness of the strategy tool, and its aptness to capture the complexity of reality (questioning). As they manipulate the visual structure, participants may transcend and eventually revise the strategy tool to suit the here-and-now of their strategizing activity (transcending and revising). Triggered by the visual structure of the tool, these epistemic actions promote a higher level of consciousness as to the basis on which the organization interprets its strategic objectives, context, and opportunities. We illustrate epistemic actions – and the corresponding shifts – with vignettes taken from our action research. In so doing, we shed light on the material transformations undergone by the strategy tools, and suggest how such transformations influence the strategizing activity.

To mention an example, in a workshop of a global insurance group, the participants used a method called “empathy map” (Gray, Brown & Macanuso, 2010) to analyse the current needs and expectations of their corporate clients in the area of Internet insurance. Originally, the empathy map is used to achieve a deeper understanding of any stakeholders in the business environment, by identifying their current expectations, as well as mental and emotional status-quo. But after having worked in this mode for about 20 minutes, the team was somewhat disappointed that the exercise did not lead to any breakthrough ideas, and thought about other ways to use the empathy map. One member thus suggested extending the empathy map from a present to a future orientation in order to anticipate the future needs and expectations of Internet insurance customers. This retrospective exercise sparked many new ideas, enabling practitioners to project the customer’s state of mind as if the organization had already introduced a new insurance for the Internet age.

In another workshop, practitioners were introduced to the opportunity map (Muller & Valikangas, 2002) – a visual strategizing method used to assist the identification of synergy areas with a business partner, and to envision opportunities for collaboration. The matrix structure provides a perceptual affordance to systematically recombine organizational assets and competences for filling white-space opportunities. But in the example at hand, the opportunity map was reconfigured as a roadmap for the future development of the alliance, rather than being used for assessing the feasibility of the alliance itself. To some extent, the practitioners were cajoled by the visual depiction of collaboration opportunities, and started working out the details of the alliance, without first performing a due diligence analysis of the associated risks and downturns.

From a theoretical perspective, our visual approach to the study of strategy-as-practice sheds new light on the performative character of strategy tools, by suggesting that their visual structure may provide guidance, but also cajole or even trap practitioners. The visual structure in fact makes certain units of information more or less salient, and hence more or less likely to be considered in strategy making. Furthermore, the way that strategic tools are presented seems to have an impact on their use and hence on strategy practice. Practitioners have a higher propensity to question, transcend and revise a strategy tool if such a tool is presented as a hand-drawn framework rather than a software-based template. A low perceived finishedness in fact might help participants appropriate the tool and make it “their own” by adding, subtracting, or modifying elements. Questioning the epistemic validity of a strategy tool, however, is not a riskless approach, involving possible biases in strategy formulation, and even confrontation in strategy making workshops. We thus believe it is useful to inform practitioners about the epistemic actions and shifts outlined in this paper and hence provide an opportunity for metacognition in the use of strategy tools.

Keywords: strategy tools, visual objects and practices, epistemic actions and shifts, appropriation, strategy-as-practice

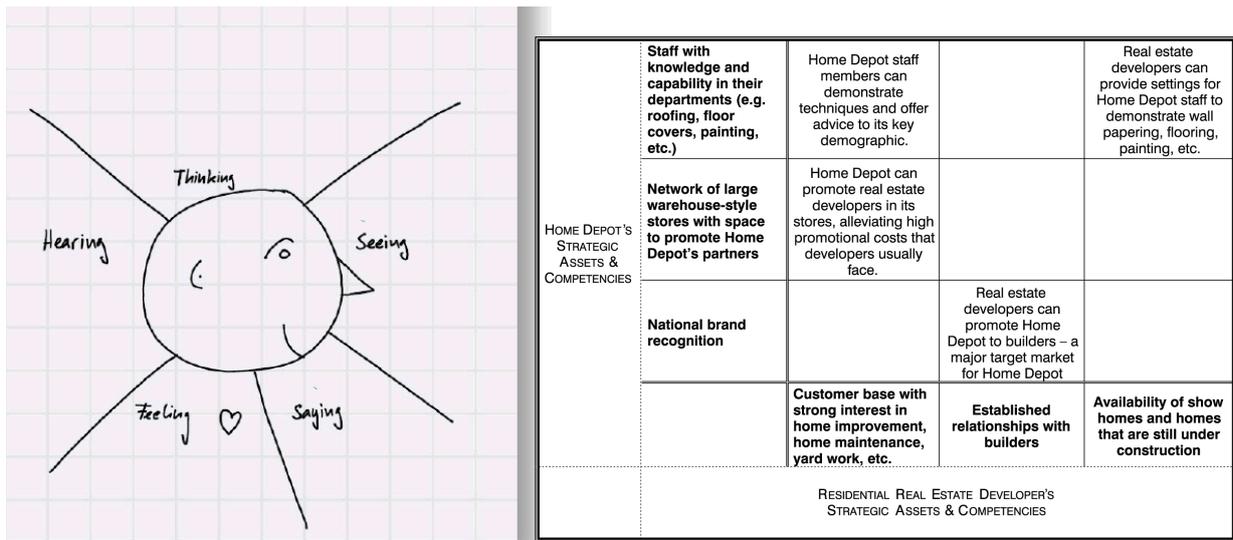


Figure 1. Empathy Map (left) and Opportunity Map (right)

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The importance of evolving sociomaterial practices in IS change management: limitations of traditional strategic alignment models

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The Strategic Alignment Model (SAM) was proposed by Henderson and Venkatraman in two conceptual working papers (1989a, b) and popularized in 1993 in an article published in the IBM System Journal (now HV93). It is the model most used by researchers and practitioners in strategic alignment research, one of the most active research areas in the field of Management Information Systems. Indeed, 20 years after its publication, this article is seen as a seminal article for IS literature (MIS: Earl, 1996; Labovitz and Rosansky, 1997; Corral, 2000, Chan and Reich, 2007a, b) and has been the foundation for numerous research works. It constitutes nowadays an authority argument (Latour, 1987) and a conceptual truism (Ciborra, 1997) within the IS literature. It deals with a salient issue for business and IS (Information Systems) practitioners (Luftman, Papp and Brier, 1999; Luftman, Kempaiah and Nash, 2006; Papp, 2001; Tallon, Kraemer and Gurbanaxi, 2000; Trainor, 2003).

SAM has however never been the object of a retrospective study on the means of its diffusion and legitimation through time. The IS literature is part of a cumulative research tradition. Researches tend to cluster in informal networks within which they focus on similar problems in similar ways (Price, 1963). In these networks, concepts and findings are exchanged, extended, tested, refined and diffused. All studies are then built upon others and this co-construction describes the intellectual history and construction of a homogeneous field, based on the same premises and assumptions that are not questioned nor challenged (Culnan, 1986). The researcher has to go beyond the individual article, and to study groups of articles i.e., the network of articles mobilized around the original seminal article in order to analyze the combined logics of research. This study then addresses the following research questions:

- Does the literature around HV93 constitute a homogeneous research field?
- On which theoretical anchors is this research field truly grounded?

The co-citation analysis (CCA), which measures the number of documents that have cited any pairs of documents (Garfield, 1979; Small, 1973), appears as a relevant tool in order to fulfill our agenda. Co-citation analysis highlights the “invisible college” (Noma, 1984: p.30) or the social dimension of scientific communications. The hypothesis underlining this logic is summarized by Kessler (1963; cited by Noma, 1984: p. 32) “bibliography or technical papers is one way by which the author can indicate the intellectual environment within which he operates, and if two papers show similar bibliographies, there is an implied relation between them”. Then, through co-citations by third parties, researchers gather within informal networks that shape the intellectual environment of a field. CCA gives researchers the opportunity to analyze the foundations of their subfield and define on which intellectual basis it has been constituted. This enlightens the internal philosophical and epistemological logic of the literature and replaces its findings in perspective. As used and applied in the present article, CCA aims at discovering the theoretical and epistemological foundations of the literature developed around the SAM, characterized by HV93.

The presentation will be organized as follows: we first present the strategic alignment model from a historical and theoretical perspective. We then describe and discuss the CCA method before detailing

the application of this method to the articles which cite HV93. Finally, we present our results which we then discuss in the last section through the dissociation process lens before investigating future research venues.

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Session 5–Measuring and accounting for time in organizations

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Room: 32 Lincoln's Inn Fields Building, Room LG 03

The Spatial downgrading of accounting clerks. The case of Pont-à-Mousson

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Research into the conditions under which accountants have worked is still fairly uncommon. The aim of this paper is to reconsider the Taylorian reorganisation of the accounting departments at Pont-à-Mousson in the 1920s in order to examine the underlying managerial symbolism.

Following on from the work of McDonald (1989), several research projects have highlighted the strong managerial symbolic of space. The movement we would like to highlight here is diametrically opposed to this: space can, on the contrary, signify downgrading, a loss of legitimacy or respectability.

Our presentation is divided into four sections. The first lists the sources used and justifies the Foucauldian perspective from which our analysis of space is conducted. The second and third sections analyse the conception, then the implementation of the reorganisation of accounting space. The final section discusses the results on the basis of the existing literature.

To show how the workspace of accounting clerks ran parallel to that of manual workers, we use Michel Foucault (1975, 166-175)'s analysis, which defines spatial modernity according to four principles: enclosure, partitioning and subdivision, functional sites and finally, rank.

Enclosure served to explicitly separate the interior from the exterior: the interior consists of the workspace where the employee must remain in working hours. Partitioning consists in dividing up the space into a great many sub-spaces to break up groups. The rule of functional placements seeks to organise all interior space by attributing an explicit function to it. Rank consists in attributing a hierarchical place to each functional space.

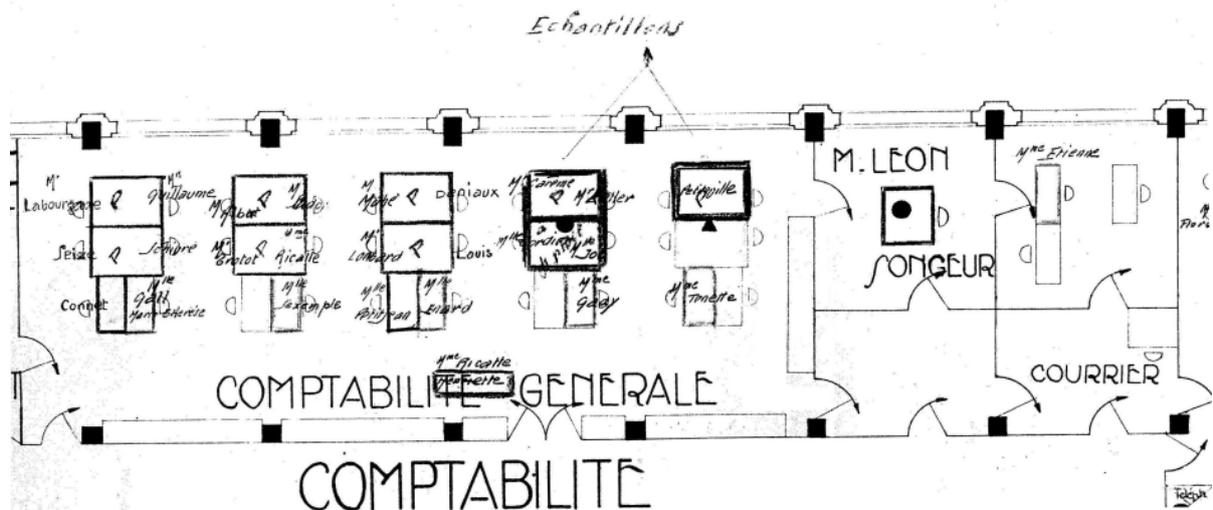
The Chairman of Pont-à-Mousson, Camille Cavallier, noted in a letter dated 25th January 1921 and addressed to his son-in-law (and designated successor): "people are no longer thinking about the cost of things" (file 25496). He continues by concluding that he "will draw the attention of those concerned to the savings that must be made". It has to be said that it was precisely from 1921 onwards that Jules Perrot, head of accounting, provided figures for social overhead costs.

The following year, a "Competition in the use of the Taylor system" in the Pont-à-Mousson mines and factories to "re-establish a sense of economy and cost price that has disappeared since the War" was launched in the company (file 63).

After reading these reports, one quickly understands that the focus is on the control of work and workers through the organisation of space. By this means, the directors hope to be able to limit the rise of overheads.

The first characteristic of the organisation of the new offices was to explicitly separate the interior from the exterior. Doormen were positioned at the entrances and exits of the buildings to check that working hours were being respected (3-4, file 57752).

Once the separation between interior and exterior had been defined, it remained to clarify the power mechanisms within the company. This was the role of partitioning. In his office, the employee was allocated a space that had to be both precise, small, and as operational as possible.



Functionalisation completes these measures by preventing employees from escaping surveillance. To achieve this, the individual must be kept in his workspace as long as possible, notably, by means of regulations.

The last characteristic of space is its hierarchisation. Surveillance is far from being uniform. On one side, the employees are subject to its rules, and on the other, the management hierarchy escapes them.

This research sheds light on existing research in several ways. Firstly, it highlights the effects of Taylorism on accounting clerks. Secondly, it shows how Taylorism spread beyond just manual workers and into the world of the office. Lastly, it shows how the spatial aspect reinforced the social downgrading of accounting clerks (and more generally of office workers) between the end of the 19th century and the Inter-War period.

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Numbers and managerial work in inter-organizational performance evaluation meetings:

Moments and their Men

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Research on management accounting has been one sided as it has primarily focused on the technical dimension of accounting techniques, tools and information and somewhat neglected their situated managerial uses. In fact, very little is still known about the detailed practices through which managers engage with numbers in their daily work (Jonsson, 1998; Hall, 2010). Studies in accounting research have indeed focused on organizational-level issues and they are “typically based upon assumptions about, rather than a detailed investigation of, managerial work behaviour” (Hall, 2010). In particular, management accounting research on inter-organizational relationships has focused on the design of new performance measurement tools and accounting techniques to improve the accuracy of economic representations, enhanced by advance measurement techniques. The development of *open book accounting* (Kajüter and Kumala, 2005), the design of *inter-organizational balanced scorecards* (Kaplan and Norton, 2006) and the application of the *value chain concept* to carry out strategic cost management analyses (Shank, 1989; Shank and Govindarajan, 1992) are viewed as answers to make do with the complexity of effectively managing inter-organizational relationships. Admittedly, other scholars have challenged this view stressing that the relational context in which these number-based management tools and accounting techniques are engaged should not be left out. The risk of resorting to a too instrumental approach disconnected from inter-organizational everyday life is therefore pointed out. For some scholars, the relational context should even come first in the conceptualization of the control processes underlying the development of these inter-firm relationships (Lord, 1996; Tomkins, 2001; Coopers and Slagmulder, 2004). However, most of these studies share a common point in that no one ever knows what managers practically do with these numbers - accounting and non-financial metrics - to effectively sustain and develop these inter organizational relationships. None of these researches focus on the lived experience of managers while engaging numbers in performance evaluation meetings.

Though most of them praise “joint performance evaluation meetings” as an effective control mechanism to build trust, deal with potential conflicts and align firms’ interests with one another (Dekker, 2003; 2004; Kaplan, 2007), hardly any convincing account of a single performance evaluation meeting in an inter-organizational setting can be found in the literature. Yet, managerial implications that are derived from these researches heavily rely on the rationalist theory of economic science applied to management accounting tools and artefacts that endows numbers with qualities of “objectiveness” and “accurate representation” of parts of the world that make these implications possible in the first place. For instance, Dekker (2003, p.200) stresses: “The objectiveness of cost information eased communication, decision making and negotiations between Sainsbury and the suppliers”. As critically assessed by Ahrens and Chapman (2006), these scholars “do not, however, tend to elaborate on the specific activities through which their exhortations might be taken up”. The managerial activity mediated through the use of number-based management tools is most of the time left out as if nothing of value could be gleaned by a focus on the practices engaged by the actors of these relationships in their specific context of action. As a result, mainstream inter-organizational management control theory has been disconnected from managerial work for a long time. It has mainly focused on taken-for granted specific “control problems” derived from transaction cost economy and agency theory (Caglio and Ditillo, 2008) and elaborated on two main topics: the coordination of interdependent tasks and the management of appropriation concerns (Gulati & Singh, 1998; Dekker, 2004; Caglio and Ditillo, 2008). Yet, their derived managerial implications unfold in an abstract, static and under-socialized world where situated activity (Suchman, 1985) and improvisation do not exist.

We consider that this mainstream approach suffers from several limitations that justify the adoption of

a different theoretical framework and methodology to explore the relationship between (accounting) *numbers* and *managerial work* in an inter-organizational setting. First, there is much more at stake in performance review meetings than a mere exchange of information under the threat of opportunistic behavior. Those meetings are part of inter-relationship practices that aim at effectively managing existing inter-organizational processes but also at constantly re-inventing their cooperative practices. Inter-organizational cooperation simultaneously comprises existing practices (for example long-standing commercial supplier-customer relationships) and new forms of cooperation yet to be invented (Ring and Ven de Ven, 1994; Normann & Ramirez, 1994; Madhok & Tallman, 1998). Such inter-organizational practices are "in the making" and ultimately unpredictable. An inter-organizational relationship does not appear as an object to design for strategic decision-makers but as a situated and emerging process, in progress here and now, to redesign cooperation practices and invent new ways of doing things. Second, we draw on Vollmer's theoretical contribution (Vollmer, 2007) arguing that numbers are specific managerial artefacts that display *calculative*, *symptomatic* and *existential* qualities. Though, mainstream research has heavily focused on the two first kinds of qualities, there is still a lack of understanding as to how participants of social situations actively relate themselves to the world and to others by using numbers (Vollmer, 2006). Past experiences, emotions, beliefs, interpersonal relations, projections into the future are also part of the ongoing present experience when managers from different organizations engage with numbers in performance evaluation meetings. In particular, the *face* of participants is on the line during inter-organizational performance evaluation meetings. *Face* may be defined as the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact (Goffman 1967). Goffman's ideas have emerged as a promising conceptual framework in organization studies (Czarniawska, 2006; Manning, 2008). Drawing on Goffman's theory of *self* and *dramaturgical perspective*, we claim that all participants are emotionally bounded to the face they expose to others during these repeated and risky meetings where accounting and non-financial numbers are everywhere and actively engaged through talks and slide display. Team members engage in *face-work* practices to avoid embarrassing others and being embarrassed during social interactions and to help preserve and/or restore the interaction order (Goffman, 1973, 1967; Quéré, 1989, Rawls, 1987, Kebrat-Oreccini, 1989, Nizet et Rigaud, 2005). More specifically, in this paper, we seek to explore the existential qualities of numbers and study the use of numbers with *face work practices* in a specific inter-organizational setting: "How do managers practically engage with numbers to perform face work practices during repeated inter-organizational business review meetings?".

In order to answer this research question, we conducted a fourteen-month ethnography in the French headquarters of a worldwide leading retail company. We study the situated uses of numbers - and the management tools in which they are re-assembled such as slides and graphs - in repeated "business review" meetings in a specific inter-organizational setting. A French retailer and sixteen international suppliers have decided to officially move away from adversarial relationships driven by yearly commercial negotiation to embrace novel strategic cooperative practices - known as category management (Tordjman, 1999). The researcher was assigned the operational task of supervising production of inter organizational scorecards and monthly monitoring of category budgets. He spent an average three days per week on site playing the role of a management accountant, i.e. collecting and restating all the available information from the various unrelated information systems used at the retailer's autonomous entities. Supplementary data from the selected suppliers were also to be integrated into these new scorecards. This work was done manually and involved considerable data crunching since no existing data fitted the requested level of information. It was time-consuming and required extensive contacts and discussions on site and with suppliers. The researcher gained field legitimacy through knowing all the actors involved in the management of a category, exploring the

background of these relationships and witnessing key disruptive events (Goffman, 1975). It is not easy for a researcher to maintain an enduring relationship with field actors over time. “The personality, experience, and character of a researcher become important components of the research process and should be made an explicit part of the analysis” (Strauss & Corbin, 1998; Suddaby, 2006, Ahrens & Chapman, 2006). Before becoming a university professor, one of the researchers had worked both for Unilever and the case study retailer for ten years. No formal contract was signed and the researcher did not receive or seek any financial compensation for his operational involvement. The researcher’s 14-month, on-site “immersion” strongly resembles what Erving Goffman called *participant observation*, a data collection technique requiring intense, long-lasting involvement on site. The researcher was subject to the same set of contingencies as the actors in the field (Goffman, 1975:125). As a participant observer, he could personally attend and study more than a hundred preparatory and official inter-organizational meetings. These meetings were held both monthly and quarterly, lasted on average two hours, and involved the firms’ highest-ranking officials, including their respective CEOs. The researcher never played an active part in formal meetings; however, he took notes and wrote memos during and after each meeting. The informal deal was clear: as long as the job assigned to him got done, the researcher could do whatever he wanted for his research purposes. The only restriction was that official meetings could not be tape-recorded.

The empirical data suggest that the witnessed performance evaluation meetings are constantly plagued by face-threatening events that cannot be always anticipated and that need to be carefully managed by all involved. These events punctuate the course of the ongoing performance evaluation meeting and are sometimes totally disconnected from the matter at hand. Indeed, these disruptive moments show “how the past, the future and the “elsewhere” of a situation are rolled together into the ongoing experience of the present moment” (Lorino et Mourey, 2012). In this paper, we analyze specific moments of these interactions when face-threatening events come into play and when teams have to deal with performance disruptions. They originate either from a *gaffe* or a *faux pas* made by a team member or from the deliberate, yet unanticipated, making of a scene. We demonstrate 1) how high-ranking officials from competing organizations seek to maintain and/or challenge an interaction order during repeated face-to-face interactions by drawing on numbers in their managerial work and 2) evidence of intra and inter-organizational dramaturgical coordination practices. In this regard, number-based management tools (slides, graphs, photographs, numbers etc...) display a situational feature as they turn out to be dramaturgical accessories, a resource at hand to help maintain a projected definition of the situation and/or challenge the interaction order. We then discuss the temporal dynamics of these repeated number-based face games that need to be sustained over a long period of time. Patriotta and Spedale (2009) assert that the repetition of “face games” generate an “interaction order” that provides a context for further exchanges and affects the development and outcomes of group sensemaking. We bring this argument a little further and we argue that the management of these disruptive moments do matter and influences the becoming of their inter-organizational relationships as they affect positively or negatively what *may be*, the new possibilities of novel joint action they seek to create.

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Materialization of ‘Integration’ Policy:

A Case Study in Translating a Template for Action in Conditions of Uncertainty

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In conditions of uncertainty, an organization is likely to imitate the practices perceived as successful and legitimized (DiMaggio & Powell 1983). Adopting a model or a template however, is not a mechanical but a reflexive and to some extent a creative activity (Czarniawska & Joerges 1996). In order to be implemented in other settings, practices, ideas and organizational forms need to be initially disembedded from their original context and, following, materialized in a form that allows the travel to new contexts where they are being embedded (Czarniawska & Joerges 1996). This materialization might result in a book, a receipt, a guideline, a policy agenda etc. Thus, in time, practices and forms of organizations materialize and change their shape when embedding in new sites. The fact that all forms and practices are inspired by previous ones renders the act of identifying a context of a departure as original, arbitrary to a certain extent. The travel, and by implication the materialization is not mechanical as usually depicted in diffusion models borrowed from chemistry (Djelic 2008), but vividly reshaped in accordance to the process of structuration (Giddens 1984). In order to study that process one needs to follow objects, which travelled (Czarniawska & Joerges 1996).

The case under analysis is the development process of the document titled ‘Migration Policy of Poland’, and the part dealing with the policy of immigrants integration in particular. Immigration is a relatively new phenomenon for Poland – a traditionally sending country. Still, since 1989, the number of immigrants in Poland increased. In 2009, the Polish government took the decision to design a comprehensive immigration policy.

I analyze the Polish Ministry of Labour and Social Affairs developing the national agenda for integration of immigrants as an organization acting in conditions of uncertainty. I show that this was a case of imitation and that this state of affairs was a consequence of the fact that the policy was adopted for the first time in Poland. Hence, this policy was perceived as new. Furthermore, the objectives of integration policy are generally perceived as ambiguous (Scholten 2011). According to DiMaggio and Powell, the uncertain relationship between means and ends, as well as the ambiguous goals of an organization are associated with the occurrence of imitation (1983: 154-155). In this paper, I analyze how the government agency dealing with uncertainty looked for a legitimized model, which was thus transformed during the process of institutional change. I argue that the legitimacy of the policy (materialized in the forms of EU documents) was an important reason for choosing the imitation of these templates over others – the national models of integration policy being a case in point (e.g. Swedish, German or Dutch).

The draft of the policy agenda of immigrants integration was published for open debate in spring 2011. The document was openly referring to the EU policies being encouraged under the open method of coordination. It contained 14 recommendations for actions in the field of this policy. 8 of these were simply copied from the annual plans of implementation of European Found for the Third Country Nationals in Poland. The other 6 points were very much inspired by the technical documents developed by the same branch of the Polish government under the European Commission’s supervision. These technical documents constitute translations into practical guidelines of documents developed at the top level of EU politics, such as the ‘Common Basic Principles on Integration’ which were agreed by the Council of European Union in 2004. During the open debate, most of the parties

involved (non-governmental organizations, trade unions and research centers) did not question the European template for national policy. By sending their opinions, they took part in the process of editing (Sahlin-Andersson 1996) of the agenda. Eventually, a final version of the document proposed during the open debate was announced in 2012 as the official national agenda. This overall process is a case study of Europeanization (Radaelli 2000) of national policy that is not harmonized in the European setting.

I analyze documents as materializations of templates of practices. The materialization traces under analysis comprise the 'Migration Policy of Poland' versions (both the open debate and final documents) and the written opinions of several organizations taking part in the open debate which were sent to the responsible ministry. According to Djelic, the sociological analysis of the diffusion process must be inspired by the archeological perspective in order to reveal the temporal aspect of the process in question (2008). The analysis of these artifacts is supplemented by observation of the editing and organizational dynamics during the open debate meetings. In addition, I also conducted interviews with key participants in the process (civil servants working on the document, experts, NGOs members etc.).

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Session 6–Space and time in organizations

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Room:32 Lincoln's Inn Fields Building, Room LG 04

The transfer of organizational space in globally dispersed organizations: Organizational members' diverse experiences across national sites

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During the last decade, we have witnessed that organizations increasingly think of work practices and strategy as a constellation of, and close interplay between doings and space. Not only is organizational materiality such as spatial designs and artifacts seen as communicating symbolic values internally and externally, but also they are viewed as important determinants of employee behavior and work practices such as e.g. motivation, propensity to share knowledge, and creativity. For example, Google and IDEO are companies that are frequently referred to in this context, where their approaches to foster innovation and creativity are highly implicated with their use of unconventional organizational spaces. Recently, one could also read about Google's attempt to transfer and adapt their model from the US to the Asian context when opening an office in Singapore: "Decked out with everything from a karaoke lounge to hammocks and a tuk-tuk that doubles as a conference room, our new space is designed to tap into our Googlers' playful and innovative instincts" (<http://www.google.com/about/jobs/lifeatgoogle/googles-search-for-fun-in-southeast-asia.html>). Thus, the empirical examples above show that materiality is clearly viewed as implicated in organizational strategy and as affecting organizational outcomes. It also shows that organizations, as they become increasingly global, attempt to transfer such models cross-nationally. Turning to the vast body of research that explores the broad topic of cross-national transfer of practices, we sought for a conceptualization of the cross-national transfer of practices as socio-material, i.e. where organizational space is taken seriously, but to our large surprise it was not to be found. Instead, a large share of these studies has their theoretical underpinnings in either institutional theory, following Kostova (1999), or the knowledge-based view of the firm (Szulanski, 2000). We argue that both these dominant views fall short in fully comprehending the cross-national transfer of practices, since they conceptualize practices as being mostly discursive and un-material, as thus are incapable of enabling an understanding for the transfer of organizational space and how its strategic role is affected by the various ways in which organizational members experience and enact spaces. Our discomfort with the current, reductionist conceptualization of practices in the MNC literature is further strengthened when we turn to recent claims in practice theory emphasizing the need to revise the ontology of practices as socio-material (Orlikowski, 2002) and as "embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (Schatzki, 2001:2), as well as those scholars within the field of environment-behavior (Rapoport, 2005) and anthropology (Hall, 1966) who suggest that culture and spatial experiences are closely intertwined.

In summary, despite the proliferation of strategic models that emphasize both social and spatial dimensions and the attempts to implement those in increasingly globally dispersed organizations, and the nascent acknowledgement among strategy and practice scholars of the importance of incorporating materiality into any analysis of strategy (Jarzabkowski & Whittington, 2008), we noticed that organizational theorizing does not seem to have at its disposal an adequate conceptual elaboration of how the spatial and material part of strategic models transfer to other national contexts, and with what challenges and consequences.

We claim that this is a critical omission, since recent studies on organizational spaces treat them as highly contested, and show that there is oftentimes a discrepancy between intended and experienced space. Thanem et al (2012) draw on de Certeau's (1984) notion of 'tactics' to illustrate organizational members' creative resistance to open office settings. Daskalaki et al (2008) borrows the term 'Parkour', which originally denominates the creative use of space and the re-appropriation of urban cities by overriding the taken-for-granted boundaries, and suggest that it can be a useful concept to study corporate spaces. Wasserman and Frenkel (2011) use the term 'cultural and aesthetic jamming' (Lasn 1999) to illustrate employees' resistance through their reinforcement of an identity that their managers had aimed to weaken or substitute by implementing a new organizational space.

Against this background, our aim is to take a first step to address this gap, by taking materiality seriously in the cross-national transfer of practices and explore the diversity in how organizational members experience organizational spaces across national sites. To achieve this, we find that Lefebvre's (1991) notion of space as *conceived*, *perceived* and *lived*, as well as the three-dimensional view of space as *instrumental*, *aesthetic* and *symbolic* (Rafaeli and Vilnai-Yavetz, 2004) are useful. Merging these two models provide us with a framework to study space as ideational (conceived space), as material and objective (perceived), and as experienced (lived) along the three dimensions of instrumentality, aesthetic and symbolic across the three sites to tease out differences in intentions versus experiences.

We support our discussion with empirical data stemming from a longitudinal ethnographic study in one of the world's largest global software development companies. In 2011, the company launched a shift in their software development model and went from using a traditional, waterfall model of software development, to an agile development model largely inspired from Design Thinking. This shift was largely driven by a strategic change within the company from focusing exclusively on enterprise solutions to starting to develop consumer applications. For the company and its members, the move from developing business solutions to consumer applications was a large change. In order to facilitate this change and to make members 'change their mindset' a new organizational space accompanied the new work model and was considered an integrative part of the strategic change. The organizational space was largely inspired by Silicon Valley based design icons such as IDEO and Stanford's Design School, where important elements of the space are flexibility and openness, with an unfinished and garage-like aesthetic that was intended to be symbolic of a start-up space (also typical for Silicon valley). In the first phase of this strategic change, the development of consumer applications were located at three sites within the organization, namely Los Altos, US; Bangalore, India; and Shanghai, China. In this study, we followed the implementation of this change by collecting ethnographic data from these three sites between June 2011 and September 2012.

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Playing with material and symbolic space to legitimize an organization: A tale of the NATO commandment room

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Space has become recognized in organization research as an important, and complex, social and material foundation of organizing (Chanlat, 1990, Hillier, 1999, Kornberger and Clegg, 2006, Orlikowski, 2007, Van Marrewijk and Yanow, 2010). This research examines organizational spaces as “lived spaces” (Lefebvre, 1991) with both material and symbolic dimensions.. We focus on how people enact an immediate material and symbolic space (i.e. the most immediate space people access to in the context of an interaction) to legitimate their organization. We examine the roles of material and symbolic artifacts in such legitimation processes (Wasserman and Frenkel, 2010; de Vaujany and Vaast, 2012),.

We present a “confessional tale” (Van Maanen, 1988), i.e. an ethnographic approach in which the field researcher details his physical engagement with the material setting as well as his interactions in space. The field researcher engaged on multiple occasions with the former commandment room of the NATO from 1959 to 1966 that is at the center of our case study. Université Paris-Dauphine was created in October 1968, in the immediate context of May 1968 students’ uprisings that has occupied the former NATO headquarters Porte Dauphine in Paris. Since 1968 the room has been used for executive committees, meeting with sponsors, conferences, debates, and research seminars.

The case reveals how an organizational space and its material artifacts become imbued with symbolism that helps legitimate an organization. In order to further make sense of the material and symbolic artifacts used in the RA room, we build a parallel and contrast with images and artifacts used in much earlier periods, during the middle-ages. We particularly refer to the work of Baschet (2008), who examined the meaning of religious artifacts in medieval times, and establish conceptual connections with our case study.

As a set of artifacts contributing to a symbolic space (Gagliardi, 1992), the RA room and its artifacts can be seen as an ‘iconography,’ in particular the one called by Baschet (2008) ‘objects-images’ (“images-objets”). Through iconography people communicate a message to an audience through meaningful symbolic and material artifacts. According to Baschet (2008), ‘objects-images’ were heavily present in the middle-ages (e.g. churches relying upon images and artifacts to convey story and build their legitimacy) and have become less so in the contemporary period. Iconography during the middle ages (as in most situations we described in our case) thus relied on the materiality of information and images. The materiality of the icon, the tryptic, the statue, its place in material space of the room and the temporality of the religious ritual gave them meaning and symbolism.

Obviously, there are key differences between space and materiality in the Raymond Aron room today and in the Middle Ages. Today, iconography is mainly based on a decontextualized imagery (Verdon, 2010). Letters and images often make sense of space differently. Baschet (2008) in this regard suggested the notion of ‘screen-image’ (‘image-écran’). Contemporary artifacts (in particular IT-based ones) convey information in a decontextualized way. Information does not need to be related to its material medium, or more generally, the immediate time and space of interaction, to make sense (and produce a legitimating effect).

Building upon Bauman’s (2000) concept of liquid modernity, we develop two visions of symbolic and material space and its relationship with legitimacy: one that emphasizes the *liquidity* and a-contextuality of space (for a screen-image based iconography) and the other that stresses the *solidity* of space and its material and symbolic dimensions (for objects-images).

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How material traces can be used to follow organisational dynamics

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This paper for the 3d OAP on Time, History and Materiality in Management Organisation Studies aims to assess the way how material traces can be used to follow organisational dynamics. The article wishes to make a theoretical as well as methodological contribution. Finally, our position is illustrated through a short presentation of a case study.

The first part of the paper addresses the following question: what is the interest of studying organisational dynamics through material traces? In answering the question, the terms “organisational practices” are used as equivalents for “organisational dynamics”, and the terms “management devices” are used as equivalents for “organisational practices”. The paper draws on the definition of organizational practices proposed by Schatzki (Schatzki, Knorr Cetina, and Von Savigny 2001; Schatzki 2005). It suggests that focusing on the study of management devices offers another way to grasp organisational practices, complementary to the more classical study of managerial discourses.

First, the paper suggests that observing the material characteristics and the way managerial devices are used in the everyday activities is a way to question and challenge managerial discourses. Current managerial discourses are not enough to grasp the logic of practice (Sandberg and Tsoukas 2011). Observing the way managerial devices are involved in organisational activities can help to raise some gaps between discourse and practices, thus leading managers to engage with an active questioning of the meaning they give to their everyday practices (Sandberg et Tsoukas 2011).

Also, there is another interest in observing how organisational actors get hold of management devices and use it in controlling or taking decisions on a regular basis. It can be a useful way to grasp the history and evolution of organisational practices. Using the concept of sedimentation borrowed from studies of organizational change (Cooper et al. 1996), the paper suggests that current uses of new management devices inscribe themselves in a form of continuity with previous practices, which doesn't necessarily appear in managerial discourses.

Then, the second part of the paper wishes to address a methodological issue, about how to study management devices within the organization, from a practical point of view. Operationalizing the study of management devices is a tricky task (Kemp 2002). However, relying on the sociology of technology, the paper proposes to study the materiality of management devices by comparing the concepts of prescription (Akrich 1992; Akrich 1993; Latour 1992) and affordances (Hutchby 2001). Discussing the uses and interest of both terms, it questions the idea that a clear managerial purpose shall always be inscribed in management devices.

Finally, the third part of the paper illustrates these propositions through the study of the implementation of analytical income statements (CREA), in a French public hospital. The case study indicates how the use of this tool incorporates many of the ways-of-doing, norms and values that can be assumed to currently prevail before the tool was implemented within the organization. Also, the material assessment of the CREA shows some persistent discrepancies between the tool and the managerial discourse: in particular, the objectives linked to the use of the CREA prove difficult to appear.

On the end, this contribution suggests that assessing organizational dynamics from a material point of view allows to draw a picture dealing with issues of continuity and ambiguity, thus grasping a picture maybe more complex and subtle than what would have been done, relying exclusively on the actors' discourses about their practice.

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Session 7–Theoretical and methodological perspectives on time in organizations

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The Phenomenology of Time: Reflections from the *Lebenswelt*

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According to Merleau-Ponty (2002) the central theme of Husserl's later phenomenology was the notion of the *Lebenswelt* normally translated as "life-world". Husserl, in his work *Experience and Judgment* (1938) emphasized the importance of returning to the life-world, the world of our ordinary experience (Moran, 2000) (p. 12). Furthermore in the *Crisis of European Sciences*, Husserl understood the *lebenswelt* as encompassing the totality of human endeavour including the realm of scientific endeavour.

The aim of this study is to contribute to the workshop by reflecting on how time was perceived by different actors during a longitudinal study of innovation in the *lebenswelt* –in this case a multi-national subsidiary (Costello, 2010). It aims to address the call by Markus (2000) that information systems (IS) research must incorporate the concepts of both history and time in their management and organization studies.

The study of time is as old as philosophy itself with Parmenides and Zeno holding what is regarded as a "static" view- they considered the appearance of temporal change to be an illusion. However Heraclitus and Aristotle argued for a "dynamic" view of time where reality was being constantly added to as time passes (Lowe, 2005). In particular Aristotle's concept of time was closely linked with his account of motion concluding that we perceive time and motion together (Kenny, 2010). An influential discussion of the problem of time is contained in Book XI of Saint Augustine's *Confessions* (1961) where he opens by stating that there is "no quick and easy answer" to the question of what is time (p. 263). He goes on to say that there are three *times*: "a present of past things, a present of present things, and a present of future things". He explains (p. 269):

The present of past things is memory; the present of present things is direct perception; and the present of future things is expectation.

Moran and Cohen (2012) propose that the question of temporality was a "foundational element of Husserl's entire phenomenological project" and subject to "profound and constant revisions, precisions and clarifications" (p. 320). A conundrum that he struggled with was how to relate "objective time" with the "subjective" consciousness of time and he regarded time as the "most difficult of all phenomenological problems" (p. 321). From the beginning of the twentieth century Husserl began to have a great interest in the "temporal character of acts and their objects, and in the temporal 'streaming' of the ego itself" (p. 139) (Moran, 2005). He began to study the way in which consciousness is framed by temporal experience (p. 34). Similarly Brough (1977) points out that an examination of relatively recent editions of the *Husserliana* indicates the development of Husserl's idea of time-consciousness.

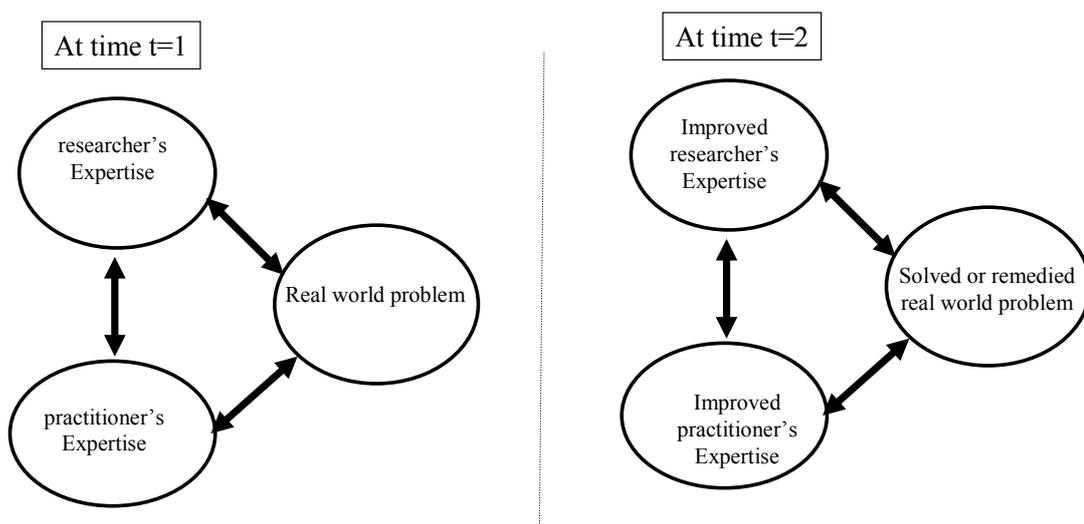
In the new position which then appeared, around 1909, the absolute flow of time-constituting consciousness, and its distinction from temporal objects both immanent and transcendent was unequivocally affirmed (p. 83).

The *Lebenswelt* of this research was a subsidiary of APC, a division of the Schneider Electric multinational corporation (MNC), located in the West of Ireland. It was carried out during a *time* of significant change within both the MNC and the Irish economy. The investigation involved a two year *longitudinal* study of innovation in the multinational corporation where the researcher had the status of a temporary employee. In *year one*, a total of 29 unstructured or open interviews were undertaken that involved approximately 60 hours of *interview time* and 24 *days* spent in the company sites. The interviews were conducted across a wide area of the organization that included: Senior Managers with global, EMEA (Europe, Middle East and Africa) and site responsibilities, Middle-Managers, Team Leaders, Engineers and a number of people in general planning roles. Furthermore the researcher had the status of a temporary employee with his own email address and intranet access. In *the second year* the approach involved dialogical action research (DAR) proposed to the information systems (IS) community by Mårtensson & Lee (2004). In total the transcripts for this DAR period ran to over 60,000 words resulting from the dialogue between the researcher and the practitioner.

Now we will examine empirical research from the *Lebenswelt*, through the lens of *objective time* and *subjective consciousness of time*.

At the project macro level (in this case a two year period), in order to evaluate dialogical AR Mårtensson & Lee suggest three criteria (p. 519). These criteria were used when evaluating the research as it progressed from time $t=1$ to $t=2$.

- The practitioner considers the real world problem to be solved or remedied satisfactorily
- There had been an improvement in the practitioner's expertise
- There has been an improvement in the researcher's expertise



However a number of other conceptualisation of time flowed through the two-year project. Initially there was an assignment within the APC organisation that was scheduled to last three months. This involved doing a number of on-line training modules. However one of the machine operatives had a problem *finding time* to concentrate on completing the modules when doing a "hands-on job". Typically workers at this level would have output measured on an *hourly* basis. Another technical

manager interviewed had the issue of managing project over different *time-zones* in Europe, North America and Asia.

Here are some time-related quotes from the plant manager who was a very important actor in the research:

Managing uncertainty is the immediate problem. A big challenge is to free up creativity in a *time of uncertainty* as this type of environment can make creativity difficult.

I see a great value in this research by forcing me to take *time out* for reflection

There is real benefit by bringing the literature to me... people from the academic world read lots – that's what they do. However, being able to filter it down to the likes of me who might want to read but does not have all that *time* is important.

In some ways, it is a bit more *time-consuming* for me but it's a false economy, because once I've spent that *half an hour* with everybody at the start of the week, I have less to deal with during the week. However, the other way around means that you are *fire fighting* the whole *week*'.

Also, from the perspective of the researcher, the two-year study was part of a five-year PhD research journey with even longer publication cycles –from concept through research through writing to publishing papers.

This outline provide a brief summary of some reflections by the researcher , using empirical data, on the objective and subjective concepts of time as lived-out in a real-world context. The aim would be to develop a full paper based on this initial impetus.

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Exploring the Role of Time in Bricolage Processes: A Human Agency Approach

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Introduction

During the integration of Information technology (IT) into their work practices, individuals adopt a number of strategies from the more structured to the more emergent ones. For instance, bricolage behaviors are a response to IT implementations, especially when IT significantly disrupts work practices. While prior research has explored bricolage processes in the course of the integration of IT into work practices (Ciborra 2002), the role human agency (Emirbayer and Mische 1998) plays in bricolage processes has hardly been conceptualized. Accordingly, this research aims at conceptualizing and exploring the role played by human agency in a context of bricolage with newly implemented IT.

The concept of bricolage has first been introduced by Leïvi-Strauss (1966). It has then been leveraged by Claudio Ciborra in Information Systems (IS) research. Bricolage has been defined as a practice that consists in individuals' adaptation to new and destabilizing situations (Duymedjian and Ruling 2010). According to Levi Strauss, a 'bricoleur' uses a repertoire of language that is heterogeneous and extensive, although limited. Leïvi-Strauss argued that this repertoire is also closely connected to poetry when the bricoleur "speaks with things and through the medium of things" (Leïvi-Strauss 1966, p. 21). A bricoleur is adept at multitasking and generally does what he/she needs with what he/she has at hand. In particular, Leïvi-Strauss insisted on a "second quality," which is a key characteristic of bricoleurs: they prefer to take advantage of existing materials. By leveraging existing sets of means, the bricoleur's approach focuses on retrospection. Another trait of a bricoleur is protestation and the search for meaning. Because s/he is "imprisoned in the events and experiences," the bricoleur needs to make sense of events (Leïvi-Strauss 1966, p. 22). For instance, bricoleurs tend to reject or protest against the situations they face and that are considered meaningless (Leïvi-Strauss 1966, p. 22). The figure of the bricoleur overall appears as the reification of mystical thought, because like primitives, when confronted with a task, bricoleurs use what they have at hand to give meaning.

Interestingly, many IS studies have adopted a rationalist and a deterministic perspective for better acknowledging the integration of IT into work practices (Jeyaraj and Sabherwal 2008). In fact, such perspectives often consider the individual as independent from his/her socio-emotional context of action. Hence researchers such as Claudio Ciborra (1992; 2002) have further explored bricolage in attempt to introduce "a world of IS practices and management based on an understanding of lived human experiences and emotional aspects of human existence and actions rather than abstractions of ideal rational behaviour" (D'Atri 2005, p. 452). According to Ciborra (2002), implementation, management, and adoption of technologies involve actors' affective processes such as care or mood that will influence the outcomes of the IT project. These actors are under "affectedness" (Ciborra 2002, p. 160) because they tend to make decisions that are far from rational. Instead, their decisions emerge from bricolage and improvisation processes (Ciborra 2002). Therefore, acknowledging the role of affect in this process through the bricolage perspective can help researchers move closer to real world phenomena.

In spite of the insights provided by an approach of human action through a bricolage perspective, overall, human agency remains a black box in this process. Agency has been defined in prior works as "the capacity of human beings to act in ways not predetermined by social structures" (Chu and Robey 2008, p. 80). Emirbayer and Mische (1998) offer an interesting conceptualization of human agency, emphasizing actors' temporal orientations. According to these researchers "the structural contexts of action are themselves temporal as well as relational fields – multiple, overlapping ways of ordering time toward which social actors can assume different simultaneous agentic orientations" (Emirbayer and Mische 1998, p. 964). Their attempt has been to subdivide human agency into temporal elements. They argue this temporal view of agency is relevant because it helps taking into account the flow of

time for acknowledging the complexity of social action, as structural contexts of action are themselves temporally rooted. According to them, “the structural contexts of action are themselves temporal as well as relational fields – multiple, overlapping ways of ordering time toward which social actors can assume different simultaneous agentic orientations” (Emirbayer and Mische 1998, p. 964). They therefore conceptualize agency as a temporally oriented process, comprising orientations toward the past – the iterational element, but also toward the present – the practical evaluative element, and the future – the projective element. The orientation towards the past, the “iterational element”, reflects work routines and habits as incorporated into practices, which contributes to the stability of “social universes” (Emirbayer and Mische 1998, p. 971). It has been studied by IS researchers for example for explaining resistance to change (Martinko, Henry et al. 1996) or inertia, notably inertia of practice (Boudreau and Robey 2005; Chu and Robey 2008). The projective element reflects social actors’ positives expectations or fears and desires for the future (Emirbayer and Mische 1998). Prior research has for example examined individuals willingness to change and to leverage the benefits offered by an IT, or their fear of change due to negative anticipations for the future (Boudreau and Robey 2005; Chu and Robey 2008). Prior research, which applied this theory, demonstrated how accounting for those temporal orientations contributes to better acknowledging how actors elaborate practical responses to dilemmas arising during IT implementation and use (Boudreau and Robey 2005; Cousins and Robey 2005; Chu and Robey 2008). Nevertheless, while temporal orientations are acknowledged to play a role in bricolage processes, they are not clearly conceptualized which impedes further taking into account whether and/or how those orientations contribute to shaping bricolage in IT contexts.

Consequently, in order to respond to these research gaps, the current research addresses the following questions:

- Why do social actors overcome the impediments following the implementation of new technology?
- How do social actors’ temporal orientations contribute to shape responses to technology disruptions?

To answer these research questions, we conducted an interpretive case study in a French insurance company that recently implemented Icare, a collaborative web platform based on the Google Apps service from Google Inc. We conducted thirty interviews in order to understand better how individuals integrate Icare into their work practices.

First, this study aims to contribute to IS and organization research in three main ways. By applying the bricolage lens and combining it with the temporal perspective of human agency, this paper enriches our understanding of the role of time in the way people respond to technology implementations in the workplace. More precisely, it uncovers how social actors’ temporal orientations towards the past, the present and the future, contribute to shaping bricolage responses. Second, based on a rich qualitative enquiry, this paper emphasize the role played by reflexivity (de Vaujany 2008) in human action. The human agency approach indeed considers social actors as reflexive agents, and specifically takes into account that reflexivity as they elaborate practical responses to constraints, opportunities, and dilemmas, linked with newly implemented technology. Third, the paper emphasizes both the rational and emotional dimensions of human responses to IT implementations. Most prior research dealing with IT adoption and use but also appropriation assumes that actors act principally in a rational manner. In the current research, the articulation of human agency and bricolage perspectives helps reconciling both perspectives.

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Tracing time, space and materiality through discourse: the case for critical discourse analysis in the studies of organisation and technology

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My contribution to this workshop focuses in calling attention to a methodology—based on a stream of discourse analysis—that is able to trace material artifacts and the dynamics of organizing over time. Let me elaborate.

Critical discourse analysis (hereafter CDA) is a theoretically driven methodology to study how discourse figures within processes of social change (Fairclough 2003, 2010). My elaboration of CDA draws on a particular stream developed by the work of the sociolinguist Norman Fairclough and colleagues (Chouliaraki and Fairclough 1999, Fairclough 2003, 2010). CDA has become a well-established framework to examine the use of language in the text and talk that underlie the dynamics of organising (Alvesson and Kärreman 2000, Grant et al. 2004, Fairclough 2005, Phillips and Oswick 2012). Despite its popularity in organisation and management studies, this version of CDA remains largely unknown within IS research and the studies of organization and technology.

In this paper, I suggest that CDA can be an insightful approach to address questions concerning processes of organisational change and technology innovation over time. Moreover, in this paper, I show that CDA is a valuable methodology to trace not only temporality, but also the material aspects embedded in organisational life.

Briefly, CDA emphasises the importance of a close and detailed analysis of texts and at the same time, the integration of the analysis into broader social processes, actions and events (Fairclough 2005). Theoretically, CDA is based upon a view in which semiosis constitutes an irreducible element of social life (Fairclough 2003). Social life, in turn, is understood in CDA as an interconnected network of social practices of many sorts, such as cultural, political, discursive, economic and so on. Thus, discourses are not just discourses but materialised and operationalised into other elements of social life—such as activities, subjects and their social relations, artifacts, time and place, forms of consciousness. In this sense, CDA offers a distinct way to see how language figures in different aspects of organising but it also remains open and flexible to include the dynamics of other elements—in this case, technology. As Orlikowski and Iacono suggest (Orlikowski and Iacono 2001), there is much potential in seeing technologies and organisations as mutually dependent and dynamically emergent, as a way to move beyond relatively simple black-boxed views of technology (i.e. tool view). These premises suggest that, in principle, CDA offers a suitable tool to unfold the socio material dynamics associated with a particular technology.

To illustrate these ideas, I elaborate on a case of organizational change and technology innovation in the public sector. In particular, I demonstrate how CDA can be applied to account for material and social changes in a longitudinal case of technology innovation and organisational change in the trade sector in Mexico. Finally, I draw implications and challenges associated to the use of CDA in studies of time and change in studies of organisation and technology.

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Session 8–Identity and materiality in organizations

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Where is Affect, and Why Does This Matter?

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In posing the question 'Where is affect?', we seek to contribute to the on-going explication of the 'historically material' within 'sociomaterial' formulations of organizational practice. To this end, we depart from, and endeavour to develop, Orlikowski's (2007) description of the 'constitutive entanglement' of materials and social practice, in which "the idea of materiality as 'pre-formed substances'" is replaced "with that of 'performed relations', in order to characterize the recursive intertwining of the social and material as these emerge in ongoing, situated practice" (ibid.1438). We particularly welcome the ontological relationality inherent in Orlikowski's sublimation of physical materiality within 'performed relations'.

At the same time, we seek to illuminate these relations, arguing that their 'performance' is enabled and constrained not merely by materialities that are *physical* and *social*, but also by *affective* forms of materiality. We are agnostic regarding whether 'affect' is a neglected aspect of the 'sociomaterial' or whether it is more credibly treated as a third dimension of sociomateriality. But we do insist upon its relevance for developing a more adequate and nuanced understanding of the temporal and historical character of sociomateriality.

We argue that established formulations of sociomateriality are grounded in an interpretation of materiality that privileges *physical matter*, albeit that the physicality of such matter in any innate, separable sense is subsumed within the duality of 'performed relations', consistent with the above. In explicating our affect-oriented reading of the 'sociomaterial', we invoke a parallel notion of materiality to that of physical matter. Our parallel materiality is extant within an appreciation of how much human action is (materially) conditioned by forms of affect conceived as *temporally emergent*. This attentiveness to the affectively material is, we contend, largely absent from explorations of the 'sociomaterial'.

In presenting this argument, we draw on Thompson's (2012) notion of 'biographical affect', in which "temporally-based, affectively-felt consciousness is [understood to be] deeply relational, and thus structuring of, our stance towards unfolding social reality" (ibid., 195). Accordingly, biographical (personally historical) affect is considered to be materially agentive, since "it is the actor's emotional apprehension of time which constitutes the basis of action, and gives it direction and form" (Barbalet 2001:187). In this way, past experiences inform – enable but also constrain - *how people feel* about their positioning in the present, which in turn colours their orientation towards the future, and thus the 'chordial triad' of agency (Emirbayer and Mische 1998) - the interplay between habit, imagination, and judgment - is materially reinforced or transformed. In sum, biographical identity supplies the temporal inflection to unfolding sociomaterial interaction as experienced past and imagined future are drawn together to supply the motivation for an enacted present.

We believe that this position holds a number of implications beyond futile debates on the definitional accuracy of the 'material' within the 'sociomaterial'. A conception of the sociomaterial condition that fully incorporates the (temporally driven, historical) affective invokes further questions, in turn, concerning the material contingency of affect (Thompson and Willmott, under review). It also invites the development of a 'less repressed' understanding of sociomateriality that is sensitive to the socially generative operation of ongoing tensions *felt* by subjects as they/we attempt to negotiate social realities. This affect-orientation, we contend, is wholly consistent with advancing a decentred,

practice-based, notion of sociomaterial causality.

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Materiality and Identity: exploring the tiles of practices

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ABSTRACT

Current research mobilizing sociomaterial approaches have enriched organizational studies by better integrating technological artefacts. However, despite their focus on how materiality is represented and enacted as an affordance or a constraint, such research have thus far overlooked the role played by occupational identity regarding human agency. Accordingly, the aim of this paper is to address this gap. More specifically, we develop a conceptual framework that highlights how sociomaterial practices support identity construction, and in return how identity is a driving force behind sociomaterial practices. We then consider empirical material involving a group of train drivers and their practice of braking in order to illustrate these relationships. Regarding the workshop, we wish contribute to studies of the entanglement of social and material dimensions of organizational practices by focusing on the imbrication of materiality and identity in mundane practices.

INTRODUCTION

Organizations have to deal with a growing number of changes of various importance, be they efficiency-driven business process reengineering, restructuring of organizational divisions, or adoption of new technological solutions. Such permanent changes, which reflect a more liquid society (Bauman, 2000), have led some researchers to investigate the uncertainty of organizational life.

Two research streams have addressed this issue. On the one hand, many researchers have chosen to focus on the topic of identity and identity construction (Alvesson et al., 2008; Coupland and Brown, 2012; Ybema et al., 2009). Identity remains one of the most popular keys in understanding collective action and human behaviour within organizations. On the other hand, a stream of research has gained legitimacy in organizational theory by proposing to better integrate materiality. Following on the criticism by Barad (2003) that “the only thing that does not seem to matter anymore is matter”, Orlikowski (2007) has rightfully argued that organization studies had “overlooked the ways in which organizing is bound up with the material forms and spaces through which humans act and interact”. This reflexion has triggered studies about “sociomateriality”, i.e. the entanglement of human and material agency in everyday organizing (Leonardi, 2011; Leonardi & Barley, 2010; Scott & Orlikowski, 2009).

However, despite these emerging trends, those topics have yet to be studied together. Indeed, we believe that identity and sociomaterial practices are not free from relationships and that researchers should try and understand their possible interplays. The aim of this paper is to address this gap, so as to account for the imbrication of materiality and identity in daily organizational practices.

MATERIALITY AND IDENTITY AS UN-ARTICULATED CONCEPTS

Identity

In this paper, individual identity refers to the answer to the question “who am I?” (Sveningsson and Alvesson, 2003). More precisely, we address here the work related identity, i.e. “the way that individuals construe themselves in their work domain” (Dutton et al., 2010:266). As a consequence, we are focusing on occupational identity facets of organizational members rather than on their broader personal identity.

Materiality

Our approach to materiality is deeply related to Leonardi (2012)’s approach, who defines it as the combination of material and form, constituting “the properties of a technological artifact that do not change, by themselves, across differences in time and context”. For non-digital artefacts, the materiality relates to how physical materials are “arranged into particular forms that endure across differences in place and time”. Even if this materiality is likely to be put at use in very different ways

across different contexts, these material properties have an aspect of “continuance” (Faulkner & Runde, 2011).

Socio-material practices

Sociomateriality defines practice as the space in which the social and the material become constitutively entangled (Leonardi, 2012; Orlikowski, 2010). Hence, we subscribe to the definition of sociomateriality provided by Leonardi (2012): “the enactment of a particular set of activities that meld materiality with institutions, norms, discourses, and all other phenomena we typically define as “social”” (Leonardi, 2012).

Identity and materiality, materiality and identity

These two theoretical approaches in organizational studies could be integrated when studying specific workplace situations: studies of identity in the workplace neglect the role of materiality, whereas sociomaterial approaches tend to drift away from human agency and professional ethos when looking at materially-mediated practices.

We suggest that bridging this gap could improve our understanding of organizations and organizing, by focusing on how materiality and identity are entangled in occupational mundane practices.

ARTICULATING IDENTITY AND MATERIALITY

We argue that sociomaterial practices – in which artefacts are used depending on their affordance (Leonardi 2011) – are, with discursive practices, two main means to enact an occupational identity. These sociomaterial practices can support the deliberate enactment of ones’ occupational identity (Anteby, 2008) but they can also reveal or question one’s occupational identity. Moreover, organizational members’ occupational identity can be studied as an influence on sociomaterial practices (Johnson et al., 2010).

To sum up, according to existing literature cues found in previous studies, we offer a conceptual framework that links materiality, identity and practices. On the one hand, (1a) material artefacts, which convey a limited set of possible identity images, are one of the key resources used in mundane occupational practices (and account for the material agency involved in these practices). Moreover (1b), because of their constitutive affordances, artefacts also constrain and enable these occupational practices. On the other hand (2a) sociomaterial occupational practices and the artefacts involved, are one of the resources employed by organizational members in order to deliberately enact (display, sustain, defend, etc.) occupational identities. However, whenever these practices produce unintended effects, they can also reveal and question these occupational identity claims. Thus, sociomaterial working practices can be both a “self-affirmation medium” and an “awareness-raising support” of individual occupational identity. Finally (2b), sociomaterial practices are carried out depending on the organizational member’s identity. Here, the occupational identity of social actors influences how one chooses to carry out a practice in one way instead of another. It is therefore one of the determinants that explains variability in the execution of sociomaterial practices (see Figure n°1).

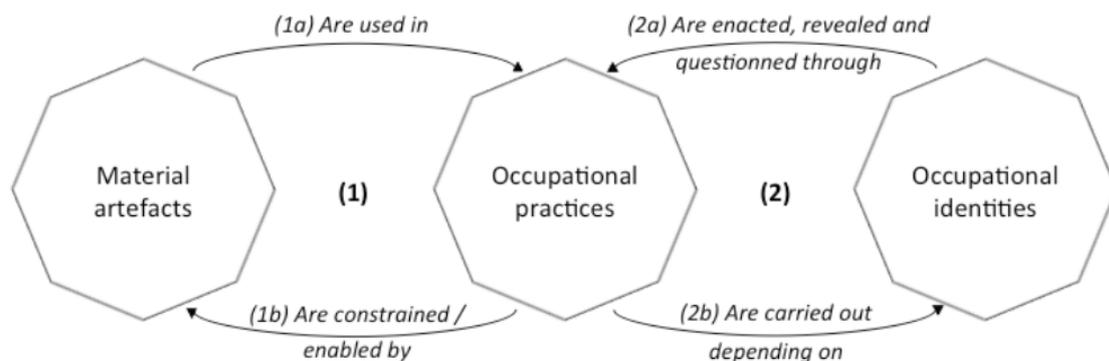


Figure n°1. Inter-relationships between identity, materiality and practices

This conceptual framework will be illustrated in an empirical case.

AN ILLUSTRATIVE CASE: ON THE ART OF MAKING A ‘PURE STOP’

In a famous French book published in 2003 (“Nous, conducteurs de trains”), three experienced train drivers and an occupational physician of the French National Railway Company (SNCF) describe their occupation.

This case comes from the first chapter of the book (p.21-42, “Le freinage”, i.e. applying brakes). In this chapter, train drivers offer anecdotes and share about a generic practice: how to stop a train in applying brakes.

This practice is sociomaterial: it involves both human and material agency. Its material dimension can be apprehended at different levels: the train, its weight, its engines, its braking device (mainly the brake lever) and other navigational instruments (e.g. the speedometer or a clock) but also the railway, signals and traffic lights, the weather, etc. Its social dimension relates to organizational procedures such as the train schedule and the driving principles taught to all train drivers, along with occupational values and beliefs such as the “moral” obligation to keep trains “on time” and the importance of “pure braking” anecdotes as an external sign of prestige among train drivers.

Our paper will provide an indepth analysis of this case, regarding our theoretical framework.

IMPLICATIONS

This paper contributes to both material and identity studies. A common contribution to these literatures is offered by drawing a conceptual relationship between two concepts: materiality and identity, in relation to practice. We urge management and organizational scholars to test these propositions.

Toward material studies, we show that occupational identity can provide a promising framework to better understand how the representation of material artefacts, among which Information technologies, as affordances or constraints are drawn by social actors. In studying changes in materiality and organizational practices such as routines, an identity perspective could help understand individual’s reactions within the organizational setting.

Finally, our conceptual propositions can help identity studies to better grasp the material part of identity construction. We call for future studies about the relationships between sociomaterial practices and discursive practices in identity construction. It would also be valuable to study in greater details which role is played in identity processes by different kind of material artefacts (i.e. dress, technological and non-technological artefacts, etc.).

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ICT and changing rhythms of work

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Previous studies have highlighted the role of temporality in work and suggested that multiple temporal patterns may co-exist in a particular unit of work. Some people may work predominantly in monochronic manner (focusing on one thing at a time) but their work may interlink with others who work in polychronic way (performing multiple activities at the same time). This asymmetry results in problems of coordination between different groups or units of work and potentially leads to conflicts. Research has shown that the adoption of Information and Communication Technologies (ICT) may alter the spatial and temporal dimensions of work presenting varied challenges and opportunities for coordination and management of work. It may lead to restructuring of the duration, sequence, temporal location and rate of recurrence of events and tasks.

This paper utilises the concept of rhythms to understand the healthcare work and the changes that adoption of ICT applications may trigger. The concept of rhythms refers to generic patterns of coordination and action. In work studies it highlights the temporal and cyclic nature of work. Healthcare work is subject to different rhythms. Individuals and groups (e.g. nurses, doctors or pharmacists) within a particular setting (e.g. a particular hospital ward) may create over time their own distinct but often interlinked and interdependent rhythms of work. Healthcare work is also highly mobile but at the same time linked to particular spaces (e.g. of a ward or a pharmacy) and to material artefacts (e.g. drug chart or patient hospital record). This paper argues that conceptualising rhythms of work as temporal *and* as spatial helps us to understand healthcare work and opens up a way of studying the implications of ICT adoption. To illustrate the arguments presented this paper draws on two studies of ICT use in healthcare work in English hospitals. The paper discusses how ICT use resulted in shifting of work in time and space, in opening new choices but also in introducing new constraints in the way healthcare work is performed. It highlights the implications for the rhythms of work of the choices made in terms of software features implemented, hardware installed and physical placement of ICT devices.

Session 9–Accounting, time and materiality

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Room: 32 Lincoln's Inn Fields Building, Room LG 03

In search of the poor's box in the eighteenth century Church of Scotland: artefacts, accounting and the archive

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Chests of different types and sizes appear in the accounting practices of religious organizations: the English parish (Tate, 1983); the Scottish kirk session (Mutch, 2012); the Jesuit college (Quattrone, 2004); the Catholic confraternity (Chatellier, 1989). Often this role is incidental, but Quattrone accords access to its contents a more prominent place. As he reports for a Jesuit college.

For instance, the padlock for the College cash box ... required two keys, one to be kept by the Procurator, who was in charge of economic affairs, and one by the Rector, who was responsible for the College and its overall missionary, pedagogical, and economic activities. Thus if money were to be spent, the reason for the expense had to satisfy the requirement of several related interests (political, economical, spiritual, pedagogical; ...), and an alignment of multiple interests would have to occur (Quattrone, 2004: 666).

Similar practices can be found in a very different religious polity, that of the presbyterian Church of Scotland. The questions that such a contrast raises are returned to at the end of the paper, but the bulk of the paper is concerned with the reconstruction of the place of the box in accounting practice. In the process, we will also meet questions of the reconstruction of such artefacts and such practices from archival records. The main focus of the paper is the eighteenth century, as will be explained in the discussion. The paper will briefly explain the nature of the presbyterian polity and the important place given in it to the recording of transactions of different kinds. The focus in the paper is on the accounting transactions that were recorded to facilitate accountability for the money collected and expended by local church councils, the 'kirk sessions', especially on relieving the poor.

A good starting point for the consideration of any artefact is its material properties. Here the mystery of the Scottish poor box begins, for there are no examples in any public collection and no images of it. This artefact, which was at the centre of activities in nearly two thousand parishes across Scotland, has vanished from the physical record, as far as the current state of knowledge exists, completely. This means that we need to reconstruct not only its use but also its appearance from the fragmentary mentions in the archives. The paper considers some other examples of chests to consider what the poor box was probably *not* before considering traces in the archives. Fortunately, Scotland possesses an extraordinarily rich set of archives, ones which are particularly full for the eighteenth century. The paper is based on a review of the parish records for five presbyteries, an administrative unit of the church which is explained at full length in the paper. Mentions of the box are sporadic and scattered, because of the taken-for-granted nature of its use.

Consideration is also given to the very full official 'procedure manuals' of the church, because their implicit assumptions about the place of the box are an important cautionary note to us about reliance on them as sources. What the fragments in the archives enable us to do is, initially, establish something about the nature of the box. The paper examines its physical construction. The provision of multiple keys is an important feature of this construction, as is its size. From scattered observations, the box appears to have been portable, distinguishing it from other forms (such as the English parish chest) and perhaps contributing to its ultimate disappearance.

Having established the materiality of the artefact, its role in accounting is considered. The nature of what was stored in the box was considered, from cash to the bonds and bills that formed the capital of many kirk sessions. The box played a symbolic role when a new treasurer was appointed and, often,

granted a key to the box. The different arrangements for the disposition of the keys are considered, as is the physical location of the box. Most importantly, its role in the reconciliation of accounts is considered. So, to give just one example of the material to be covered, in the parish of Bolton in 1744 the minutes record

The Minister exhorted the Elders to be Faithful & diligent in performing the duties of their Station & to set a good example before all by their Behaviour. Then having Revised the Treasurer's Accounts & looked into the State of the Poor's Money, they found (as is more fully recorded in the preceeding Register) that taking in the Ballance of the last year's Accounts in the Treasurer's hands, there was in the larger Box the sum of two hundred & Seventy nine pound, fifteen shilling & nine pennies Scots Current Money. And also that a Bond for a thousand Merks had been granted to the Treasurer by Lewis Gordon Inspector of the High-Ways in this Shire, with Heritable Security for that sum upon a House belonging to him in Ormistoun: and that the Annual rent for this had been hitherto Regularly paid up. With all which they declared themselves Satisfied, & continued James Bartleman as Treasurer¹.

This extract gives a flavour of the sources to be examined and of the taken-for-granted nature of the box in the practices that were engaged in (the 'larger' box, of course, implying that there was a smaller box).

The paper concludes by stressing the importance of comparison in historical analysis (Veyne, 1984). Comparing the examples given with that supplied by Quattrone, the difference is found to lie in 'lay' participation. This is argued to have consequences and is linked to the dominance of Scots, both in texts and in embodied form, in the development of accounting in the eighteenth century.

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Uses and Transformation of a Calculative Device in the Revaluations of Nuclear Fuel Cycles in the United States: The Case of Levelized Cost of Electricity

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Abstract :

Calculating and comparing the values of technological paths in the energy sector is a complicated issue, in particular because of the uncertainty over time. But this enacts a worldview characterized by the prevalence of investment and the market and the underestimation of technological uncertainty. The paper studies this problem through the analysis of the adaptation, justification, criticism, and resistance of one particular method: LCOE. This calculative device is capable to enact different logics of valuation, rendering comparable investment options on energy resources, and hierarchizing them in terms of their present value. The OECD explains the extended use of the method as follows: *“Its development and use reflect a need for a simple rule of thumb metric acceptable to regulators that would allow regulated firms to make and defend choices between long-lived generating technologies with different construction costs, different life-cycle expected operating and maintenance costs and different expected utilization patterns”* and explains the choice of the method as *“The most transparent measure of generating costs and remains a widely used tool for comparing the costs of different power generation technologies in modelling and in policy discussions”*.

Cost calculations are some of the most powerful means to rationalize the highly politicized decision making process for deciding the future of used nuclear fuel. Cost calculations based on the LCOE are defined as “jewel boxes” by the actors, however they still are intensively used. The paper demonstrates how in the use, criticism, and adaptation of this calculation, there are the larger concerns of energy investment decisions and cost calculations increasingly enact the ambivalence of investment decisions. Tools such as theories, models and formulae bring into existence the world, which they describe (Callon 2007). In this sense, the work of Mackenzie and Milo (2003) is important as they have provided empirical illustrations of this transformative power of economics. Performativity happens when the use of the model improves its predictive fit and it goes beyond “saying something is doing it” of “believing something makes it happen” (Stark 2009). Levelized cost of electricity (LCOE), as a standard calculative device improves its predictive fit in practice in the fuel cycle evaluations. The call for “improvement” of the fit by the actors is also related to the change in the reality that the calculative device should fit in: energy decisions are increasingly been judged as financial investment decisions, functioning in a competitive energy market. The decreased role of state and its institutions, and the increasing “potentiality” of a competitive market to be pursued (Breslau 2007), renders the existing fit problematic.

In this paper, different logics valuation enacted in the uses and adaptation of LCOE are explored in revaluations of the nuclear fuel cycles in the United States. Nuclear waste has been for long a burden for the development of new nuclear power plants, but there has been a reconsideration of the problem of used nuclear fuel. This translated into a whole intense and complex work of revaluation of nuclear waste; new, often problematic ways of dealing with the value of nuclear are constantly discussed and put to work. At the end of the last century, when nuclear energy was categorized (Garud et al. 2010) as a clean and green energy resource, its externality was a pending issue, both for the government and the industry. President Bush and his administration attached a particular importance to nuclear revival in the United States. The revival necessitated the conduct of a new nuclear techno politics, which involved embedding pre-existing political goals into technological artefacts. Those goals were defined in relation to two political objectives. One was the removal of nuclear waste as an obstacle in front of

a nuclear revival; the other was the concern of national security in the post 9/11 periods, with the rise of the primacy of Homeland Security. Framed within the jurisdiction of politicians and technologists as an issue of “national interest”, economic efficiency had become secondary. However, cost calculations became a common language for the concerned groups who were evaluating the proposed techno political projects. I focus on the economic revaluations of fuel cycles, the efforts to rationalize decision-making through the increased involvement of economic calculations as a common language. Neither the method of calculation nor its uses were new, but the importance of financial investment and capital investors have been increasing, especially since the increased questions of the restructuring of electricity market. There are different logics of revaluation enacted in the uses and proposed adaptations of LCOE. The articulation of the problems with the calculative device reflects the articulation of the change in the shaping of energy decisions: coupling energy decisions with financial investment decisions, while the question nuclear waste is addressed as a question of financial investment.

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Time machines are invented by accountants

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We know since at least the introduction of the “factory clock” that time in organizations can become time for society at large. There is also the simulated time of projections, plans, budgets and performance metrics. But what of the unstoppable “social” time that organizations try to scale down to control inside? Contemporary insurance companies manage their policy portfolios in large information systems. Policies live and mature in these systems, as they are updated in mass with scheduled accounting entries (eg, premiums due or inflation indexing). Occasionally, however, updates go wrong and must be corrected. But time has already passed, which is signaled by new entries made using the mistaken figures. In this case, the affected contracts are stopped and their time is “reversed” by the software engineers. This is done in a developer environment, a suspended space where problems can be corrected on the particular segment of policies. Then all other events are replayed up to date, and the policies are released into the “live” system again. But the effects of fiddling with the past are vast; the meetings of actuaries and information teams take on film-like qualities, complete with frenzied calculation, branching timelines, and the anxiety of missed connections.

Taking this “time machine” exercise in insurance as its starting point, my paper considers how financial organizations, whose assets are primarily lodged and valued in the information infrastructure, constitute the flow of Time and how they turn accounting accuracy into a temporal issue, through their management of the “live” data stream. I use practitioner documents and interviews from the Hungarian life insurance industry as illustration to think through the relationship of value, information and time in financial services, drawing on literature in accounting and information systems, organization studies, and the Social Studies of Finance.

Discounted future. The conception(s) of a valuation and management device

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This contribution focuses on a widespread managerial technique which consists in assessing projects according to the present value of the future revenues that they are expected to generate. Discounted cash flow (DCF) is one of the first tools that management students and practitioners are provided with when faced with the problem of calculating value and making decisions. The evidence with which it appears today lies in sharp contrast with its surprisingly recent and controversial history. It is into this history that we propose to look here, by shedding light on three key moments in the constitution of DCF as a valuation and management device. We will analyze the issues that DCF raises in each of these three moments, the controversies that it triggers, and the changes that it induces in practice. Our objective is to describe the sociotechnical networks that make this formula hold and act, and to characterize the managerial action that it sketches and equips.

The basic principle of DCF is simple: the value of something – of *anything*, actually – is equal to the future cash flows that this thing will produce in the future, with these cash flows being discounted by a certain factor due to their distance in time and, if applicable, to the uncertainty of their occurrence and size. There are several assumptions in such a theory of valuation. The valuating gaze is oriented towards the *future*, instead of being concerned with the present characteristics of the thing being valued or with the past activities that have brought this thing into existence. It is the future that counts, then, but the future in question is a discounted one, for there is a *cost of time*: in other words, money is worth more now than later. Indeed, DCF claims, one who has a euro today can save this euro in a bank account at a certain rate of interest, and hence receive more than one euro in, say, a year or two. This *alternative scenario* is to be taken into account in the valuation of any project: investing implies tying up capital which could have otherwise been readily remunerated through a rate of interest.

At the roots of DCF one finds the “discounts”, which, as early as the 14th century, Italian merchants provided to customers who paid their bills before their due date (Faulhaber and Baumol 1988), and the “present values” of life annuities which were developed by actuaries in the 17th century (Rubinstein 2003). However, it was not until the 19th century that these ideas were adapted for the valuation of non-financial assets. The use of DCF analysis in that period is documented in the records of colliery viewers in the Tyneside coal industry (Brackenborough, Mclean, and Oldroyd 2001), as well as in the computations of German foresters, like Martin Faustmann, and of American railroad engineers, like Arthur Wellington (Faulhaber and Baumol 1988). Such attempts to value non-financial assets with DCF remained sporadic, though. Moreover, they were confined to specific sectors (i.e., forests, coal mines, and railroads), and failed to reach consensus. In the beginning of the 20th century, the American economist Irving Fisher – referring, in particular, to the German foresters’ calculations – theorized DCF and extended its application to the valuation of *any* type of capital. It took another 50 years for his ideas to be embraced in firms’ capital budgeting practices. Entrenched in management education and consultancy (Dean 1951), promoted by government in the search for higher investment and growth (Miller 1991; Pezet 1997), DCF has enjoyed a dazzling career since the second half of the 20th century, ending up as one of the most widespread methods for the valuation of investment projects.

We will turn back to three pivotal moments in the conception of DCF: its original applications for the valuation of forests through the work of Martin Faustmann in 1849; its first formalization by Irving Fisher in 1906; and its rise in firms’ investment practices following the publication of Joel Dean’s textbook on capital budgeting in 1951. Our objective is neither to provide a comprehensive history of

DCF – important developments such as the work of US railroad engineers in the late 19th century (Dulman 1989) will not be dealt with here -, nor to rigorously identify its birth, but rather to outline its fundamental conceptions of value and management – conceptions which it has both embedded and helped to bring into existence.

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Session 10–Institutions, institutionalization and materiality in organizations

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Co-evolution of technological artifacts and new organizational forms across time and space: combining historical and co-evolutionary perspectives

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Through the combination of historical and the co-evolutionary approaches, this paper contributes to our understanding of how technological artifacts and new organizational forms co-evolve across time and space.

Co-evolutionary perspectives understand organizational change in the light of its interconnectedness with the surrounding environment and other actors (thus making the emphasis on the space dimension). They argue that the environmental and organizational changes feed upon each other through time (Djelic and Ainamo 1999; Lewin et al 1999). Co-evolutionary perspective has been applied to studies of organizational change and the development of new organizational forms (Volberda and A. Y. Lewin 2003). Similarly, historical perspectives have also been applied to studies of organizational change in general and the phenomenon emerging in highly contextual environments, such as technological development (Cusumano et al., 1992; Hargadon and Yellowlees, 2001) in particular. Historical perspectives refer to studying organizational change in the light of earliest phases and subsequent historical evolution (thus making the emphasis on the time dimension) (Hargadon and Yellowlees 2001; Lawrence 1984; Kieser 1994; Usdiken and Kieser 2004) and argues that "present forms have their particular nature by virtue of their past" (Manicas 1987, p. 274). Historical perspective was applied to understanding complex phenomena of organization-technology change and evolution over time. However, despite its rather wide applications to the organization and management studies, historical perspective has been largely under-used in the field of Information Systems (Mitev and de Vaujany 2012).

In this paper, I argue that combining both perspectives allows for a valuable assemblage of considering the processes of the organization - technology evolution across time and space simultaneously. Such a combination allows avoiding ranking the historical facts into primary and secondary reasons, and acknowledges the complementary of different actors enacting their agencies in the process of historical co-evolution. In turn, this approach allows us to consider change in organizational forms and artifacts as being more open to unpredictability (both in terms of actors and their enacted assemblages) and thus being in line with insights from the sociomateriality perspectives (Pickering and Guzik 2008; Orlikowski and Scot 2008; Barad 2007). I also argue that the proposed combination goes further and allows for visualizing non-obvious interconnections and links that otherwise might not be observed.

I illustrate the proposed combination lens with an in-depth historical case study of technology-organization development in Internet grassroots communities since 1994 till 2010. These communities were developed by residents in order to provide an alternative to the loose and non-existing residential Internet infrastructure in Minsk, Belarus. With the lens described above, I illustrate how the development of technological artifacts and evolution of organizational structures in these communities was embedded into the interconnectedness of both the *time dimension* (strong educational background in computer science and engineering developed during Soviet Union period, historically developed culture of FIDO activists, government monopoly, inaction of Internet providers, hostile government laws, etc.) and the *space dimension* (state and private Internet providers, architecture of multi-storied buildings, government and municipal authorities, etc.). With the case described above, the paper illustrates the value that the combined perspectives create and argues for the indispensability of both historical and co-evolutionary approaches when studying the (co-)evolution of organizational technology.

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Temporalities in the Institutionalizing of E-government Systems

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The theme of the temporal dimensions in the implementation of information systems is of relevance to the study of e-government systems in Dubai, particularly since it is set in the context of a city that is renowned for its speed in socioeconomic development and in the construction of the city's infrastructure. In this paper, I discuss the implementation and the ongoing institutionalizing of the e-government systems in one of the city's largest public sector organizations. The case study is of a public sector organization that has been working to conform to the state mandate to set up these systems over the course of 18 months. The objective is first to discuss how local public sector staff in the IT department, made sense of the new project and set it up successfully by the deadline. In addition to that, I discuss the nature of the institutionalization of these systems given that they were set up so quickly. I employ Weick 's (1979) concepts of sensemaking and Scott's (2001) theory of institutional pillars as an institutional lens.

The data collection process involved a series of interviews and on site observations in the public sector organization. Data analysis involved tabular analysis of key themes that relate to the theoretical framework as well as the construction of narratives.

I argue that the process of implementing and institutionalizing e-government consists of two temporal patterns. At one level there is the speedy construction of a technical infrastructure for the project, which was set up in a year and a half. This was supported by state policies and the activities of the central government unit, which represents the regulative pillar for e-government. Yet, the study reveals how the regulative pillar for e-government was interacting with normative and cognitive pillars that relate to existing institutions from Dubai's public sector. This interaction reveals another slower temporal dimension to the implementation of e-government systems as local actors, during their work on the systems, are actually appropriating cognitive and normative pillars in the public sector organization with those of e-government.

In sum, what is being constructed here may be led by the fast moving technical activity, but it is or will become, something more than a technical infrastructure. There is an ongoing negotiation between the old and the new scripts (cognitive and normative pillars) by local staff. At the outset the immediacy of what is expressed in the regulative and normative mechanisms associated with technology actually masks the ongoing process of appropriation that is significant for the institutionalization of these systems.

Ten years of an 'ICTD' project: the social construction of a community multimedia centre in rural India

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At the height of the “digital divide” debates in the early 2000s, UNESCO was among the international development agencies and NGOs to invest heavily in “ICT and development” projects. One of these was ictPR or “ICTs for poverty reduction”, as part of the bigger and long standing International Programme for Development Communication. ictPR worked with existing NGOs in south Asia to establish community multimedia centres or CMCs. A CMC was defined as a “community-based facility offering both community radio broadcasting and telecentre services (access to Internet and other information and communication technologies – ICTs” (Creech et al, 2005, p. 6). The aim was “to provide significant support to community development by strengthening economic opportunities through information and training. Moreover, through access to, and exchange of knowledge, views and beliefs, CMCs strengthen social inclusion, public participation, education, agriculture, health and other factors necessary for healthy and sustainable societies” (Creech et al, 2005, p. 6).

Namma Dhwani was one of eight ictPR projects. Set up in 2002, it comprised a telecentre (a computer centre with four networked PCs, a scanner and photocopier - internet access was intended but never worked), and a community radio. Several innovative methods were planned, such as IT classes for girls only, radio browsing, where the DJ would browse the internet in response to any queries from listeners; a content database called Enrich, where content could be stored; participatory radio scheduling and content through the local womens' self help groups, and most of all delivery mechanisms which had to circumvent India's ban on community radio at the time (it was subsequently legalised in 2007).

This paper shares findings from ten years of longitudinal research (2004-2013) by two researchers. The first author visited in 2004, spent seven months in the field between 2006-7, and returned in 2008 and 2009, all for doctoral research. The second researcher has led university fieldtrips to Namma Dhwani each year from 2010-2013. Narrative analysis finds how the artefact of the CMC is constructed – from narratives which emphasize the technologically deterministic and innovative nature of the project in the early years, to the challenges of “community participation”, to the later ecological nature of the content and delivery (because “donors are only interested in climate change now” according the project manager, Ramesh), to the low-tech and participatory processes. The critical nature of time in narrative analysis also illustrates of constructions evolve and shape future discourses, for example an initial centre worker in 2004 was constructed as a "community representative" by UNESCO but her narrative on the contrary appeared to distance herself from "the community": "Namma Dhwani was started to bridge the digital between the urban and rural divide [sic] because there is a large difference between the rural peoples and urban peoples but now we are helping change that... with the school cable radio, the newspapers, the rural peoples are not reading, so we collected three days newspapers, the important news has been read and this programme has been cable casted." In contrast in 2006 when she was asked to leave under complex circumstances, she considered herself as part of the community: "I was told I didn't make informative programs, innovative programs. What is innovative? I live in a village - how innovative can I be? I am a simple village girl".

In turn, both the IT centre and the community radio are constantly being constructed: the former as a golden key to a stable, urban life and prosperity instead of an unreliable agricultural income, and the radio as a more complex site of community politics, religion (e.g. to open the broadcast with a Hindu or Muslim prayer song), knowledge, “insiders vs outsiders” and so on.

Using influences such as Cialdini (1989), Cunliffe et al (2004), Gino et al (2009), Joffe (2007), Kilduff and Krackhardt (1994), Krackhardt (1987), Ricoeur (1988). Strathern (1996), Weick and Bougon (1986) and particularly that on network ties (Emirbayer and Goodwin, 1994; Kilduff and Tsai, 2003; Marin and Wellman, 2010; Wasserman and Faust, 1994) and narrative analysis (Czarniawska-Joerges, 1998, 2004, 2008; Riessman, 1993), this paper examines how Namma Dhvani, so named because it meant “Our Voices”, is in fact the construction of multiple, diverse, and evolving voices.

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Rehearsing the History of National Health Service's Information System in England: Exploring the Ways Forward

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Research objective: To rehearse recent history of health information systems (HIS) in England's National Health Service (NHS), and draw out a core critique and practical lessons to shape future national implementation of electronic health record (EHR) systems internationally.

Study design: With the estimated budget of \$20 (£12.7) billion, National Programme for Information Technology (NPfIT)[2002-2011] was a strategic initiative to integrate NHS's HIS and transform healthcare. We critically reflected on the history of HIS in England's NHS, and also drew upon our findings from an independent, longitudinal, sociotechnical and mixed-method evaluation of national implementation of EHRs.

Population studied: Our data set included 480 interviews; 600 hours of on-site observation; content analysis of 124 sets of documents of various types; and 4400 survey responses from 12 secondary care settings across England that implemented centrally-procured EHR systems.

Principal findings: NPfIT was born in response to frustrations through the 1990s at the lack of progress with computerization of the NHS, particularly in secondary care. Our evaluation confirmed that main stakeholders were highly ambitious, lacked insight and expertise in judging the complexity of the task, overestimated their own and local NHS hospitals' capabilities and preparedness, while underestimated the cultural change implied and the managerial efforts and financial resources required to start the transformation. NPfIT came to face substantial problems as it struggled in core areas to deliver useful and usable technical systems, ensure their implementation and generally meet NHS staffs' expectations.

Conclusion: We can learn from the history of ambition and struggle in NHS information system. In-depth appreciation of the challenges NPfIT faced, and recognition of what was and was not achieved, can allow better choices for the future. Such reflections need to appreciate the deeper processes of institutional adoption of new ways of working with information; encompass consideration of how health system informatics policy is made; establish robust and credible technology supply chains; and understand the multiple stakeholders, the practices of implementation and of change management. Information reform in healthcare is a long-term project, part cultural shift and part cultural reaffirmation.

Implications for Policy, Delivery or Practice: In line with our 'sociotechnical changing' view to EHRs, we see NPfIT as an opportunity for learning, and not simply as either success or failure. We suggest here some 'foundational principles' in taking the national implementation of EHRs forward:

- Data standards and interoperability need to be matched by learning and sharing, through a careful balance between the most appropriate level for coordination measures and the governance of directives and incentives.
- To serve the interests of patients and clinical staff, early introduction of clinical functionality is pivotal and should be prioritized over comprehensive EHR systems or (unrealistic) expectations of administrative cost-savings or short-term returns on investment.
- While better information resources that are creatively shared may at times save money or serve critical needs of management and allow better decision making, the real transformative power of information is in changing the relationships between patients and clinical stakeholders and the way they organize their work.
- A kite marking scheme or some minimum level of benchmark for usability, clinical safety and technical validity is appropriate.

- It is pivotal to build relationship and establish good lines of communications between technology suppliers, service companies, patients and carers, clinical and administrative users, managers, professional bodies and healthcare commissioners.
- Mapping and re-mapping of work processes, patient pathways and professional jurisdictions, as well as the wider adoption of user-centered organizational design and redesigning services or actively seeking out new ways of improving healthcare delivery are prerequisites of any HIS. Otherwise, EHRs will simply freeze in place or magnify existing problems.

Session 11–Critical perspectives on time and materiality

Peter Clark(*Queen Mary University*)

Room: 32 Lincoln's Inn Fields Building, Room LG 10

The oxymoronic character of inter-organisational routines: on time, materiality and organisation design

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Abstract

Drawing on the logic of opposition (Robey and Boudreau 1999), we argue that organisational routines are emergent phenomena that are shaped by institutional and technological logics working in contrasting directions. Taking the re-design of police-prosecutors' roles as a case in point, we show that the legislator's logic aimed at enhancing the degree of co-location and interpenetration between police and prosecutors has gradually been challenged by a new technological regime pivoting around the digitisation of case files. By digitising police-prosecutor work, the regime of technology has made police-prosecutors' work routines more fluid, transparent and distributed. As well as demonstrating that work routines are the result of institutional and technological logics, our argument has implication for organisation design in that it shows that, far from being a static phenomenon, organisation design is a continuous accomplishment.

Introduction

Work routines are the building blocks of organisational structure because they may be conceived of as generative systems that are essentially concerned with how things might be rather than how things are (Simon 1969). Work routines lie at the interstices between structure and agency and occupy the crucial nexus between "the organization as an object and organizing as a process" (Pentland and Reuter 1994:484). Two meta-theoretical frameworks have recently emerged that reflect their oxymoronic character: structuration theory and critical realism. Broadly concerned with practice studies, structuration approaches have made a remarkable contribution to routines theory insofar as they have showed routines' potential to generate new practices and patterns of action rather than inertia and standardisation (Pentland and Reuter 1994, Feldman and Pentland 2003, Pentland and Feldman 2005). In their ground-breaking work, for instance, Pentland and Reuter (1994) argued that in the same way that the English grammar allows speakers to produce a variety of sentences, an organisational routine allows members to produce a variety of performances. Echoing this conceptualisation of routines as sources of flexibility and change, more recently Feldman and Pentland (2003) have defined routines as generative systems that produce recognisable, repetitive patterns of interdependent actions carried out by multiple agents.

In spite of their practical salience, structuration approaches fall short on several respects. First, they neglect the "manifold influences of the element of time" (Winter 2012: 2). Structuration theory essentially portrays structure in static rather than dynamic terms. As Barley and Tolbert (1997: 100) have maintained "While Giddens (1984) explicitly contends that structuration occurs through time, his models are only implicitly temporal, since he usually treats duration as a background assumption rather than a focus of attention. The task then, as we see it, is to translate Giddens' essentially static portrayal of structuration into a more dynamic model that links action to the maintenance and change of an institution and that provides a framework for empirical research". Second, structuration theory underplays the role of artefacts as it ascribes them a virtual character. While it is easy to conceptualise structure as virtual rules and resources that guide people's understandings of who they should communicate with and what they should communicate about, it is not easy to conceptualise physical

artefacts as having a virtual character because they have a form and substance that exists in space and time (Leonardi 2010). Indeed as Leonardi (2010) remarks, by quoting Sewell (1992), it is “only in particular times, places, and quantities that such material (in the sense of physical) objects can serve as resources”. Third, and last, structuration theory neglects the role of structure as it “stresses the necessary involvement of the entirety of structure in even the most trivial act” (Archer 1995: 95), thus failing to account for the pre-existing context where social practices necessarily unfold. In other words, structure and agency are not different aspects of the same thing but are radically different kinds of phenomena (Archer 1995).

Based on these shortcomings, new conceptualisations of work routines have emerged that draw on critical realism (Volkoff et al. 2007; Runde et al. 2009; Iannacci and Hatzaras 2012). Not only do critical realist approaches compensate for the aforementioned shortcomings. Compared with structurational perspectives, critical realist approaches show the layered and emergent character of structure. Put differently, structure is "neither reducible to, nor predictable from, properties of entities found at a lower level" (Hodgson 2007: 103). We argue that critical realist approaches offer a more suitable theoretical apparatus for highlighting the emergent and re-emergent features of organisation design. By undertaking a structural approach to the study of routines, we emphasise the rationale underpinning two contrasting structural mechanisms, namely the legislator's and the technology's rationale. While the former is concerned with preserving the status quo, the latter intrinsically undermines it by making work routines and workflow processes increasingly more unstable and transfigurative (Kallinikos et al. 2010). Organisation design conceived of as a generative grammar of organisation (Salancik and Leblebici 1998), therefore, emerges at the interstices of these two contrasting logics.

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Path-dependence in technologies and organizational routines: a critical realistic perspective

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The path-dependence construct has been largely adopted in management and organization studies to capture the vague idea that “history matters” in explaining organizational phenomena, such as structural inertia, rigidity or lock-in (Sydow et. al., 2009; Vergne & Durand, 2010). However, the logic of the very process producing organizational persistence still remains under-explored and scanty attention has been devoted to the self-reinforcing dynamics influencing its temporal evolution (Schreyögg & Sydow, 2011). Even in recent studies embracing a process perspective (van Driel & Dolfsma, 2009; Valorinta et al., 2011; Kock, 2011), path-dependence analysis has largely remained at strategic level or considering the organization as a whole.

Our work aims at shifting the analytical focus through the exploration of organizational path-dependence at very micro-level, i.e. identifying self-reinforcing mechanisms sustaining it over time and produced during work practices. Through embracing a “practice lens” (Orlikowski, 2000; Feldman & Orlikowski, 2012) we would observe organizational path dependence at the two intertwined layers: the domain of organizational routines, i.e. the repetitive recurrent interaction patterns carried out in the firm for conducting its regular business (Cohen et al., 1996; Feldman & Pentland, 2003); the domain of technological artefacts, i.e. machinery, equipment and software, regularly used to support work activities (Orlikowski & Iacono, 2001; Kroes & Meijer, 2006) and playing a key role in organizational routine dynamics (Pentland & Feldman, 2008; D’Adderio, 2008; Leonardi, 2011)

Both evolutionary and behavioural theories of the firm (Nelson & Winter, 1981; Cyert & March, 1963) have recognized that organizational routines develop in a path-dependent manner and that feedback effects play a key role in explaining such a phenomenon (Becker, 2004). However, the mechanisms through which initial conditions or chance events trigger a self-reinforcing dynamics and how different performance-revealing effects jointly work in producing path-dependence still remained unexplored. As for technology, organizational path-dependence has been hitherto investigated only at the level of strategic investments (e.g. Murman & Frenken, 2006; Valorinta et al., 2011). However, once a specific technological choice is made and a given technology is implemented, it inscribes the beliefs, goals and expectations of managers (and developers), embedding them in its material features. During the adoption stage, practitioners exercise their agency to enact a specific technology-in-use, so conditioning the further development path of technology. In organizational studies on technology, constructivist theoretical approaches have been adopted to assess the social dynamic of technology evolution and explain the dynamic that leads to the institutionalization of a certain technology (Pinch & Bijkers, 1987; Latour, 2005). However, in these studies the focus is on the development stage of the technology cycle, so that the self-reinforcing dynamics underpinning technological path-dependence during the enactment stage has remained substantially neglected.

In our work we tackle the following research question:

How do the co-evolutionary paths of technologies and organizational routines shape the self-reinforcing dynamics influencing the organizational adaptation capability over time?

A critical realistic perspective (Bhaskar, 1978) is explicitly embraced since it is well-suited with a relational ontology and the need to explore the technological artefact in both its material and social dimensions. Coherently with critical realism, technology is treated as a dynamic and changeable system where new components are gradually added or, alternatively, replaced to old ones during its temporal evolution, so exhibiting a variable influence on the self-reinforcing mechanisms. Furthermore, a morphogenetic approach (Archer, 1998) is adopted to trace the temporal unfolding dynamics that intertwined technology and routines, so enabling to understand how they together shape

the self-reinforcing dynamics that potentially leads to get stuck on a rigidified action pattern. Exogenous triggers in the development path, i.e. strategic changes in structuring elements of technology and routine, act as “perturbing” events in the self-reinforcing dynamics at work.

We address the research question through conducting a longitudinal, explorative and inductive case study (Eisenhardt, 1989; Yin, 1994) in an Italian middle-sized service firm holding a national leading position in the fleet management sector. Data was collected through 26 semi-structured interviews, archival material and two-months participant observation. Data analysis was based on qualitative methods (Langley, 1999; Miles & Huberman, 1994) and focused on the organizational change process that simultaneously involved technological artefacts and a core business organizational routine (called “authority”) between the period 2008-2011.

Our empirical evidence adds to previous research on technologies and routines (Pentland and Feldman 2005; D’Adderio, 2011; Leonardi, 2011), investigating how their temporal co-evolution creates organizational path-dependence. The case analysis shows that a variety of combinations of “technologies-in-practice” (Orlikowski, 2000) and “routines-in-practice” (Feldman, 2000) emerges at the end of each social interaction cycle. The addition or substitution of a given component to the incumbent technological system puts into action a phase of change and mutual adaptation between the new technological configuration and local practices (Orlikowski, 1996; Tyre & Orlikowski, 1994). However, the actual scope of action is progressively reduced over time, since human agency tend to exert less reflexivity when to face unexpected events or emergence situations. A significant insight is related to the number and nature of self-reinforcing mechanisms that bring about path-dependence in organizational routines (Arthur, 1988; David, 1985; Sydow et al., 2009). Our empirical evidence shows how the specific nature of technology - together with contextual elements – influences the direction and the intensity of the mutual adaptation process: the actual impact of self-reinforcing mechanisms on strengthening or reducing morphogenesis depends not only on how they work after that a new exogenous event has triggered a new transformational cycle of technologies and routines in practice. Rather, it needs to be related to self-reinforcing mechanisms already working within the incumbent system of technologies and routines. In fact, the new technological artefact, through embedding in organizational routines as well as in already used artefacts, can get a specific identity thus contributing to path-breaking; otherwise, it re-enacts previous patterns of use through self-reinforcing mechanisms. In this case, it leads to reduced exploration and organizational adaptation capability, that are the prelude of organizational inertia and lock-in. Further technological choices can thus play a key role in breaking down the above unwanted trajectory and re-orient change.

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Mirages of organizations. From the historiography of management to the management of historiography

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Management ideas are often shaped by historiographical processes reflecting power relations and their associated ideologies (Bruce and Nyland, 2011). Therefore, the reinterpretation of management ideas in the light of their historical context has recently flourished in the literature (Clark and Rowlinson, 2004; Kieser, 1994). However, the way mirages of organizations – management ideas shaped by erroneous historiographies – emerge and the motives associated with their development remain unclear. Clarifying these two problems is the objective of this communication.

1. Synthesizing the various mirages of organizations

Mirages are typically shaped along two key dimensions (Figure): (1) a synchronical inconsistency is a change in the nature of events at a given point of time, whereas (2) a diachronical inconsistency is a change in the succession of events over time.

Figure. From historiography to mirages of organizations

		Synchronical inconsistency	
		No	Yes
Diachronical inconsistency	No	Historiography	Distortion
	Yes	Anachronism	Fable

Historiography

The writing of history – historiography – should obey to two main principles (Goodman and Kruger, 1988): (1) external criticism: the validity of sources must be verified to ensure authenticity; (2) internal criticism: various sources must be confronted to ensure reliability. Once sources have been evaluated according to those principles, an interpretation of events can finally be proposed. Unfortunately, as we shall see, such a rigorous evaluation of sources and interpretation of events is not always done in management studies.

Anachronism

I define historical anachronism as a diachronical inconsistency in the arrangement of events. (1) Ruptures are employed to promote an iconic figure which hides the real origin of a phenomenon: *e.g.*, the emergence of the Human Relations 'school' of management is associated to Elton Mayo and his colleagues, whereas a Taylorist such as Henry Dennison preceded him many years before (Bruce, 2006). (2) Continuities are employed to promote the non-interruption of events: *e.g.*, corporate historiographies are sometimes rewritten in order to display unity and continuity in corporate cultures (Rowlinson and Procter, 1999), or the filiation of events: *e.g.*, continuities between historical facts and new phenomena are sometimes imprudently argued by scholars in organization studies in order to promote their analysis (Jacques, 2006).

Distortion

I define historical distortion as a synchronical inconsistency in the arrangement of events. The distortion can be: (1) partial, such as the systematic removing of the left in the historiography of the management of change (Cooke, 1999); (2) complete, such as Elton Mayo's famous interpretation of Hawthorne investigations: many researchers currently contend that “*the conventional depiction of the [Hawthorne experiments] is a rhetorical distortion of events*” which was based almost entirely on Mayo's political views (Bruce and Nyland, 2011, p. 384).

Fable

I define historical fable as an arrangement of events that conjugates both diachronical and synchronical inconsistencies. Here, mirages emerge because events without any historical grounding are reported. An interesting example is the popular idea that a “mode 1” of a discipline-based knowledge production without any inter-organizational collaboration has ever existed. Actually, it was a mere construct built in a particular era in order to justify autonomy for science (Etzkowitz and Leydesdorff, 2000).

Fables often originate from stylised facts or from narrative fictions. When not manipulated carefully, they are both at risk to be no more considered as representations, but as a reality (Clark et Rowlinson, 2004; Rhodes and Brown, 2005).

2. Motives to develop mirages of organizations

Apart from unintentional erroneous historiographies that can occur, there are two main motives to develop mirages: (1) intrinsic motives are driven by interests associated with the erroneous historiography itself, and (2) extrinsic motives are driven by interests associated with benefits deriving from the erroneous historiography.

Intrinsic motives

Lobbying. (1) As a shareholder, mirages can allow to develop specific managerial practices. Organizational memory is sometimes instrumentalized in order to develop specific organizational cultures (Rowlinson *et al.*, 2010). (2) As a stakeholder, mirages can also allow to direct societal, political or ideological evolutions. The removing of the left in the historiography of the management of change was performed in order to promote the objectivity of the discipline (Cooke, 1999).

Pedagogy. Mirages can also be a useful pedagogical tool employed to inform and educate people. The development of fables through narrative fictions can be a useful tool for pedagogical education. For example, the creation of mirages through the introduction of anachronistic ruptures and continuities can have storytelling virtues (Clark and Rowlinson, 2004). Yet, one must not forget that they are just a representation, and not a true reality.

Extrinsic motives

Incomes. The development of mirages can be quite lucrative. Best-selling management books are productions that are manufactured to have a positive impact on the intended audience, and their “*data or observations that underpin the ideas being presented [often] cannot be assumed to exist*” (Clark and Greatbatch, 2004). Also, to seduce clients, consultants’ rhetoric is often based on pseudo-novelty (Berglund and Werr, 2000).

Reputation. Reputation is another motive to develop mirages. The rewriting of history can be: (1) a way to avoid a negative reputation: some German companies have endeavoured to rewrite their conduct during the Third Reich (Rowlinson *et al.*, 2010); (2) a way to obtain a positive reputation: in this perspective, companies sometimes proceed to hagiographic narratives of their history by selectively remembering the past (Rowlinson *et al.*, 2010).

4. Contributions

On the management of historiography

The proposed framework which identifies dimensions for shaping historiography could serve as a basis for future researches on mirages of organizations. It could allow a more systematic inventory of erroneous management ideas than the fragmented analysis that are currently proposed. Also, by identifying the causes of mirages, the paper also allows to anticipate their apparition. Conflicts of interests could be better identified and therefore be better prevented.

On the historiography of management

This analysis supports previous calls for an increasing attention to the historiography of management. When conducting a research, this work reaffirms the need to adopt valid historiographical methods. When re-employing past researches, this paper also reaffirms the necessity to reinterpret management ideas in the light of their historical context.

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Session 12–Artefacts, organizations and time

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A mythological approach on consulting practice and artefacts

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Mythology is a path to long-term settings embedded into deeper structuring values than novelty or change. This paper proposes an explanation of organizational mythology by its inner practice and artefacts. Hence, we will consider here that “men are not conceiving myths or through myths, but myths consider through men unwittingly” (Levi-Strauss, 1964, page 20).

Purpose and inquiry

This paper proposes elements for a mythological approach of business consulting. Indeed, no other profession is more based on discourse and presentation care (Villette, 2003; Henry, 1997; Smith, 2002). The more undefined the task is, the more representation and cultural justifications are important (McKenna, 2006). If in some countries such as France, business consultants used to be certified engineers, in Anglo-Saxon countries (United- states and England, essentially) they are just qualified by their job, and further, by their task (Kihn, 2006). Thus, an inquiry on business consulting is specifically interesting for this analysis because it touches many organizations. Indeed, their specifics and legitimating systems are suitable for several professional core mythologies.

An enquiry based on practices and artefacts and focused on perceived dedication (including clients and consultants from several organizations) will be treated as a path to mythology. Several interviews will be conducted around how consultants perceive “a good consultant”. Mythology imposes a focus on long standing structures sustained by a number of beliefs and superstitions on this specific profession. The interest of interviewing both parts is to understand in which measure do the transmitter and the receiver share the beliefs and assumptions, and how this turns out to be a structuring element of modern organizations. The actual economical crisis is a particular moment for this kind of analysis, because it implies the restructuration of pre-existent models (Conner, 1991). Our point would be that a deeper mythology is to be understood from the way we perceive competencies, practices and artefacts. This would lead us to oppose two realities; the organizational one and the concrete one (Davenport & Stoddart, 1994).

Why adopting a mythological approach?

Claude Levi-Strauss's work on mythology (Levy-Strauss, 1958; Pouillon, 1966) shows that a mythological approach can be an efficient path to the structure of a society. Hence, the aim of this paper is to apply this method to organization studies. It authorizes a link between short-term events and long term beliefs, which can be qualified as myths, according to Jean Pouillon (1966):

“(myths) give no positive neither isolated answer, neither they express a certain conception of the universe. Myths are linked to a certain way to live or a social organization. They expresse a set of alternative solutions that only make sense when thought as included to a system.” (page 101)

This way of thinking social research had been underexploited by management sciences (Kieser, 1994, 1996): only a few authors mentioned it directly (Meyer & Rowan, 1977; Davenport & Stoddart, 1994; Leavitt, 2005). The mythological methodology comes from anthropology but has very useful tools for organizational analysis (Leach, 1976), indeed, mythology is a way to access and analyse artefacts and space efficiently, considering their symbolic meaning as included into a coherent structure (Gagliardi, 1990; Strati, 1992). Thus, organizational artefacts, further than their material value (but frequently embedded with it) have a symbolic value, mostly technological artefacts that includes specific ways to communicate (Orlikowski, 1992). In other words, any artefact has a social use, which is a sense maker as much as a concrete use. That social use of artefacts sociomaterial value they transmit is embedded into a context linked to organizational history and provides a specific rationality embedded into a particular organizational culture (Dale 2005, Clegg, 2006). Hence a mythological approach will open new ways to analyse those problematic.

Mythology: organizational reality and underlying structures

On a more practical aspect, artefacts can be thought as real sense makers for organizations shaping actions into something meaningful (Carruther & Espeland, 1991), hence, organizational dynamics are shaped by rational justifications that has to be understood as economically valid and coherent, in other words: efficient (Boussard, 2008). Actions have to be properly coordinated and the same dynamic must animate the diverse part of organization as explains Bechky (2003):

“Artifacts cross occupational boundaries in the service of production and communication. They are a concrete representation of every task area within an organization, and thus, they are a vital element of the work process.” (Page 724).

According to this point of view, action’s legitimacy has to be understood as embedded into a global time and space structure included into a coherent belief system (Dutton, Dukerich & Harquail, 1994). A certain agreement on practices produces a specific culture connected to a construction of stereotypes linked to commercial practice (French & Popp, 2011). Those stereotypes go further than the products, techniques or services, they have to be understood as part of cultural practices (Goffman, 1959). Indeed, a sum of tacit agreements structure processes, but also the value of an organization (Bechky 2011). Thus, the structure of an organization reflects the mythology of a professional core (Meyer & Rowan, 1977). Our point would be that any kind of rationality is constructed into time, space and sociomateriality. Thus, if we go further, a mythological methodology is a coherent link between short term actions or artifacts and long term values, assumptions and stereotypes.

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Exploring patterns of imbrication through human and material agency modeling and simulation

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As the relationship between Information Technology (IT) and organization evolves, the potential for new forms of organizing is continually created (Zammuto et al. 2007). On the one hand recent advancements in information infrastructures, platforms, and applications are blurring the boundaries between the physical and digital worlds by providing ubiquitous communication, sensing, and computing capabilities (Hanseth and Lyytinen 2010; Yoo et al. 2010). On the other hand individuals and organizations make use of IT as a resource for achieving their own goals in a given environment. This creates unparalleled opportunities for innovating current forms of organizing towards socially interactive, ethically sensitive, trustworthy, self-organized and resilient systems by connecting people and organizations. Nevertheless, IT also constrains practices and poses issues in terms of privacy, ownership, freedom of speech, responsibility, technological determinism, digital divide, cyber warfare, and other ethical issues.

In such environment, the governance of new organizational forms in which individuals, groups, and organizations interact beyond the boundaries of formal organizations, in both online and offline settings, requires a better understanding of the emerging phenomena. The dynamics of complex networks of people and IT artifacts must be deeply understood for setting up cooperative service environments characterized by intensive information sharing, collaboration, and collective action (Shirky 2008). In this scenario, information infrastructures, platforms, and IT applications represent the material dimensions of organizational practices and are dynamically entangled with their social dimensions.

By looking at the micro-foundations of routines and technology generation processes, the metaphor of “imbrication” has been recently proposed as a lens of analysis (Leonardi 2011). In such view human and material agencies are the basic building blocks of the organizing process. Human and material agencies are interlocked in material sequences and together produce, sustain, or change either routines or technologies. While human agency is intended as the goal oriented behavior of human subjects, material agency has to do with the things that a technology can or cannot do. An important notion in this context is that of artifact’s affordances which, as opposed to material properties, are unique to the particular ways in which an actor perceives materiality (Gibson 1986).

Although some authors have recognized the relational character of affordances (Hutchby 2001; Markus and Silver 2008) the networked nature of both human and material agencies is still overlooked. In other words the relationship between a person and an IT artifact is considered as a dyadic relationship but the composition and the structural aspects of social groups and digital products are seldom recognized. On one side social groups can be organized through hierarchies, markets, clans, fiefs in the physical world and as online communities in the virtual world (Shirky 2008). On the other side, IT artifacts as digital products present a layered modular architecture (Yoo et al. 2010). When both the individual view of human agency and the monolithical view of material agency are abandoned, the complexity of imbrication processes is revealed and new theoretical frameworks are required for analyzing the dynamics of such sociomaterial processes.

The aim of this talk is to contribute to the debate on the dynamics of sociomaterial processes by focusing on their micro-foundations and emerging properties. Drawing on complex adaptive systems theory, we recognize that social phenomena emerge from the bottom-up interactions among learning agents in a given environment (Holland 1998). Once the building blocks (cognitive agents) of a system have been identified, together with a set of rules and initial conditions, computer simulations

provide a valuable support for analyzing the unfolding behavior of such complex systems. This view has recently gained much attention in the fields of management and organization studies (Allen and Varga 2006; Amaral and Uzzi 2007; Anderson 2008; Lewin 1999) and integrate contributions from cybernetics, cognitive sciences, decision and organization sciences (Simon 1996).

Our assumption is that starting from human and material agencies, as the building blocks of sociomaterial practices, the architectures of agents and material objects can be modeled together with the architecture of the environment in which they interact. Based on these models, the requirements of an agent-based simulation platform for investigating the evolution of sociomaterial processes can be defined. Therefore through simulations it will be possible to validate the models and to identify the patterns, rules and initial conditions that in a given context characterize desirable imbrications effects. This framework will be proposed as a tool for complementing longitudinal studies in doing research on the dynamics of entanglement and imbrications. It will allow for instance to investigate how emergent processes produce various forms of organizing in presence of different technological capabilities (i.e. infrastructures, platforms, applications).

Theoretical impacts in the fields of Information Systems and Organization Studies are related to advancements in understanding the temporally emergent sociomaterial realities that form and perform contemporary organizations. An illustrative case in the field of healthcare management and the dynamics of elderly care networks will be presented as an example of application of the above mentioned approach.

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Decision-making process and enterprise mobility:

An analysis of individuals on the move

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Enterprise mobility can be defined as the use of mobile and wireless information and communication technology (ICT) for interaction between different actors, in which dimensions such as time and space take on a new perspective due to the mobilization of the interactions (Sørensen, 2011). The workspace is no longer limited by geographic barriers and local conditions, and the notion of time is no longer monochromic, in which individuals allocate time slots to do each activity, but instead it is polychromic, and less importance is given to structured activities, and linearity is no longer dominant (Sørensen, 2011; Yoo, 2010). The mobilization of the interactions explores the mobile and wireless ICT affordances. This is like in experimental computing, where technology itself will be forgotten and will be integrated naturally in the context of mobile work and is no longer seen as something external, abstract, but embedded in daily activities (Yoo, 2010).

This research aims to analyze how the individual decision-making process in the enterprise mobility context is set. In this context the individual decision-making occurs not only in a fixed location, but distributed in different contexts in which individuals can perform their activities using mobile and wireless ICT such as smartphones, tablets, notebooks, PDAs, etc. The individual decision-making process in organizations is a constant activity and is one of the main responsibilities of all executives. Their decisions determine the success or failure of organizational initiatives and the organizational ability to achieve competitive advantage.

Decision-making can be understood from the rational and bounded rationality perspective (Simon & March, 1958; Simon, 1978), from the political and power organizational perspective (Alisson & Zelikow, 1971), or from the intuitive or naturalistic perspective (Kahneman & Tversky, 1979; Kahneman, 2003; Klein, 1989, 2008). The intuitive perspective suggests that humans have an intuitive cognitive system that can process a big amount of information quickly, in parallel, automatic and associatively, complementing the perspective that decision-making is essentially a rational, slow, serial and controlled process.

In the enterprise mobility context, decision-making can occur on the move. Executives can make decisions far from their “traditional” and fixed workplace. They are far from their co-workers and out of their “natural” context. The dimensions of time, space, actors and artifacts, described in experimental computing are, thus, challenged, and the individual decision-making process may have characteristics that need to be better understood. This is the gap that this research intends to address. The different affordances of mobile and wireless ICT influence the mobilization of the interactions. Characteristics such as connectivity, portability, memory, pervasiveness, intimacy and priority suggest a scenario where a close relationship can be observed between the decision maker and his/her mobile devices. This is what Dourish (1999) suggest, from the phenomenology perspective, as embodied interaction, which can be defined as a digitally mediated experience through artifacts with integrated computing capabilities. In this context individuals experiencing artifacts and relationships with different actors in a different way, and the relationship between man and machine become increasingly intertwined.

In this paper we aim to analyze the phenomenon of individual decision-making on the move. An extensive literature review about decision-making and mobility was performed considering, as sociological perspective, the Actor-Network Theory (Latour, 2005). Kahneman's (2003) perspective of individual decision-making, which is based on System 1 (intuition) and System 2 (rational), was used as the basis to propose a framework and research propositions that interrelates the elements of individual decision-making process and enterprise mobility.

Based on these theory we made the following assumptions: System 1 is influenced by the framing effects and accessibility, and some mobile and wireless ICT affordances are related to these two phenomena, such as intimacy, pervasiveness, portability and priority; System 2 operates by systematic analysis of a given situation, and the affordances of priority, portability, connectivity and memory are most strongly related to this system.

We identified dimensions comprising the theoretical model and four research propositions related to individual decision-making in the enterprise mobility context: [1] time and space take on a new perspective that can modify the cognitive framing used to generate insights in the System 1; [2] individuals are constantly under time pressure and connected to people and information. Decision-making tend to be fast and decisions based on intuition are evidenced; [3] the resources provided by mobile and wireless ICT can extend the connections to people and information "anywhere and anytime". Decisions based on systematic analysis (System 2) are, then, more suitable and easier; and [4] by exploring mobile and wireless ICT affordances to support the rational decision-making process (System 2), the decision maker may have the illusion of completeness and take decision based on incomplete evidence, compromising the quality of the decision. We suggest that the theoretical model and these propositions are ways to empirically explore the individual decision-making in the enterprise mobility context, expanding the research agenda in this field.

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