

Multiple measures, inscription instability and action at a distance: performance measurement practices in the pharmaceutical industry

Claire Dambrin (HEC Paris) & Keith Robson (Cardiff University)

March 2009

First Draft

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Abstract

In this paper we explore performance measurement practices in pharmaceutical companies with particular reference to the inscribing (or 'tracing') of pharmaceutical representatives ('drug reps') responsible for the promotion of prescription medications to general practitioners and other healthcare professionals. We draw upon Latour's sociology of translation to explore the qualities of the inscriptions practiced in French pharmaceutical companies to control drug reps at a distance. Within the context of regulatory constraints upon drug representatives' activities and the reporting of pharmaceutical prescriptions in France, we analyze the inscriptions devices and explore problems of *interessement* and instability of 'performance measurement' inscriptions. The paper concludes with a discussion of the concept of stability and how processes of ambiguity, uncertainty and professional identity may contribute to stabilizing inscriptions and tackling problems of action at a distance.

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Introduction

“...let us examine first the many ways in which inscriptions are gathered, combined, tied together and sent back” (Latour, *Science in Action*, 1987: 258)

Attention to the character and functioning of performance measurement systems seems now to be a cornerstone of management accounting research and management consulting practice. Practitioners and academics debate the appropriate measure or mix of measures suited to corporations (Stern et al., 1996). Shareholder and stakeholder models of organization and organizational control are drawn upon to support and criticize particular performance measurement systems (Hope and Fraser, 2003; Fitzgerald, 2007). The merits of single versus multiple or financial versus non-financial measures are weighed and assessed (Kaplan & Norton, 1992; Jensen, 2001), with a view to their role in performance appraisal, incentive schemes and the furthering of shareholder or stakeholder concepts of organizational control (Fitzgerald, 2007).

Alongside the normative prescriptions offered by consultants and academics for new or improved management control or performance measurement systems, research has begun to take seriously the problematic of management (and financial) accounting as an organizational practice (Hopwood and Miller, 1994). In studying practice researchers have come to study what Pickering refers to as the ‘performative idiom’ (Pickering, 2002: 414) in which accounting is understood as concerned with ‘doing things’ in the world and involving an emergent interplay between human and material agency. Studies of capital investment practices (Miller & O’Leary, 2007), ERP systems (Quattrone & Hopper, 2005) and budgeting (Preston et al., 1992) have begun to explore the assemblages of humans, technologies and inscriptions that perform accounting, auditing and other organizational practices.

In this paper we explore performance measurement practices in pharmaceutical companies with particular reference to the inscribing (or ‘tracing’) of pharmaceutical

representatives ('drug reps') responsible for the promotion of prescription medications to general practitioners and other healthcare professionals. Our concern is less with which performance measurement systems work 'best', than how particular performance measures are constructed and operate in certain contingent contexts. One characteristic of the context of interest to us is that of government regulation, and the absence or proscribing of information that might in some senses provide the more obvious financial inscriptions and controls: more specifically how controls may be chosen and control exercised (or not) where access to (sales) data is heavily circumscribed by government regulation of the health sector. In this situation our concern is to explore how organizations affect control of unknowns or possible unknowables.

To frame our discussion we draw upon the sociology of translation (sometimes referred to as actor network theory, ANT) and, in particular, the concepts associated with action at a distance (Latour, 1987) and 'accounting as inscriptions' (Robson, 1992). As with previous work in the sociology of translation our focus is on practices (Schatzki et al., 2001) and the chain of calculations and technologies that inscribe and index a network of 'objects' to the corporate centres of calculation (Callon & Latour, 1981; Callon, 1986; Latour, 1986; Miller & Rose, 1990).

Accounting technologies and problems of action at a distance have already been the subject of several studies in the healthcare sector, though these have been almost exclusively in *public* health-care organizations (Covaleski *et.al.*, 1993; Chua, 1995; Kurunmäki, 1999; Scott *et al.*, 2000; Kurunmäki 2004; Llewellyn & Northcott, 2005). In this paper the French sales teams of eleven global pharmaceutical corporations, and the performance measurement systems and technologies to which they are subject are investigated. Our interest lies in the ability of companies both to manage, compromise and improvise with the attributes they most seek from their performance measurement 'inscriptions': mobility, stability and combinability.

The paper is structured as follows. In the next section, we set out the modern concern with performance management systems, highlight the role of inscriptions and chains of

calculation in the enablement of action at a distance and argue for the relevance of analysis of inscription practices in understanding the workings, consequences and compromises of performance measurement systems. In the succeeding section we outline the research context to our research questions, present the case study background and describe our research and data-gathering method. Section 3 outlines our research findings from our case study as regards action at a distance and performance measures. The final section interprets our results in the context of current concerns about performance management, multiple measures and long distance control.

Performance Measures and Acting at a Distance

As we noted in our introduction, the problem of evaluating performance and the contest to determine the 'best' measurement systems seem to be key elements of the dominant problematic of much management accounting research and management consulting advice. Consultants promote proprietary performance measures, such as EVA (Stern et al., 1996), and business school academics assess rationales and implementation problems (O'Hanlon & Peasnell, 1998). Survey evidence would suggest that these activities impact heavily upon the corporate sector, at least in terms of take up of new performance measurement systems (Frigo & Krumwiede, 1999).

Central to many of the contemporary debates on performance systems have been the calls for single or multiple measures such as Economic Value added (EVA), the Balanced Scorecard (Kaplan & Norton, 1992, 1996a) or other dashboard approaches, such as the Performance Prism (Neely & Adams, 2000; Neely et al., 2002). Criticisms of the financial measures offered by traditional management accounting systems have led to calls for non-financial and qualitative information to help address processes of, for example, organizational learning and innovation, customer needs and satisfaction, and internal business processes (Bruns, 1998). Strategic management accounting approaches have reinforced criticisms of management accounting short-termism and the need for strategic measures (Kaplan & Norton, 1996b) or the abandonment of conventional budgeting (Hope & Fraser, 2003).

Other facets of this performance management debate concern the idea whether measures should embrace stakeholder approaches to the corporation. Performance measurement systems that incorporate customer, employee or environment stakeholders have been promoted as solutions to the problems of corporate accountability and governance (Freeman, 1984). To this end multiple measure approaches such as the Kaplan and Norton Balanced Scorecard have been hailed as a stakeholder measurement model whose flexibility and inclusiveness contrasts, favourably (Fitzgerald, 2007) or otherwise (Jensen, 2001), with more recent single measure models of organizational performance such as Economic Value Added (Stern et al., 1996).

Yet with few exceptions (Garengo & Bititci, 2007) many of these debates take little account of contextual or situational issues in their prescriptions. Over forty years after contingency views of organizational control suggested that there are no general laws that determine a universal model of control and controls for corporations (Woodward, 1958; Burns and Stalker, 1961) and over thirty since this idea first influenced management accounting (Hayes, 1977), many of these performance measurement debates seem fixed upon the proposal that particular performance measurement systems are obviously superior to others (Jensen, 2002), regardless of environmental or technological contingencies.

Moreover, proponents of performance measures, scorecards and dashboards appear unconcerned with the problems of the practical construction or accessibility of the information sets that their chosen measures require. The appraisal of performance evaluation seems to be largely confined to large or small scale surveys of 'perceptions' of success (Hoque, and James, 2000; Marginson & Ogden, 2005) or attempts to map cost accounting or performance systems usages to improvements in 'market' measures of corporate performance (Ittner et al., 2002; Ittner et al., 2003). Studies of the 'success' or performance benefits of models such as the BSC take almost no account of the problems of 'measuring' that which it is deemed significant to measure, nor the chain of equivalences, translations and technologies that realise the core components of a BSC, an

EVA analysis or a Performance Prism. In management accounting and the wider performance evaluation literature the substance of measures and the technologies that define the measures are treated unproblematically. Accounting categories and their embedding in the 'reality' of organizational substance have been taken so much for granted that it is assumed that performance measurement systems for corporations can simply be defined as a matter of choices between or mixes of 'measures'. Studies of the effectiveness of for example, the BSC proceed as if the category BSC can be taken for granted as a homogenous implementation of set 'measures' and technologies within invariant organizational contexts (Quattrone & Hopper, 2005).

In this paper we focus upon the problems faced and the 'solutions' developed or purchased by French pharmaceutical companies in their efforts to construct the measures appropriate to the control of their pharmaceutical representatives who travel regions and visit healthcare facilities to promote new drugs and the like to healthcare professionals. Our concern is with 'practice' and in particular the writing and imaging crafts, practices and technologies that link a pharmaceutical company's 'centre' with the 'objects', abstract or concrete, they attempt to control. To this end we draw upon Latour's sociology of translation, and his work on the role and the qualities of 'inscriptions' that enable 'action at a distance' (Latour, 1987). Qualities of mobility, combinability and stability are to some degree easily interpretable as desirable attributes of the inscriptions generated by inscription devices, but our purpose in this paper is to explore how organizations are able to or struggle define these characteristics in their performance measurement 'systems' in ways that both preserve a network of translations and serve different contexts.

Translating interests and action at a distance

“[T]he world comes to the office worker, instead of the office worker going to the world” (Latour, 1989: 537).

The sociology of translation raises a question: How can we act at a distance with regard to events, places and people that are unfamiliar to us? Latour answers: “by bringing these events, these places and these people close to us by whatever means.” (Latour, 1989:

534). In the early nineties, the accounting literature began to see the potential interest of importing the concept of action at a distance in the accounting field, notably to analyse the power of accounting devices in acting upon individuals and society (Miller & O’Leary, 1993; Preston et al., 1992; Robson, 1991; 1992). Robson describes how a lack of correspondence between the inscriptions and the objects to which they refer, between the forms of explanation “here” and the objects to which they refer “out there”, between representations and their referents, is a problem for those who wish to act at a distance (Robson, 1992: 691). Action at a distance is conceived as a form of continuous control, impersonal, proceeding in the absence of face-to-face contact with supervisors and management. Action at a distance consists in linking calculations established in one place with actions performed in another place (Miller & Rose, 1990).

It is through a process of translation that such linking of calculations is made possible. Translation refers to the associations that are essentially constructions between an inscription and the events, objects and activities to which it is deemed to refer (Callon, 1980: 211; 1986). Translation suggests the role of distance; it “signals the notion of movement or displacement from one context to another” (Robson, 1992: 691). This movement is not solely spatial. Undoubtedly, the problem of geographical distance serves as a useful historical image to recognize how action at a distance functions (see below the example of cartographers routinely used by Latour or Law) but, notably in the organizational context, it is clear that this distance equally concerns a difference in terms of power and of interest. Control at a distance and control through presence are not alternatives, but complements (Cohen, 2002). Action at a distance is not the inverse of action through presence because, even when the source of influence and the control subject are present, elements that are not directly visible to the source of influence remain, such as know-how, interpersonal relationships or pieces of information flows:

“action at a distance implies not merely physical space between two points, but the capacity, through ‘strong’ explanations, to influence many contexts at the same time.” (Robson, 1992, p.691).

Whether in terms of time-space or relevant resources, distance between representations and their referents is the fundamental problem for action and control.

Translation therefore steps in as a support for action at a distance in ambiguous situations in which actors decide to launch into the production of emerging knowledge (Callon, 1999:41). To support translation actors attempt to ‘enrol’ others into their network:

“B can only see utility in the knowledge produced by A if A launches into the task of giving B an incentive. A translates B: he sets out to convince him [...] that it is in his interest to go through the competences produced by A. In these incentive strategies, what is negotiated is obviously whatever both A and B really want and whatever their goals and whatever the programmes they undertake to reach these goals are” (Callon, 1999:41, author translation).

Callon and Law referred to this element of translation as ‘*interessement*’ – locking other actors into a place in the network through a recognition and drawing-in of reciprocal ‘interests’ in the translations.

Thus, “the operation of translation consists of combining two hitherto different interests [...] to form a single composite goal” (Latour, 1999, p.88). The process of translation, defined by Callon and Latour, enables the calculations made in one place to be linked to an action carried out in another place, not through force but through a subtle networking of agents and agencies (Miller & Rose, 1990, p.9-10). It is a matter of ‘translation’ because the individual “targeted” by the action at a distance is to translate the goals and values of others (the one who seeks to act at a distance) into his or her own terms (Miller & Rose, 1990: 10):

“Nothing is, by itself, either knowable or unknowable, sayable or unsayable, near or far. Everything is translated.” (Latour 1988: 167)

Translations, Inscriptions and Interessement

Enabling translation and drawing together distant elements into one place or calculation calls for what Latour terms “inscriptions”. Using the example of the European cartographers who, through map-making, developed their States’ control over distant and unknown lands, Latour describes how paper can come to ‘dominate’ many widely dispersed objects, processes, relations and constructs through the ‘writing’ of activities and their mediation through technologies, accountings and other inscription devices. In Latour's work, inscriptions encompass image, number and text. As such the activities of

scientists are conceived to “take on the appearance of a system of literary inscription” as an observer of laboratory life “could even make sense of such obscure activities as a technician grinding the brains of rats, by realizing that the eventual end product of such activity might be a highly valued diagram.” (Latour and Woolgar, 1979: 51-2).

In using a term like inscription Latour is referencing technologies that establish or inscribe a trace. Writing, counting, digital technologies, diagrams and drawings are all media for inscribing traces that can be moved and combined to provide a cascade of inscriptions. Latour views science as the establishment of technologies and instruments that provide traces: scientific instruments are inscriptions devices.

“[A]n inscription device is any item of apparatus or particular configurations of such items which can transform a material substance into a figure or diagram” (Latour & Woolgar, 1986: 51).

Inscriptions make *mobilisation* possible and provide a means of linking practices. All inscriptions including corporate accounting numbers are most effective when they can be transported but also when they can be *combined*, re-combined or superimposed into further inscriptions – an n^{th} order inscription can be abstracted to a further level, $(n+1)^{th}$ order inscription. The final order inscriptions we might see could be equations, profit and loss tables or graphs.

Inscriptions are also, however, valued for their *stability*, and it is this last attribute that is perhaps the most complicated to establish. Latour has often referred to inscriptions as ‘immutable and combinable mobiles’, but how can something be both mobile and stable? Stable inscriptions are rare. To make them stable, you need to interest people into them, however, stability and *interessement* seem incompatible.

Statements that are simultaneously accepted, stable, spread and appropriate are rare. How can acceptance be made to happen more frequently? You need to interest more people to their building so that they can spread, and you have to make the behaviour of people who grasp them entirely predictable, so that they don’t get distorted or betrayed. Those conditions are obviously self-contradictory: if you interest a lot of people, it is by getting closer to their passions and beliefs; then it will be all the more difficult to hinder them distorting or questioning the statements. On the other side, if nobody is interested or enrolled, the statement won’t move an inch, remaining a dream or a whim in its speaker’s head. It will

lead to nearly unsolvable difficulties if the speaker wants to convince people of a new fact that goes against their interests and beliefs. (Latour, 2006:40-41, author translation)

Stability in one sense refers simply to the proposal that the inscription can move without ‘corruption’ or degradation from one point to another. A map on paper is more stable than one drawn in the sand. Acid-free paper is in turn more stable than that made from wood-based pulp that has not had lignin removed. As such powerful explanations in science rely upon inscriptions that can be stabilized. As Latour claims, stabilization and *interessement* can both happen when inscriptions appear as hard facts.

To solve this tension [between *interessement* and stability], facts have to be hardened; you need to switch from flexible and soft facts that can be easily negotiated to hard facts. To do so, you have to add as many elements to the statement so that it becomes undeformable for those who grasp it. (Latour, 2006:40-41, author translation)

How an instrument measures an activity or ‘substance’ relies not only upon that activity but a stable system that defines what counts: how instruments or other inscription devices are constructed, applied to a practice and thence deemed reliable. Measures of organizational goodwill rely upon stabilized guidelines that describe the concept and how practices can be inscribed and inscriptions associated to signal the concept ‘goodwill’.

As Star and Griesemer (1989) have noted standards are one of the ways in which actors with differing ‘interests’ may be enrolled in the translations. Where *n*th order inscriptions have to link different actors’ purposes or ‘communities of practice’ then common identities may be forged by standardized methods, common forms or shared classifications that stabilize inscriptions adequately across sites. In a refinement to the concept of *interessement* Star and Griesemer call such inscriptions “boundary objects” to signify the way that such inscriptions need to have both sufficient stability to offer meanings to actors but also sufficient plasticity to serve different actors’ requirements (1989: 389-93). Boundary objects are a particular case of *n*th order inscriptions operating in a context of *n-way interessement* (Star & Griesemer, 1989: 389).

Even following the establishment of standardized guidelines, the legitimacy of standards can still be challenged, probably much more readily than the reading from a voltmeter – accounting for goodwill is a less stable ‘fact’ than electricity. Yet our point is that

scientific and accounting inscriptions rely upon the establishment of guidelines, disciplines and standards that endeavour to secure the *stability* of inscriptions that might build towards powerful statements, facts or ‘accounts’. Stability implies an idea of stability of meaning, a consensus that n^{th} order inscriptions are stable in ‘meaning’ when combined with other inscriptions and when moved across distance.

Inscriptions themselves do not ‘explain’, they serve as allies in the building of the argument or ‘fact’. In this respect inscriptions are not themselves ‘facts’ but are deployed to build a case for agreement on ‘facts’ being ‘factual’:

“it is the inscription as the fine edge and the final stage of a whole process of mobilization...the cascade of ever simplified inscriptions that allow harder facts to be produced at greater cost.” (Latour, 1986: 15-16)

Inscription devices assist this process by linking final or n^{th} order inscription, be it a diagram, table or report, to the original matter or process:

“An important consequence of this notion of inscription is that inscriptions are regarded as having a direct relationship to “the original substance”. The final diagram or curve this provides the focus of discussion about the properties of the substance. The intervening material activity and all aspects of what is a prolonged and costly process are bracketed off in discussions of what the figure means.” (Latour & Woolgar, 1986: 51).

Once claims of facticity or representativeness of the final inscription have been established and agreed the cascade of inscriptions that has been built into an n^{th} order inscription are occluded by the argument that the inscription is a ‘true’ representation. As such claims are then made true, so long distance control practices are enabled, in the laboratory, the state or the corporation.

Stability relies on the building of the relationship between the inscription as a ‘sign’ and the object, whether abstract or material, which it ‘signs’. Accounting and performance measures rest upon the idea that the inscriptions that are traced and brought to the centre provide some kind of index of their object (Muniesa, 2007: 382): in other words, that the measure is ‘really’ modified or affected by the performance ‘object’. Without the supposition of stability built into the travel of inscriptions, then the final or n^{th} order inscriptions are likely to be considered meaningless, unreliable or invalid.

Without this kind of stability arguments will rage over the meaning of a profit and loss charge and resulting net profit, the asset valued in the Balance Sheet and totalled Net Assets - and if such arguments or conflicts rage then the chain of translation has the potential to fall apart: the element of *interesement* is lacking and actors no longer enrolled.

Immutable mobiles are able to mobilize the world in creating back and forth paths [from traces, inscriptions to the world]; but these paths still have to remain uninterrupted. The slightest uncertainty in the instrument, the least doubt about the reliability of the inscription, the smallest betrayal in the long chain that goes from the questionnaire to the statistical figure... and there is the one who thought holding the whole world in his hands actually holding a mere scribbled piece of paper.” (Latour, 2006:67-68, author translation)

Our purpose in drawing upon the sociology of translation is to ‘unpack’, detail and problematise the inscriptions, the *interesement* and the translations that go into the building of a performance measurement system. Latour’s concept of inscriptions draws attention to the concrete practices that build up a performance measure and the claims that certain measures or systems sign organizational performance. As such our study follows the inscriptions that go into certain performance measures, and explores their mobility, combinability and stability in translating a particular organizational process and bringing it to a centre of calculation. Rather than assume that it is the innate property of concepts of ‘financial performance’, ‘customer satisfaction’ or ‘internal business process’, or some scorecard of them all, that secures organizational control or ‘performance’, our interest is in exploring how practices produce the inscriptions that build these measures: their stability of meaning or meanings, ability to combine, capacity to move away from the ‘local’ contexts of their production to an organizational centre or centres in ways that successfully translate ‘interests’. It is these properties of qualities that make for ‘successful’, representative or ‘true’ inscriptions for long distance control. And it is these elements that we explore in our case study by exploring the problems in stabilizing measures, combining them and translating them for diverse actors from remote contexts without corruption. In the next section we outline the research site, research methods and our research questions in more detail.

Research Context and Methods: Performance Inscriptions and Drug Representatives in the Pharmaceutical industry

The regulation of the pharmaceutical industry in France prohibits the collection and knowledge of seemingly obvious ‘sales’ traces or measures. In this context, we explore the case of controlling how pharmaceutical companies are able to ‘measure’ and direct the activities of their sales representatives. Actors within pharmaceutical firms deploy a range of tactics to construct more or less stable, mobile and combinable inscriptions to trace, ‘measure’ and enrol their sales representatives. Our purpose in this paper is to investigate the limits of and compromises required by these tactics and explore the salience of Latour’s analysis of inscriptions and *interessement* devices.

Problems of performance measurement in the French Pharmaceutical industry

Our study centres on the problems and practices of inscribing the performance and activities of sales representatives (“drug reps”) in the pharmaceutical industry responsible for promoting pharmaceutical products to prescribing clients (medical professionals). At first glance sales representatives would, one might expect, be held accountable for a measure of their direct sales: sales revenue or sales orders, per week, month or quarter, etc. Such revenue measures are staple ingredients of corporate management and financial reporting.

In the pharmaceutical industry, however, the position is complicated by particular organizational contingencies: the disciplines of state regulation of the healthcare sector. Drug companies are private companies that produce and sell products considered as public goods. Hence, their activity is regulated in order to minimize the potential misalignment between their profit interests and those of public health. In France, direct-to-consumer advertising (such as commercials) for prescribed drugs is forbidden by the French Public Health Code.¹

¹ “Direct-to-consumer advertising for a drug is only authorised if this drug is not subject to medical prescription, if it is not covered by any mandatory healthcare insurance schemes, and if the notice of compliance or public registering does not include any restrictions with regard to direct-to-consumer advertising due to potential risks to public health”, (Article L5122-6 of the Public Health Code).

Pharmaceutical companies rely heavily on information being provided to doctors about their drugs. In 2004, drug representation accounted for 75.8% of promotion investment made by all pharmaceutical companies in France.² In France, drug representatives are not technically salespeople. Drug reps are:

“persons who provide information or conduct prospecting for medical treatment [and] must possess sufficient scientific knowledge certified by a diploma, title or certificate that is included in a list drawn up by the administrative authority”, (Article L5122-11 of the Public Health Code).

The Public Health Law (of 18th January) 1994 specifies that the drug representative must possess a national diploma for drug representation (at bachelor’s degree level), which can be obtained through training provided by the pharmaceutical company or through degree equivalences accepted by the CPNVM (National Professional Committee of Drug Representation). In France, due to this status, drug representatives leave their hospital or GP visits without a signed order form or any guarantee of prescriptions on the part of the clinician; at best, they may have a ‘promise’ of future prescriptions.³

More importantly, *pharmaceutical companies do not have access to medical prescriptions that allow them to trace resulting sales*. Medical prescription’s usage is regulated both by the patient’s privacy rights and by the professional confidentiality’s obligation held by doctors according to Article 226-13 of the penal code⁴. Not only are pharmaceutical companies unable to rely on signed orders by doctors, they cannot access the medical prescriptions issued by doctors. This leads to another problem of control of

² Source: LEEM enquete Tableau de bord 2004

³ The collective convention regulating the pharmaceutical industry asserts what makes drug representation a non commercial profession : “Any activity of a commercial nature, and in particular, order taking, is strictly forbidden to drug representatives.” (National collective convention of the pharmaceutical industry, IDCC n°176, 1956).

⁴ “Any person consulting a professional, healthcare organizations or any organization dealing with prevention and care has a right to privacy and protection of information involving him/her. [...] this secret imposes on any healthcare professional, as well as any professional intervening in the health system.” (Public Health Code, Art. L1110-4, modified by Law n°2004-810, August 13, 2004).

Any doctor keeping electronic data on their patients has to declare him/herself at the CNIL (Commission nationale de l’informatique et des libertés), the French body regulating privacy rights for electronic information. In the framework of its law on electronic data and freedoms, CNIL bans the collection and treatment of personal information dealing with health, except for healthcare professionals that are bound by professional confidentiality (Article 8 – Section 2 – Law n° 78-17, January 6, 1978).

sales forces at a distance. Pharmaceutical companies relate prescriptions to turnover, but the turnover per doctor cannot be identified directly.

Thus the singular problem of ‘action at a distance’ and sales staff in the pharmaceutical industry lies in the reality that pharmaceutical companies in France cannot draw a clear link between a drug representative’s activities (such as the visits to a doctor), the prescriptions that the doctor will write subsequently to the visit, and the sales that then result. No drug company can state that a given pharmacy sold a given drug due to a prescription from a given doctor. Medicines are prescribed by doctors who are not the direct purchasers of the goods produced by the pharmaceutical industry. The normal client management relationship linked to sales ordering and account invoicing is unavailable.

In addition to this, a French law⁵ promulgated in 1999 has enabled pharmacists to substitute a prescribed drug with another drug pertaining to the same generic group. The year 2004 was marked by an acceleration of the market for generic drugs: the consolidated turnover of generic drugs reached 855 million euros in 2003, a growth of +38%, following a growth of +36% in 2002 and +26% in 2001. Thus generic drugs accounted for 13.2% of the reimbursable products market in terms of value and 23.6% in terms of units (number of drug boxes sold) (LEEM, 2004). If a patient brings a prescription from a given drug at a drugstore, the pharmacist has the right to substitute the prescribed drug with an equivalent generic unless the doctor has specifically opposed to this on his/her prescription. The resulting sale won’t appear in sales figures; however, a doctor (who has been visited by a drug rep) had still prescribed the drug. Currently, no information source captures pharmacists’ behaviors relating to their substitution right (CNIS, 2005).

A similar problem pertains to measurement of the return on investment on promotional activities. The return in terms of medical prescriptions from “Professional Relationship” (PR) activities cannot be measured directly. Professional Relationships refer to evening

⁵ Loi de financement de la sécurité sociale pour 1999 (loi n° 98-1194 , December 23, 1998)

or weekend events proposed free-of-charge ('freebies', 'junkets') to a group of doctors with the aim of increasing their potential to prescribe. PRs are paid as overtime to the DR who organises them and participates in them. The drug representatives talk of "deals", of "moral contracts" between themselves and the doctors invited, but it stays in the realm of what cannot be inscribed as a sales result or promotional 'success'.

Measuring performance is all the more problematic when drug companies want data to assess individual performances. Most pharmaceutical companies organise their sales forces into networks: a geographical zone of doctors is taken on by three or more drug reps many of whom will go and see the same doctors on the assumption that increasing the number of visits raises the probability of prescription. In this type of organisational structure, it is impossible to inscribe what share of turnover may be attributed to a given drug rep in the network. Though in one sense the company does not need to know the individual performance of drug reps. However, although the sales force functions on the basis of a network, remuneration for performance still hinges on individualized criteria (rankings of drug reps, individual bonuses).

To summarize, pharmaceutical company centres are thus exposed to particular problems of acting upon sales representatives at a distance. Several contexts of action at a distance that raise 'tracing' problems can be highlighted. When a drug representative visits doctors or invites doctors to professional relationship activities, pharmaceutical company management have difficulties in answering questions such as: Is there a prescription after a drug rep visit or a professional relationship? If so, what quantity? Which doctor prescribed? If the drug reps are in a network, which drug rep influenced this prescription? Once a prescription of a drug formerly presented by a drug rep has been issued by a doctor to a patient, other questions arise: Is there a purchase after the prescription? If so, since pharmacists in France have a right to substitute products, does the purchase correspond to what is prescribed? Does the purchase take place in the same geographic zone as the place of prescription?

In this context our research questions centred around inquiries into the performance measures and practices of inscription that surround the control of drug reps at a distance. The case of global pharmaceutical companies in the context of French State regulation of the health care industrial sector offered the opportunity to explore how problems of unstable (and to some degree uncombinable) inscriptions are accommodated and the consequences that follow from this instability. The cascade of possible inscriptions between the tasks of a drug representative (doctor or clinician visits, “professional relationships”) and the criterion for evaluating performance (turnover achieved in a geographical zone) are replete with unstable links between inscriptions and activities. Do sales of a given drug at a pharmacy inscribe the performance of a drug representative - who can only “encourage” doctors in the local area to prescribe? How do pharmaceutical companies inscribe drug rep performance? If the inscriptions between sales and drug reps activity are unstable, how is drug rep discipline established?

Pharmaceutical Sales Inscription devices

To diminish these problems of control at a distance, the pharmaceutical companies invest in multiple ‘performance measurement technologies’ to inscribe drug reps actions and to offer them performance ideals. These technologies are commercialised to pharmaceutical companies by outside providers, information centres external to the specific pharmaceutical company. These agencies are specialised in the sale of disciplinary technologies on a consultative, subcontracting or advisory basis (Clegg, 1998, p.39).

In the French pharmaceutical sector there are three main evaluative methodologies used to gain information on the performance of the sales force and in this section we briefly outline their key characteristics:

1. *ETMS* (Electronic Territory Management Systems) an organizer which is based on self reporting by the drug reps;
2. *GERS* (Groupement pour l’Elaboration et la Réalisation de Statistiques) based on aggregated sales of wholesalers and direct sales of pharmaceutical companies to pharmacies and hospitals; and
3. *XPonent*, a panel analysis, based on extrapolated sales of pharmacists to patients.

Our study analyzes the operative inscription practices associated with these technologies in eleven pharmaceutical companies located in France and their bearing upon acting upon drug representatives at a distance.

Since legally, drug reps are bound to make visits to doctors and pharmacies, the first main type of control is focused on their activities, rather than on elusive sales figures. To monitor drug reps activities, pharmaceutical companies rely on an Electronic Territory Management System (ETMS), which is a *Customer Relationship Management* tool. This refers to the electronic organizer that drug reps use to plan and record their activities. The electronic organizer for use by reps consists of an electronic diary, an electronic message system, a clientele database, and an activity manager. In Europe, the ETMS market leader product is TEAMS, supplied by Cegedim Dendrite. Nine of the eleven pharmaceutical companies studied relied on TEAMS as their ETMS.⁶ Teams generates an activity report on the coverage and frequency of visits made by a drug rep to clients, according to the data supplied by the drug reps themselves, and shows compliance with visit targets, as shown below.

INSERT TABLE 1 HERE - An activity report in TEAMS (an ETMS)

ETMS technology deploys a strong visual control that relies on signals and specific colour codes. For instance, when a drug representative declares fewer than four visits a day, this day appears in red, which then alerts the regional manager to go and analyse the activity of the drug representative. Legally, a lack of declared visits can be a ground for breach of work contract.

However, performance measurement of drug reps is focused on sales figures rather than merely activity data, all the more as sales figures are the only kind of data broken down geographically. In that context, the *second* source of evaluatory inscriptions available to pharmaceutical companies is to purchase *Aggregated Sales Statistics*. In 1974 an

⁶ TEAMS is the European pharmaceutical industry's most-used software and service platform in the fields of management, information and sales force effectiveness. (<http://www.cegedimdendrite.com>). Rival ETMS are used in some laboratories: e.g. Siebel Pharma (developed by Oracle).

independent company the *Groupement pour l'Elaboration et la Réalisation de Statistiques* (GERS) was created by and for the French pharmaceutical industry to collect and publish sales statistics. It gathers more than 200 pharmaceutical companies in France and monitors 99.9% of drug wholesalers' data (CNIS, 2005). The sales data are not gathered from panels, but are actual pharmacy order figures collected from wholesalers and companies. They reflect wholesale deliveries and direct sales from companies to pharmacies and hospitals; they also take returned products into account. GERS data are broken down in geographical areas (UGA, i.e. Unité de Gestion Administrative), according to the place where the drug was stored by pharmacists⁷. Most pharmaceutical companies use the pharmacy order data from the GERS in order to know their turnover per product, their market shares, or those of competitor products on a weekly or monthly basis, and by geographical area. The GERS is accessible to all members of a companies' sales force in raw data form or in a summary format generated by systems specific to the companies. The following example is a sales report provided by Gers on a weekly basis to a drug rep that promotes Promal drug on two UGAs.

INSERT TABLE 2 HERE - A sales report provided by GERS

The drug rep knows what are the sales figures (number of units/boxes of a drug sold and market share) for his or her product (Promal) as well as for the competing drugs belonging to the same therapeutical class (Zirtox, Tuzom, etc.). comparisons between his product's performance and that of competitors' products on various geographical scales can be made. Performance can also be situated in the overall regional and national data for the same product.

The third type of performance inscriptions refers to the information/statistical reasoning generated by *Panel Analyses*. Panel analysis is a form of longitudinal statistical analysis wherein data is collected from the sample of individuals over time and used to generate a panel data regression model to draw inferences about a population for forecasting

⁷ There are 746 UGAs, each one gathering 30 pharmacies on average. According to the price paid by the pharmaceutical company, GERS provides breakdown of sales by UGA or by APV (Aggrégat de Point de Vente, aggregated salespots). There are 6 APVs per UGA, each APV gathers 5 pharmacies on average.

purposes. In the pharmaceutical companies we studied, one major panel analysis was deployed in order to monitor sales and make a link between where the drug was issued and where it was prescribed: *XPonent*. *Xponent*, generates an extrapolation of sales based upon prescriptions data sent by pharmacists for a group of medical specialists/doctors. The information generated is used to infer sales of *speciality* medicines and is often the main source of information pertaining to hospitals ‘purchases’ by specialists. From a panel of 47% of all French pharmacies (10,200 out of the 23,000 pharmacies in France), it performs an extrapolation in order to provide its clients with a detailed account of prescriptions issued by a group of doctors (a minimum of five anonymous doctors per group). *Xponent* is less powerful than the GERS insofar as the data are not exhaustive, but it has the advantage of informing the laboratories about real pharmacy sales (contrary to the GERS that informs about pharmacy orders). As GERS data, *XPonent* data are broken down in geographical areas. The Panel data and analysis software is supplied by a third party, IMS Health, an international firm specializing in market intelligence and analytics in the healthcare industries⁸.

Research Methods

The research context indicates, *prima facie*, that in the French pharmaceutical industry, technologies of performance measurement exhibit problems of unstable inscriptions as a consequence of regulatory constraints. To explore this instability and its effects, we conducted a case study of the pharmaceutical industry in France, which is the biggest producer of drugs in Europe.⁹ Our focus is on sales performance measurement of ethical drugs (i.e. those requiring a medical prescription in contrast to over the counter drugs that can be bought without any prescription). The ethical drugs represent the biggest segment market for the pharmaceutical industry in terms of volume and value sales¹⁰. Besides,

⁸ Other information centres rely on a panel rationale that targets doctors rather than pharmacies. For instance, ICOMED, the Institut de la Communication Médicale implanted in France in 1985 by the Cegedim group, measures doctors’ type of customers and prescription preferences by sending them a speciality-specific self-administered questionnaire. Around 50% of GPs answer this questionnaire. Statistic companies deal with the non respondents by estimating their answers through mathematical algorithms.

⁹ In 2005, France produced 34.3 billions Euros of drugs, i.e. 21% of the global European production. Source: LEEM (2007)

¹⁰ In 2004, ethical drugs accounted for 17 billions Euros out of 38 billions of total turnover on the French market (i.e. 45%), OTC drugs accounted for 4% of the global turnover, drugs delivered in hospitals

ethical drugs go through a specific distribution circuit that makes sales performance measurement more difficult. The percentage of direct sales for drugs is actually weak (15% of the total turnover in 2004 [LEEM, 2005]) and there are many intermediaries between the end customer that buys drugs and the pharmaceutical company that sells them (via the distribution of wholesalers, pharmacists, doctors, etc.). Also our focus in this case study is on community networks of salespersons, rather than on networks dealing with hospitals, which account ‘only’ for 12% of the global turnover of the French drug market in 2004. Although we have interviewed salespersons dealing with the hospitals, notably to understand the specificities of each sale’s network, we address most and foremost the issue of performance inscriptions used to evaluate and reward community networks.

First, we gathered data on regulations of sales activities in the pharmaceutical field in France. To grasp the contingencies impacting upon the sales performance measures, we have investigated State and health institutions through their inscriptions. Latour claims that we lose something when we build on organizations, institutions or States to explain societies and calls for an examination of how those entities are produced before we explain society through them. He recommends that we inspect the documents and instruments constructing and shaping those entities:

“How can a “State”, an “economy”, a “firm”, an “institution” exist? Yes, it needs documents, papers, instruments, questionnaires; all those documents have to be summed up, added, and subsumed somewhere. Someone has to inspect them. Entities are not given data; they are the fragile result of a mountain of files and bureaucrats. Forgetting this work of recording, adding, compiling and gathering, forgetting this stagecraft is believing in giants.” (Latour, 2006: 66-67, author translation)

We tracked regulatory institutions’ influence on sales performance measurement by using resources provided by the main union in the pharmaceutical industry in France (LEEM, Les Entreprises du Medicament) and by Legifrance, a governmental body that discloses norms, laws and jurisprudence on the internet. Among the data they provide, we selected

accounted for 12% of the global turnover and exported drugs accounted for 39% of the global turnover.
source: LEEM, key figures, 2005

and studied legal texts as well as professional articles dealing with notions of sales and drug representation.

Second, we conducted thirty-six semi-structured interviews in eleven global pharmaceutical companies located in France between March and December 2003.¹¹ In Appendix 1, a summary table of the companies studied provides information to position these companies in relation to each other. We focused on sales department members as we wanted to analyse sales performance measurement, and interviewed twenty-six members of sales departments (see Appendix 2):

- Twelve drug representatives (drug reps’);
- Eleven regional managers (managing eight to twelve drug reps each);
- Two Network Sales managers (managing six to twelve regional managers each);
- One Vice President of sales (managing three network sales managers, i.e. overall 350 people from managers to drug reps levels).

We favoured the dyad Drug representative / Regional Manager to capture reaction of the those specifically concerned with performance inscriptions: sales people that are on the field and visit doctors and pharmacists. We also interviewed at higher hierarchical levels to get a sense of the aggregated nature and use made of performance inscriptions - the sales teams on the field are targeted by performance measurement technologies but are not necessarily the main users of these technologies. We interviewed four members of functions involved in measuring the performance of drug reps’ teams (marketing function, management accounting, sales administration) (see Appendix 2). Again, this was aimed at getting information from users of performance measurement technologies and gain insight in how they analyse inscriptions provided by technologies and what is their discourse on these technologies.

Six interviews were conducted with individuals who work in bodies external to the pharmaceutical companies to gain a better understanding in the nature of sales inscriptions in the pharmaceutical industry and in the effect of regulatory issues on drug

¹¹ The conditions for conducting the interviews were the following: average duration of 1 hour 30 minutes, recorded on tape. Out of the 36 interviews conducted, eight were carried out by telephone and 28 face-to-face.

sales performance measurement (see Appendix 3). These additional interviewees were chosen for their potential involvement in the production of inscriptions on drug reps' sales performance. Among them, we interviewed one pharmacist, as pharmacists have the right to substitute prescribed drugs and since most performance inscriptions are based on pharmacy data (pharmacies' orders for the GERS and pool of pharmacies' sales for XPonent). The five other 'external' interviewees could be described as "metrologists" in a Latourian sense, that is to say those who ensure the maintenance and reproduction and spreading of inscriptions. Metrology, in a broad sense, enables one to realize the simultaneous power and fragility of calculation centres (De Noblet and Jocelyn, 1983). We interviewed two consultants specializing in reward systems to get additional information on the rewards systems used in the pharmaceutical industry and evaluate how far performance measures and performance rewards are linked in sales fields. Finally, we also interviewed three leading members of two competing technology service providers for the pharmaceutical industry. We wished to compare discourses on performance measurement technologies given by designers and by users. Involving competing technology service providers in our interviews proved essential to grasp what technologies could enable and compare this potential with what members of the pharmaceutical industry believed the technologies could do. It was thus useful to highlight the instability of performance inscriptions and show how far sales people could still believe in, commit or adhere to these inscriptions. Many salespersons claim the abilities of performance measurement technologies without questioning them and we could try to make them go beyond their initial beliefs precisely because we could rely on technology service providers statements. Overall, the aim of these six interviews was to go beyond the limits of the organisation (the pharmaceutical company) in order to deepen our understanding of the socio-institutional aspects of action at a distance.

The data gathered over the course of the 36 interviews were supplemented with secondary data provided by interviewees: annual evaluation sheets, examples of reporting requested on visits made by drug reps or on professional relationships organized with doctors, tables of sales statistics received by drug representatives, and annual reports from providers of measurement performance technology. Although we were interested in

sales performance measurement, it would have been indeed too simplistic to focus only on sales reporting for if one wants to gain understanding in *interessement* processes, one has to look beyond monetary inscriptions:

“A calculation centre which would only count money would be unable to make any kind of profit; [...] it also needs to count pictures of the world, maps, stories and letters.” (Latour, 2006:67, author translation)

We analysed all these collected data according to two major issues, stability/instability and *interessement*. To highlight stability issues in performance inscriptions provided by technology, we looked for data showing that performance inscriptions do not correspond to the activity they are supposed to be linked to. Sales department members gave us information on which inscriptions are used to measure drug reps' performance. Laws texts and interviews with “outsiders” (people involved in sales performance measurement but not part of pharmaceutical companies, such as service providers) helped us to identify inconsistencies in sales department members' rhetorics about performance inscriptions given various contingencies (legal constraints ‘limiting’ the abilities of inscriptions devices). By comparing these levels of data, we highlighted gaps between what the pharmaceutical industry wishes to measure to evaluate performance of its sales teams, what it is expected to measure given regulatory issues, and what it actually measures¹². Confronting these primary and secondary data made us provide our own analysis of instability of performance inscriptions in the pharmaceutical industry.

Focusing on the instability of inscriptions per se would have been sterile without reflecting upon the reactions raised by this instability. Latour calls for research design that mutually considers inscriptions and *interessement*:

Not all explanations of science that address inscription [...] is convincing; but only those which relate inscription practices to mobilisation processes. Reciprocally, we do not find equally convincing all explanations [...] focusing on groups, interest, class, economic cycles; but only those which account, at the same

¹² We also prompted interviewees' views on these issue. When interviewees from sales teams addressed the issue of performance inscriptions, they rarely saw any problem of instability in these inscriptions. But when we asked them to be more precise on what kind of data technology actually provide, when we led them to elaborate on the link between these inscriptions and their activity and to think of the rewards linked with these inscriptions, they usually displayed hesitation, silence or reformulations. We systematically marked those moments in interviews. It was a signal for us that interviewees were starting elaborating on instability.

time, for the aggregation of those groups, interests, classes and cycles thanks to certain new techniques of inscription. (Latour, 2006:42, author translation)

We devoted one part of the analysis to the reactions raised by instable inscriptions. It turned out that most extracts highlighting instability issues addressed *interesement* issues at the same time. People who recognize instability in the inscriptions provided by technologies are the daily users of these technologies, hence they might usually engage in some justification for instability. Indeed, despite technologies' weaknesses, people buy in performance inscriptions they provide. The last part of our analysis consists in developing understandings of why people might commit to performance measurement inscriptions despite occasional acknowledgement of sometimes obvious inscription instability.

To account for these two analytical themes (instability and *interesement*), we chose to analyze quotations sometimes at length to render visible interviewees' contradictions, elaborations or progressive rectification of opinion. We analyzed the rhetorics developed around the inscription devices/technologies. We extracted sections dealing with performance measurement (objectives, technology to measure results, evaluation, and rewards). In those extracts, we paid attention to how people qualify sales performance measurement technologies used in the pharmaceutical industries. We analyzed what verbs and adjectives were associated with XPonent, GERS and Teams (e.g.: "GERS gives me the true sales") and labelled lexical fields around technologies if a certain theme became recurrent (e.g. lexical fields of transparency, exhaustivity, good and bad, fate etc.). We then analyzed the arguments/explanations put forward when people recognized some instability. For instance, we paid systematic attention to the arguments developed after link words such as "but", "in fact", "in the end", "actually", "however" located near performance measurement issues.

Controlling drug representatives in the French Pharmaceutical Field: performance measurement and inscription instability

As we noted earlier it is a characteristic of the research context that, due to regulatory restrictions, inscriptions accounting for sales performance are *prima facie* unstable. Inscriptions of performance for the sales force are Sales figures, stemming from the GERS and from XPonent, and Activity data related to the visits made to the doctors by the drug reps, stemming from TEAMS. The following section explores the practice of these sales performance measures.

Performance inscriptions and organizational rewards

Sales performance inscriptions are much more present than activity inscriptions in incentive reward schemes (flat salary, bonuses, non financial rewards).

They account for 100% of quarterly bonuses and incentive bonuses are not negligible in the overall income of a drug representative.

You have a flat salary. The pay rise you can get depends on your skills. In addition to this, you have a variable part made of bonuses. Bonuses depend on how far you reached your objectives of turnover and number of boxes sold (Management Accountant, W1).

One drug representative from Z company had “more than doubled” her gross salary with the bonus she got on a quarter. She hints at other drug reps from Z who have earned between 9,300 and 9,800 Euros each as a quarterly bonus. The average net monthly salary of the drug reps we met in the eleven drug companies amounted to 2,250 Euros. On average, the additional bonuses they got amounted to 1,030 Euros per month, which represented 36% of their monthly net salary. Thus a substantial amount of the overall income of drug representatives depends on the performance shown by sales inscriptions.

Usually, people link inscriptions on activity with annual pay rise and inscriptions on sales figures with quarter bonuses. In fact, if bonuses are indeed based on sales inscriptions, annual pay rise and even non financial rewards such as being part of the best sellers club are also based, at least partly, on sales inscriptions. As a vice president of sales at W states:

80% of the monthly salary is based on qualitative criteria, what the drug reps do, how

they evolve, and 20% deals with quantitative criteria, whereas 100% of bonuses is based solely on quantitative criteria (Vice president of sales, Community, W2).

Very few companies include activity inscriptions in the bonuses. However, Z stands as a notable exception on that point, since a regional manager explained to us that they had just started including frequency of visits and accuracy of doctors' targeting in the bonuses criteria. Concerning non financial rewards, they are granted according to sales inscriptions. At W company, the "Winners' club" gather people that are part of the 100 best salespeople according to an annual grading. They get car upgrades, extra bonuses and are congratulated during an annual party where they also receive a diploma. At Z and at B companies, respectively the five and ten 'best' drug reps on each network, according to a rating of market sales increases, take part to a prestigious trip with their spouses and the CEO and get stock options.

This overview on the performance inscriptions and rewards indicates that the various rewards drug reps get are granted according to activity as well as sales inscriptions. These inscriptions are therefore consequential. Sales inscriptions appear slightly dominant since they are involved in all types of rewards whereas activity inscriptions are involved in annual evaluation and pay rise decisions, sometimes in non financial recognitions (clubs) but are mostly absent from bonuses. However, because of regulatory issues developed in section 2, drug reps should not be held accountable for sales inscriptions.

Salespeople or medical professionals?

As we have noted, drug reps are not legally sellers and this same regulatory constraint contributes to the instability of individual sales figures. Drug reps are expected to *inform* doctors about the drugs their company produce:

Pharmacy is a particular profession. It is very difficult to set a sales target for a drug representative because he does not sell. However, the pharmaceutical sector has been working a lot on this. *There is a very direct correlation between the number of visits that you make and the sales figures that we will find in pharmacies.* So they cannot require sales targets from a drug rep because that isn't possible, but instead they fall back on a number of visits, doctors' attendance at conferences and other events which is supposed to generate, mathematically and statistically, a sales figure. (Reward Strategy Consultant, H2)

Thus companies' performance measures appear rely upon the assumption that information given to a doctor leads to prescription which leads to sales as described by a consultant specialized in short-term incentives. As the interviewee reminds us, drug reps aren't sellers and as such cannot have sales targets. Contractually, they are bound to realize 123 visits for 151 monthly work hours, but their bonuses, part of their pay raise and even non financial rewards are based on their sales figures as seen formerly. As the consultant quoted above suggests, there is instability between what most drug reps' rewards depend on (sales figures) and what they are legally expected to do (inform). Hence, instability of performance inscriptions can first be highlighted in the following link:

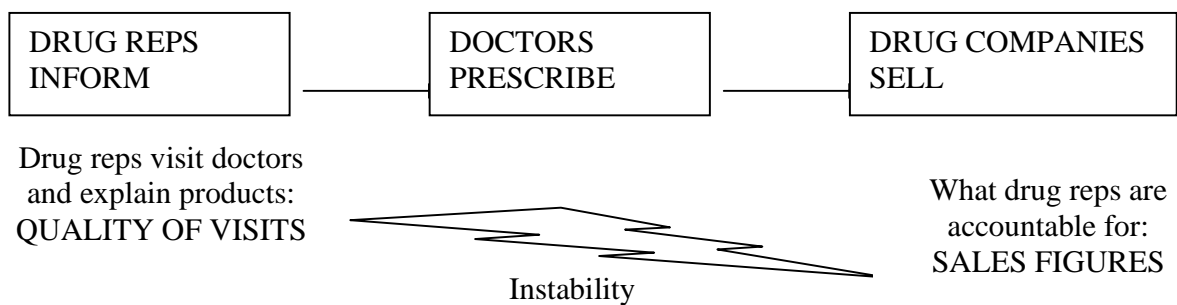


Figure 1 – Accountability and instability of performance inscriptions

Yet, no drug rep ever questioned the link between activity and the inscriptions on which most of his rewards are based. This facet of instability is either accepted or possibly unperceived among sales staff, whatever their position in the organization. Only one management accountant highlighted forcibly the gap between what drug reps can be expected to do and on which criteria they are evaluated, but he rationalizes immediately by explaining that direct sales are less and less frequent in many other sales contexts:

In fact, teams do not report sales, number of drug boxes sold. They aren't the ones who place orders. Anyway, salespersons are placing orders in less and less fields. They might still be in charge of that in the Xerox business, but in mass consumption, they aren't anymore. To know the sales, you have to buy data. [...] Drug reps can still link their work with drug boxes that come out. If they don't visit doctors, no box will come out. In a hypermarket, if salespeople do not show up, boxes will still come out because it will have been negotiated at a national level, and there will be sanctions if boxes don't come out. (Management Accountant, W1)

As far as drug reps are concerned, they rarely mention the fact that they are not officially salespeople, and accept or internalize the sales criteria on which their performance rewards depend. A frequent sign of this internalization lies in the way drug representatives link the sales inscription given by the GERS and their activity in terms of visits. For example, the following drug rep's underlying assumption is that it is by visiting doctors that the company's turnover will improve. She shapes her activity according to sales inscriptions provided by the GERS.

I: Do you use [weekly data from GERS] a lot?

Yes. I use it every week. What I look at is my sector's market share over the week. I look at the UGAs¹³ to see if any have dropped. [...] If I see, for example, that the doctors in Giens [French city] have let me down, I head over to Giens. (Drug representative, Community, B3)

And yet as we noted earlier, GERS does not provide data about doctors' prescriptions but data about drugs' pharmacies orders to wholesalers. There may be gaps between pharmacies' orders and doctors' prescriptions due to geographical discrepancies between prescription and drug purchase or because of generics substitution. As we have seen already, GERS is understood not to capture doctors' behaviours towards drugs, wherein sales staff act as if its inscriptions did. It rather seems to act as 'boundary object'.

Missing inscriptions to track drug reps' performance

When drug companies buy data on sales, be it through the GERS or through Xponent, they never get inscriptions on the source of the sale (where does the prescription left by the end consumer at the drugstore come from, which doctor initiates this sale?).¹⁴ Certain drug reps acknowledge this issue of unavailability of prescription data and state that they try to compensate for it by getting information from the pharmacists. To do so drug reps have to rely on the trust they've built and cannot stick to hard facts:

You cannot get the prescriptions...?

That is why we go and see the pharmacists. We present our products to them of course, but afterwards, we ask them if they would allow us information about drugs sales.

¹³ UGA: unité de gestion administrative. Designates a geographical zone as a reference in the geographical breakdown of France performed by the GERS that provides the pharmaceutical companies with the data for drug sales.

¹⁴ Through the GERS, drug companies can only get data on sales order by geographical groups of drugstores. Through Xponent, they can get panel information about sets of anonymous prescriptions kept by pharmacists and retrieve prescriptions by medical specialties.

Usually, they do. When the pharmacy is located just near a medical practice, you can be pretty sure that all prescriptions stem from this place. But you don't want to ask the pharmacist where the prescription stems from. The pharmacist has got his own information system with his number of drug boxes. If a doctor tells you that he prescribes your product mostly, you believe him, except if you've been asking in pharmacies around three times and that your product doesn't take off. (Drug rep, Community, Z3)

The coexistence of the lexical field of dialogue (we ask/ they tell) and the theme of belief (you can be pretty sure, you believe him) indicates further ambiguities of interaction and inscription, bounded by regulatory issues. Information about 'who prescribes what' is legally not communicable, which every involved actor here is aware of (drug rep, pharmacist and the doctor). Hence an ambiguous shift between affirmation and negation ("we ask them [...] but you don't want to ask"; "you believe him, except if ..."). Information is co-produced on the basis of trust and if a drug rep will not ask the pharmacist about the source of prescriptions, it is not because of technical issues (as claimed above with the invocation of a specific information system) but because of legal issues.

Collective inscriptions / individual bonuses

Most of the pharmaceutical companies studied in our case organize their drug reps' workforce into networks. Sales figures for one geographical area stem from a collective activity (usually 3 or 4 drug reps visiting the same doctors in one area). This raises a further issue about the instability of sales figures. Even if the link between information provided to doctors and subsequent drug sales by pharmacists is taken for granted, sales figures account for a collective performance whereas bonuses are still individually granted.

For instance at Z, the drug reps we met were in teams of six. All the six went to visit doctors on the same geographical area. According to the drug rep quoted above, she and her five colleagues had to deal with 600 doctors on their area and had half of them in common. It means that on 200 doctors visited by her, 100 are seen by the other members of the team. Sales data are provided by the GERS per UGA (a geographical area) but each UGA is taken care of by several drug reps. This issue isn't specific to Z, since most

drug companies resort to networks constituted of several drug reps in order to intensify presence and pressure at their customers' places. Typically, three to four drug reps are assigned to an identical sector comprising between ten and twenty UGAs. This raises the issue of measuring the individual performance of the drug representatives. Actually, when a drug rep shares his/her sector with others, sales data on the sector are attributed to all of them. As a management accountant states,

What is indeed difficult is that you cannot link a drug rep's contact to a sale [...]. The aim is to sell drug boxes, but sales data are not available per drug rep. We only have data per geographical area and there are several drug reps per area. If one outperforms, and the other ones underperform, they still remain linked to each other. Normally, everything gets corrected [...] when bonuses are calculated, but actually, I'm sure that it is not adjusted so precisely. There are lots of drug reps here and the target bonus is for everyone. (Management Accountant, W1)

Actually, as the management accountant suggests when he says that "you cannot link a drug rep's contact to a sale", we could interpret the organization of sales in networks as a way to deal with legal constraints as well. Since drug reps aren't legally salespeople, they cannot be individually accountable for sales targets, but they can collectively be given sales objectives. Beyond this, the fact that sales figures stem from a collective performance whereas bonuses are individually granted raises another kind of instability in sales inscriptions which can be represented with the following figure:

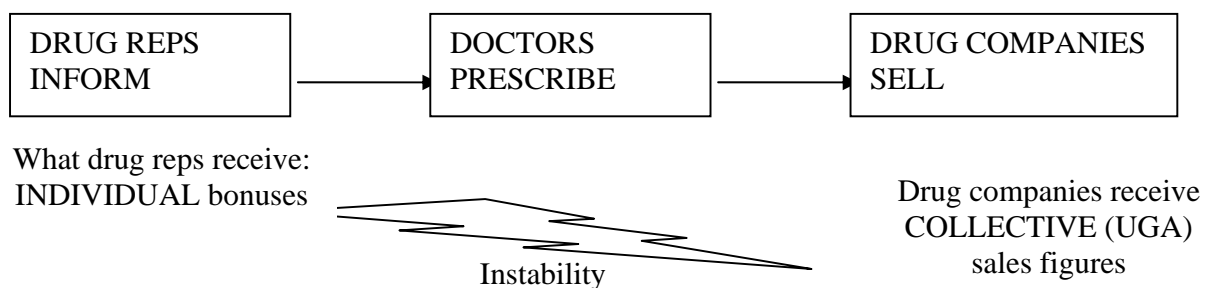


Figure 2 – Instability between measures and rewards

What if nobody cares for this instability and if measuring collectively while rewarding individually is not an issue in itself?

A vice president of sales explains why he doesn't think that way:

Do you really care to manage measuring individual performance? Is it maybe not that strategic and important anymore...

Yes it is important, because in a team of four, let's imagine that you have nice results and one day, results go down. You can blame the four and tell "it is a disaster, cope with it", but we don't do it this way. You have to keep recognizing and motivating the good ones, and putting the weak ones back on their feet. We're not going to kill them, everyone is allowed to have a weakness sometimes. But you must diagnose this, be present, and coach the person. Individual recognition is thus still relevant. (Vice president of sales, Community, W2)

If rewarding individual performance is still important, how is it that people still adhere to collective performance inscriptions and consider them as reliable measures of individual performance? One way of internalizing this is to tie the complexity of rewards calculations to the instability of the system: activity within a drug reps' network is complex; hence the calculations of individual bonus are complex:

With the previous system, I think drug reps were pretty sure to get their bonuses. Now, it is a much more complex mechanism. Several products have to be promoted. If you reach targets on the first one and partially the second one, a certain amount of bonus is granted. There is still a product that is more important than the others. But you have to be good on the second and third products to get bonuses. It is going to be harder and harder, more and more accurate compared to their actual efficiency. (Management Accountant, W1)

Here *uncertainty* and *ambiguity* are *modes of control*. Salespeople frequently used the lexical fields of secret and complexity when it comes to explaining how their individual bonuses are calculated:

"The system remains intentionally a little complicated in order to avoid salespeople investigating it too much" (Drug Rep, Z3),

"This is all very confidential [...] They mix it all together" (Drug Rep, A2),

"To understand their bonus calculations, you must have graduated from the top university! It is very complicated and we are not given all the details of their calculations." (Drug Rep, Z2),

"When you get bonuses, you don't tell it. You know it through your computer. The regional manager tells you "you've reached your targets". You receive your bonus two months later and that's it." (Drug Rep, B3).

Another explanation of this *interesement* to collective sales performance measures deals with drug reps' ambiguous professional identity. Generally when drug reps are asked what their objectives are, they start by mentioning what they are expected to realize in

terms of activity (number of visits, number of professional relationships, etc.); only when they're asked if they have sales objectives do they explain their quarterly targets and the technology enabling to measure their reach on that matter. In drug reps' discourses as well as in their managers' discourses, sales often appeared absent of the list of objectives.

I am very surprised that you never hint at sales figures in this description of quantitative objectives.

Well, surprisingly, I don't put them in the quantitative part but in the qualitative one... for a good reason. Today, we have the following issue: we have 6, 7 or 8 salespeople on the same area sharing common tasks. Who is responsible for the results? Of course, we look at results. [...] but today, we cannot anymore rely on sales figures only. Let me take the example of those who are among the first five of France. For some of them, I would prefer not to have them part of the company anymore, but they have the 5th best France performance, because around them, they have five aces, who are indeed pro. That is the reason why I didn't talk to you about sales results. (Network Sales Manager, Community, W3)

Hereafter, the same kind of sales' absence and justification of this absence are developed in a drug rep's discourse. The drug rep does not mention spontaneously sales as part of her objectives because she considers sales targets as team objectives.

It surprises me that you don't have a number of prescribed drugs in your objectives...

It is impossible to say. We are 6 people visiting the same doctors. We get sales results per UGA. Since we all see doctors on each of these UGAs, we cannot know individually. [...]

And you don't have team objectives?

Yes, we do. They are set quarterly. The company measures them in terms of sales in value or in volume, that is to say a number of boxes. [...] This is what conditions bonuses. [...]

And what you get related to these team objectives is not linked to your individual performance?

It cannot be. The bonus is depending on our group's performance (Drug Rep, Community, Z3).

Hereafter, a regional manager offers a nice view on this ambiguous part played by sales in the drug reps' professional identity.

They [drug reps] have sales targets which are set once a year, in January, and then split quarterly. According to the company's priorities... Right now, mine is rheumatology. Thus I ask them a rise in turnover superior to the overall turnover's rise of France, this is in correlation with what they're required to provide. Then, there are objectives that are individualized depending on each person. It could be an objective of job skill improvement. For instance, organizing public relations... I quantify that [objective]. Last year, I put an objective of contacts... it was part of the company's choices... you had to realize a certain number of ... averages of contacts. Again, I asked an average

contacts number greater or equal to France's one. Then, you build up a table "reached", "nearly reached"... [...] There also administrative objectives. You know... they have to connect themselves every day, things like that. Sending requests and reports on time ... (Regional Manager, Specialists, Z1).

When describing the objectives of a drug rep, she starts with the sales objectives contrary to the former interviewees and distinguishes two types of inscription: those inscriptions on sales figures and inscriptions on activity according to the scope of their application: sales inscriptions relate to collective performance measurement whereas activity inscriptions relate to individual performance measurement. In a way, it is as if drug representatives were to be considered as medical informants individually and salespeople collectively. Hence, drug reps and their managers appear not to question the validity of bonus calculations and the link between what they get and what they've accomplished. They accept being evaluated collectively and rewarded individually for the reason that collective sales inscriptions coexist with other performance inscriptions that are more linked with individual performances. Yet this seems not to trouble them because their professional identity seems to be that they are not sales reps, but medical professionals. Drug reps and their managers frequently claim that you really know who makes the results in a team when you cross sales data with activity data. Thus people believe that crossing multiple inscriptions will, in a way, correct the unstable ones and make them more reliable.

Some of them qualify these other inscriptions as individual (as opposed to sales inscriptions who are collective). Individual inscriptions can consist of a number of visits or a number of organized professional relationships for instance:

In fact, in each geographical area, [drug reps] are united. They really are a team. They all present the same products; hence the objective is a team objective, per area.

Then, how do you proceed to evaluate the results of each drug reps on all the criteria you described formerly?

Well, I take the R/O (Result on Objective)... It is difficult. You can always have people hiding, being inactive, and taking advantage of the system. So, on the objective of R/O, well, it is difficult. The objective is reached or not but you cannot really make a distinction between the drug reps of the team. *On the contrary, on the individual objectives, there you can make a distinction.* (Regional Manager, Specialists, Z1)

Others qualify these additional inscriptions as qualitative (as opposed to sales inscriptions which are quantitative).

Each month, do you get the sales volume per drug rep?

No, I get it per geographical area. *That's why the qualitative part of evaluation is so important.* Yesterday, you knew where you were heading with one drug rep per area... Today, you have, for one area, one result and four drug reps. Who does what? *This is tracked by all the qualitative part.* We believe that, when there is quality, there is performance as well. We could be wrong but it would be serious!

So it means that, for instance, you cross sales data with qualitative reports sent by the drug reps after their visits?

Absolutely. (Vice president of sales, Community, W2)

Travelling prescriptions ... unstable inscriptions

The sales inscriptions do not tackle the matter of the prescription's place being different from the drug's purchase place. If someone go and see a doctor in the nearest big city and buys the prescribed drug in another area, sales figure will not be attributed to the right drug rep's network.

The GERS gives wholesaler sales to pharmacies. They will say that we have sold 200 boxes of C to a given pharmacy. The problem is that it is quite likely that the doctor who prescribed C is in another UGA than the pharmacy that ordered C, especially in the Greater Paris region. All the drug reps complain about this bias. (Marketing Study Analyst, Hospital, M1)

Yet contrary to the Marketing Study Analyst claim, few drug reps raised the travelling prescriptions' problems in our interviews, indeed those who did raise the matter suggested that the sales measurement technology was a solution to this problem.

Let's take the example of Viagra. With all the taboos it raises, it is very unusual that a pharmacist tells you he got prescriptions from this doctor who is close. I have a doctor that assures me that he has more than 20 patients under that drug. The pharmacy which is at a 50-meters distance does not issue a single box of Viagra. For that product, people are going to drive 20 kilometres to go in a pharmacy they don't know. Thus, *pharmacy's data does not always allow to track prescriptions. But for usual chronic treatments, it does. And anyway, you get sales data.* (Drug Rep, Community, Z3).

Drug reps seemed to believe that the bias of travelling prescriptions is addressed by the technology:

I: How can you know that it is your zone that was the source of the prescription?

Well ... That should be the GERS ... Anyways, my wholesaler is in Orleans. He must know that. Because, in fact, these are orders from pharmacies. My wholesaler knows which pharmacies have ordered. (Drug Representative, Community, B3)

Yet, GERS records which pharmacies have ordered but not which physicians' prescriptions are at the origin of these orders. Drug reps rarely complained about travelling prescriptions being not handled by performance measurement technology. On the other hand, they perceive instability in sales inscriptions as far as sampling is concerned.

Two different worlds: samples for inscriptions and samples for activity

One strength of the GERS is that it includes nearly 100% of the pharmacies' orders to wholesalers - unlike Xponent, which is based on statistical sampling. Sales inscriptions stemming from GERS are thus not extrapolations. However, the geographical split of the GERS may not correspond to the actual perimeter covered by a drug rep as shown in the following verbatim.

Of course, [results] depends on the number of pharmacies you have in your UGA. If you have only four pharmacies in your UGA, GERS statistics won't reflect your real activity at all. Actually, this is an issue for us. One area has got an UGA which gives bad figures, and then, doctors follow them on that UGA. They don't understand. In fact, they are penalized by the number of pharmacies attached to their UGA. Pharmacies are not properly split in their region. In statistics, this is what we call the under-representativeness of a sample. (Drug Rep, Community, Z3)

Sales figures provided by XPonent, related to pharmacies' sales rather than orders, also raise sampling issues. Beyond the fact that XPonent does not provide exhaustive sales figures, but only those from a statistical panel, Xponent does not enable to distinguish properly between the performance of hospital networks and that of community networks. Hereafter, a drug representative dealing with hospital doctors explains that sales data originated by clinics and public-private hospitals should be part of the hospital network performance in XPonent whereas they are considered as community network performance. Thus XPonent attributes part of the performance to the wrong reps.

[XPonent] is another problem. It is also a tool for assessing the performance of the hospital rep. It differentiates prescriptions coming from hospitals from independent practices. But private clinics are independent. So, the prescriptions they write are classed as independent and go to community. Moreover, we have special hospitals here in Lorraine [French region] that are private and non-for-profit. They are an intermediary between the private and public sectors. For them, it's the same. The prescriptions that come out are coded "community healthcare" by XPonent. And when you have three quarters of your hospitals that are either clinics or these public-private hospitals, you

get the regional manager of community jumping for joy, shouting, “Community is up, community is up!” And you find yourself with bad X-Ponent data. There you go. (Drug Representative, Hospital, S3)

Self-organizing and, inscribing

Our final point relates to the relationships between inscriptions and drug reps own organizing practices. As we noted in the first of the empirical sections, data on the drug reps activity (frequency, content and targeting of visits) is indeed taken into account in the drug reps performance measure, but only partly.

Inscriptions about the activity of the drug reps rely on what the drug rep reports in TEAMS: they report all their activity in the electronic territory management system (their visits, professional relationship, training, etc. each day being codified in order for the regional manager and the hierarchy above to know how the time of the reps is used for various predefined activities). Not only do they qualify how they made use of their time but also are they required to give details about the content of their activity (which products were presented during the visit, in which sequence, specific reaction of the doctor etc.).

Hence, inscriptions about drug reps activities are mainly produced by drug reps themselves. Using those data to measure their performance then appear as a problem to those who question the reliability of the self reports and think that there might be discrepancies between the reported activity and the actual activity. For instance, there might be bogus visits, or “poor visits” that consist in a mere contact or invitation without a true presentation of products or events.

The problem of this system is that everything is based on self-report. [...] It is my daily concern. The system is built on self reporting and you are going to rate people on what they self-reported... [...] If a drug rep tells she has seen this doctor, if he is a friend of her and she didn't actually see him, you can't do much about that. We assess that we have 10% of such blathering, which is already huge. All the data we have rely on what have been self-reported. These data are not directly linked to people. You have to make that link thanks to your knowledge of people. Sometimes, I decide not to focus on drug reps but rather on their regional manager. I link my data to the regional manager; beyond this, it is a matter of management between him and his team. If one of his drug reps is good and the other one bad, it is the regional manager's problem. He is the one who handles this. It may look like a shortcut, but focusing on the regional manager

makes the profitability analysis easier (Management accountant, W1).

The management accountant, as did many interviewees, expressed the potential 'bias' in inscriptions stemming from self report. Yet interviewees still express commitment to them because they assume that the regional manager makes adjustments between self-reported and actual activities when necessary. Data are not necessarily correct in the ETMS but they are *interpreted* correctly, or corrected, by the regional manager. Many interviewees evoke the role of "local management" to compensate for what technology cannot address. Certainly the regional manager, notably through visits as a duo he/she is expected to organize with each drug rep of the team, is the one who is possibly capable of altering and hence stabilizing sales activities' inscriptions:

You can still check her activity each day through the information system in which she has entered data about her activity from day to day. *Actually you can report what you want in the system. Bogus visits exist*, that means you report having seeing a doctor whereas it is wrong. *And nobody will check*. I know that if they become suspicious, they can make phone calls to doctors, asking them if they saw this drug rep. But it is extremely unpopular among doctors. Honestly, I think it belongs to the regional manager to deal with this. It is as simple as that. [...] There was one girl who could never get into a doctor's office after she passed her drug rep's degree. She reported bogus visits. It didn't last *because when the regional manager went as a duo with her, he could see something was wrong. Doctors are supposed to know you and then, he could see that it was not the case.* (Drug Rep, Community, Z3)

Interviewees from more senior management levels than drug reps attributed less to the role of the regional manager than to the abilities of technology to stabilize avowed inscriptions. As the vice president of sales from Z company states:

From my stance, here in my office, one could definitely claim any kind of nonsense. I have national data. On the field, it is the regional manager's job. Did I reassure you? [...] It is like scientific police and local police so to speak, these are two different worlds. (Vice President of Sales, Community, W2)

Several managers referred to cross checking enabled by technology as a way to control what has been self-reported by drug reps. For example, a manager of sales administration explains hereafter that they have developed an interface enabling to export activity data reported in the ETMS into a tool controlling drug reps' expenses.

For instance, we have developed "Balance", *a tool that enables us to keep a constant look both on drug reps' activities and expenses*. That enables us, at the sales administration, to *control that all expenses do indeed correspond to a professional activity*. [...]

When you say that you look at both the activity and the expenses, you mean the activity as it is reported in the ETMS?

Yes, in the ETMS. *And those data are imported to Balance thanks to an interfacing tool.* [Balance] enables us to see that on Wednesday 12, the drug rep made visits. Hence, she is entitled to a lunch, parking expenses etc. As long as it stays within correct norms, there is usually no problem. [...] On the other hand, if we realize that she requests reimbursement for a meal or for miles at times when she is actually on leave, then we start wondering... and then we isolate the applicant, so to speak, and we go a little further, we track up, to figure out if it is a single or recurrent issue. (Director of Administration of Drug Representation, T1)

Thus activity inscriptions are compared and combined to test their coherence and increase their apparent stability. As a consequence, in some interviewees' discourses, technology indeed appears as the main claim to justify why self-reported activity data aren't that unstable. Moreover, when challenged about the reliability of the activity data they import in their tool "Balance", the same manager appeals to another technology of cost control to reassess the strength of inscriptions.

It still means that what you cross-check depends on what has been reported in the ETMS by the drug rep...

No but... the problem of drug representation, as in most similar jobs, is that everything is self-reported. The employee indicates that he has seen doctor So-and-So and be it true or not, we have to resolve into taking his word for it, unless we have contradictory proof. [...] Normally, there are *receipts*. [...] *We carefully track certain types of expenses, those that are costly and provoke many variances. We use Business Objects requests that enable us, each month, to run routines and pick out anomalies dealing with standard costs.* (Director of Administration of Drug Representation, T1)

Another interesting reaction to deal with self-reported inscriptions is to resort to additional inscription devices devised for another purpose - boundary objects which serve to bolster the stability of activity inscriptions. In the following example, a vice president of sales uses recalls (telephone surveys of doctors) and CAM reports¹⁵, marketing tools initially devoted to measure the return on investment of promotional operations, to cross check self-reported activity.

Drug reps' activity reports are based on what they state in the system. Is it an issue for you?

Not everything is based on statement; if that were the case, it would be a problem. There are a certain number of tools at our disposal [...]. For example, we do *recalls*.

¹⁵ CAM is the sole reference for the world's top fifty laboratories for the annual systematic monitoring of pharmaceutical companies' promotional expenses. CAM audits the performance of all media used by pharmaceutical laboratories' marketing teams. It collects data on pharmaceutical products and practitioners' actions through panels of doctors in general and specialized practices and pharmacists (Cegedim Annual Report, 2003).

Let's imagine that a drug rep reports great reactions of doctors about the campaign. We take a *sample 15 days after* he presented the campaign during his visits and we ask the doctors: "Did you see somebody from our company? What did he tell you? What did you think about it? And then, *we compare the two papers*. [...] Also, drug reps have to report their number of contacts each day. We tell the rep that he must do six contacts a day, he says that he has seen six. But there is what we call a bogus visit. Let's say that he has only seen five, and that he barely shook the hand of the fourth. *To deal with this, there is communication*. There is a *body called CAM that gives me the true returns*. [...] It's a body that works for the pharmaceutical industry, which does *market studies*. When, internally, I press the button and I see that I've produced 10,000 visits, the CAM tells me that, over the same period, it only accounts for 8,000, so 2,000 are missing. All that to say that there is a limit to self-report, believe me! In the end, there is very few self-report. There is certainly some at the individual level, but on an aggregated level, there isn't anymore. It is all very "screened". We do market studies immediately afterwards [...] each time, I have a way to fight back, at least for all the key parameters, which I track monthly. It is not self-report, it is controlled self-report crossed with x data. (Vice President of Sales, Community, W2)

This boundary use of marketing technology was confirmed in another company. A regional manager from Z company explains that recall tests are "also used to cross-check data and see if a given product has been presented as it should be, knowing that a certain number of person had to talk about this product in a certain way". To deal with avowed inscriptions, the manager quoted above misuses marketing technology and develops a discourse of abilities around them. Inscriptions can be compared ("screened", "crossed"), interrogated ("there is communication", "gives me the true returns"), and do so in an instantaneous way ("I press the button", "immediately"). He even claims that the variance between actual activity and self reported activity is insignificant at the aggregated level calculated by technology, as if the process of aggregation was transforming self-reports into hard facts.

Yet avowed inscriptions at an individual level remain avowed inscriptions even when consolidated. Furthermore, the technologies mentioned by W2 combine inscriptions made by drug representatives with statements made by doctors. As a service provider of one of the inscriptions devices noted:

We cannot put a policeman behind each representative. We therefore call on firms that provide recall tests. But it isn't more objective than the representative's statement since it involves the doctor's memory...If you have a variance in TEAMS, it's usual; if you have a 25% variance, then ok, that's a real signal. Once again, the problem is not with the data but how to analyse these data. (Service Provider, Managing Director, TT1)

Unstable inscriptions are all the more internalized as they seem the essence of certain positions in pharmaceutical companies. Beyond the argumentation developed to convince us of the strength of inscriptions, interviewees sometimes justify the existence of their own job. Producing, analyzing, strengthening or cross checking inscriptions about drug reps performance is an essential part of their job. That is the case of the administration of drug representation as well as of direction of sales, as suggested hereafter:

Can you describe the reports and documents you use to have a view of what is going on in drug reps networks?

I am invaded by them. I need a macro view and I need, when I detect something, to be able analyzing what is going on in detail. So, *my life is made of macro scorecards that scan key indicators for the company, results etc.* Each indicator has its frequency. I look at results every day. It comes consolidated, monthly, year to date, moving annual total etc. *This is what makes up my job.* (Vice President of Sales, Community, W2)

In this section, we have highlighted that the pharmaceutical industry constructs the performance of drug reps with inscriptions that can be considered unstable notably due to legal constraints. However, we have also shown that despite this potential for articulating sources of instability, *interessement* still occurs: both controllers and controlled commit to these inscriptions. In the following section we attempt to draw out the key features of this analysis, and clarify how inscription devices can have controlling effects despite apparent recognition of inscriptions instabilities.

Concluding Discussion: From performance measures measuring to inscriptions performing

Underlying our account of drug reps and the inscription devices in the pharmaceutical industry was a translation model. Performance measures do not simply measure, rather by considering performance measures as inscriptions made by and translated through inscription devices and actors we focus upon the performative and practiced nature of 'performance measures'. Our concern was to explore the concept of stability and to draw out its role in the translation model. Exploring stability in the controlling inscriptions of drug reps offered a challenging arena for a model that highlights the role of traces and their translation in a long distance network. Regulatory restrictions limit the availability of sales traces from drug rep to sales managers in French pharmaceutical industries. Yet

commitments to the inscriptions that are established have controlling effects. In this section we draw out four key themes that contribute to or perhaps even override perceived problems of stability, before offering some concluding comments.

i) Ambiguous and Uncertain Inscriptions: Tracing Sales and Rewarding

One consistent element of the inscriptions that the pharmaceutical companies perform is the uncertain relationship between drug reps work and sales. Uncertainty exists between the work of drug reps and the sales data produced by the GERS. Many drug reps showed little concern for the apparent ambiguity of sales performance measures on the basis that sales were only one element of a complex and opaque system of bonus payments and rewards. Rather than objecting to the lack of individualized sales some drug reps seemingly downplayed its relevance to their bonuses and other assessments of their work. In this context instability of sales measures when recognized was simply one aspect of a bonus system that had many other uncertain elements. Sales inscription instability was accorded little significance or in some cases simply not recognized.

ii) The Bricolage of Inscriptions: Incomplete and Probabilistic Surveillance

Both drug reps and their management at various levels highlighted the ‘partial’ coverage of various inscription devices. Regulatory barriers to pharmaceutical sales data have prompted a *bricolage* (resourcefulness and improvisation - Latour, 1991) of multiple uses of inscriptions/tools often devised for other uses. Regional sales (GERS) and longitudinal Panel data (Xponent) offered aggregated sales and statistical estimations of promotional activities. Yet despite their partiality and multiple role, these inscription devices served as *boundary objects* in the companies to inform drug rep performance:

Panel analyses might cover doctors in a drug reps patch; visits might be replicated by separate follow-up; expense claims checked against activity; unusual variances noted, etc. Through these entire practices drug reps were made aware and to some extent believed in the capacity of inscription technologies to be watching them (a belief

seemingly shared by senior management, though not necessarily by the sales managers doing the watching). Though some perceived instability in performance inscriptions; he/she frequently evokes how it is cross-checked with other inscriptions, thus gaining its strength and legitimacy. Technologies were believed (and sometimes were) interfaced with each other.

In this respect, drug reps and their centres practiced within a field where potential surveillance had disciplinary effects. In other words, no matter performance inscriptions are blurred and instable, internalization of those inscriptions operated. In the case, we have tried to show how, under legal contingencies, control at a distance can still operate in a self-regulatory manner. Our case of 'action at a distance' shows the problematic of translation to be in certain circumstances much closer to a Foucauldian problematic than the usual – that is where inscriptions are accepted to be more stable 'indices' of their object. The drug reps have their performance mapped upon multiple 'traces' that in ensemble constitute their performance but they can't be sure how their own actions map onto these measures nor how far their performance is 'known' by them. There are 'gaps' in that the measures do not work well as individualizing scores, unless 'triangulated' well. So it is analogous to the Panopticon: the screens over the observation windows in the central tower create the effect that the prisoner doesn't know whether he or she is being watched but begins to regulate him or herself as if they were under a constant surveillance (Foucault, 1979). The instability of inscriptions is all the more invisible and all the less questioned as those inscriptions are incomplete or related to probabilistic reasonings.

iii) Professional identity and Sales Inscriptions

Another aspect of the lack of concern for or attention to unstable inscriptions among drug reps connects to their professional identity. Here we provide an additional explanation relevant to the issue of *interressement* in the inscription network. The educational and professional qualifications of drug reps seemingly build a sense of self that avoids equating their work role with that of sales staff. Reinforced by a bonus system that does not appear to render the role of sales inscriptions explicit,

drug reps offer accounts of their work and accountability in terms that highlighted their role as medical informants, professionals bringing information to general practitioners and other medical professionals. This is reflected in the concern of drug reps to explain their targets in terms of promotional activities and reported visits. The articulation, which is a source of stability, or its lack between ‘visits’ and ‘sales’ did not appear to trouble many drug reps.

In this regard inscription stability for drug reps (or tolerance of inscription instability) seemingly accompanies their acculturation into an institutional norm that sees their activity as governed by concepts of their professional role and the rationalities they practice as medical informants (Townley, 2002). The ‘working’ of performance measures being partly enabled by drug reps commitment to the role of medical informant, not salesperson. Moreover, the regulatory restrictions that define and limit drug reps role in the pharmaceutical field reinforce this distance from a commercial sales identity. In short, the subjectivity of drug reps (Foucault, 1981, 1988; Dreyfus & Rabinow, 1982; Knights and Willmott, 1989), their sense of self and conceptions of actorhood (Meyer & Jepperson, 2000) inform the identity ‘pharmaceutical representative’ that maintains a certain kind of loose coupling between ideas about sales practices, commercial norms and beliefs, and those professional ‘scripts’ that they bring to their work.

iv) *Practices of self-organizing: activity inscriptions as personal organizers*

Many drug reps saw the TEAMS (ETMS) system not as controlling inscriptions but as a personal organizing tool. Rather than question the relevance of activity measures in ascribing individual performance, drug reps had the dominant perception of TEAMS as a practical organizing tool. In this respect, the relation of their use of the inscription device to their dominant perception was central:

“Again, perception is one thing among others to pay attention to, you also have to consider the conviction forces that lead to mobilize a great deal of resources: only on that condition can inscriptions, that are always more simple and easier to read, make a difference and convince.” (Latour, 2006:54, author translated).

The technological devices that produce performance inscriptions are constraining (exert control and shape activity) and enabling at the same time. Some of them (ETMS such as TEAMS) enable drug reps to coordinate with their colleagues and to plan their activity. Others (like GERS) provide drug reps with information about the sales of their product and those of the competitors, and thus which doctors “have let them down”. Others (Balance) enable them to get reimbursed for their expenses. Each technology constructing performance is also facilitating drug reps’ practical work. This multiple uses of these boundary objects (a further illustration of the *bricolage* of inscription tools) further assists their *interessement* and thus commitment to inscriptions, no matter unstable they might otherwise appear.

To conclude, our focus upon the translations accomplished by various technological inscription devices was motivated by an interest in ‘qualities’ of inscriptions and Latour’s analysis that successful translation relies upon mobile, stable and combinable inscriptions (Latour, 1987; Robson, 1992). For most purposes concepts of mobility follow a shared understanding of the capacity of inscriptions to manage problems of geographical and temporal distance. Similarly combinability in the same rests upon the capacity of centres of calculation to compare and combine, to dominate inscriptions through processes of aggregation, equation buildings, graphs, charts and accounts.

The third quality that Latour suggested, stability, has in our view a much more complex relationship to translation and processes that accomplish action at a distance. Hence in this paper we have tried to interrogate the stabilizing practices through which various organizational actors commit to or are enrolled within a network of control (and controlled), and through which inscriptions that, *prima facie* might be deemed unstable and often are, seem to be granted stability by centres of calculation and their peripheries. Commitment to professional identities (suggesting the role of rationalities, institutions and institutional enactment in *interessement*), the role of boundary objects (and the *bricolage*/multiple uses of inscriptions and inscription devices) and, perhaps most significantly, the role that ambiguity and ambivalence (with stabilizing, self-regulatory effects) rather than certainty might play in maintaining the stability of networks and

accomplishing action at a distance, contribute to the quality of stability. In so doing we elaborate aspects of the complexity of stability for further analysis.

[Last section – return to ‘multiple performance measures’ and BSC]

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Table 1- An activity report in TEAMS (an ETMS)

		Month: September			
		01/09/2003	02/09/2003	03/09/2003 etc.	Total for the month
Conducted:	Visits to doctors (all doctors, even those not in the DR's target)				78
	Doctors visited (doctors belonging to the target)	Number, code colour and link to identification sheet	3	8	69
	Visits to pharmacists:				
	Pharmacists visited				
	PR (professional relationships):				
	Number of PRs				
Doctors contacted for a PR					
Remaining potential	Potential in field work (in days)				
	Number of appointments				3
	Number of provisional contacts				
	Number of PRs planned				
	Number of doctors contacted for PR				

Table 2 – A sales report provided by GERS

HebdoGERS	Week		Aggregated sales over the quarter (since 01/01/2008)		
	WEEK 11 (03/10/2008-03-16-2008)	Sales in unit	Market share	Sales in unit	Market share
France					
**Inhibitors market	1,361,181	100.00%	14,411,296	100.00%	
Zirtox 10 mg	78,272	5.75%	805,455	5.59%	
Zirtox 20 mg	68,733	5.05%	717,404	4.98%	
Promal	147,005	10.80%	1,522,859	10.57%	
Tulzom	498,047	36.59%	5,401,988	37.48%	
Etc.					
Region					
**Inhibitors market	77,702	100.00%	841,249	100.00%	
Zirtox 10 mg	5,124	6.59	54,001	6.42%	
Zirtox 20 mg	4,118	5.3	47,326	5.63%	
Promal	9,242	11.89	101,327	12.04%	
Tulzom	29,509	37.98	321,766	38.25%	
Etc.					
Sector 04.03					
**Inhibitors market	14,514	100.00%	157,659	100.00%	
Zirtox 10 mg	951	6.55%	10,984	6.97%	
Zirtox 20 mg	814	5.61%	11,067	7.02%	
Promal	1,765	12.16%	22,051	13.99%	
Tulzom	5,775	39.79%	61,608	39.08%	
Etc.					
UGA 04.03.41					
**Inhibitors market	1,327	100.00%	17,451	100.00%	
Zirtox 10 mg	85	6.41%	921	5.28%	
Zirtox 20 mg	50	3.77%	821	4.7%	
Promal	135	10.17%	1,742	9.98%	
Tulzom	505	38.06%	6,540	37.48%	
Etc.					
UGA 04.03.42					
**Inhibitors market	2,681	100.00%	26,644	100.00%	
Zirtox 10 mg	185	6.9%	2,164	8.12%	
Zirtox 20 mg	157	5.86%	1,973	7.41%	
Promal	342	12.76%	4,137	15.53%	
Tulzom	1,010	37.67%	9,967	37.41%	
Etc.					

Appendix 1 Overview of the pharmaceutical companies analysed in the case study

Company	Nationality	2003 Turnover (in million) (Source: 2003 annual report)	2003 Profit (in million) (Source 2003 annual report)	Worldwide Workforce (Source 2003 annual report)
Astra-Zeneca	Anglo-Swedish	\$18,849	\$3,036 (net profit)	60,000
Aventis	French	\$22,442	\$(2,460) (net loss)	69,000
Effiker		NA	NA	NA
GlaxoSmithKline	British	£21,441 (i.e. \$42,002)	£4,484 (i.e. \$8,784) (net income)	100,000
Janssen-Cilag (J&J)	American	See J&J	See J&J	6,000
Orthobiotech (J&J)	American	See J&J	See J&J	2,000
Johnson & Johnson	American	\$41,862	\$7,197 (net income)	11,600
LFB	French	€227 (i.e. \$295)	NA	1,158
Lundbeck	Danish	DKK9,941 (i.e. \$1,725)	DKK1,337 (i.e. \$232)	NA
MSD (Merck Sharp & Dohme-Chibret)	Franco-American	\$22,486	\$6,831	63,200
Pfizer	American	\$45,188	\$3,910 (net income)	122,000
Sanofi	French	€220 (i.e. \$284)	€102 (i.e. \$131)	33,086

Appendix 2 Information about the thirty interviewees working in pharmaceutical companies

Our obligation to respect the interviewees' anonymity notwithstanding, we don't give the name of the company they are working for.

Initial Denoting the company	Activity	Function of the Interviewee	Area of Activity	Abbreviation Used for the Interview Extracts
A	Sales	Regional Manager of Neuro-Geriatrics Network	Specialists (community or hospital independents)	A1
	Sales	Drug Representative		A2
B	Sales	Regional Manager Internal Medicine	Community (GPs ¹⁶ and Specialists)	B1
	Sales	Drug Representative	Community (GPs)	B2
	Sales	Drug Representative	Community (GPs and Specialists)	B3
D	Sales	Regional Manager Anaemia	Hospital	D1
	Sales	Regional Manager Anaemia	Hospital	D2
	Sales	Drug Representative Hospital Anaemia	Hospital	D3
	Sales	Drug Representative Hospital Anaemia	Hospital	D4
F	Sales	Regional Manager Respiratory Unit	Community + 1 Hospital DR Community (GPs and Respirologists)	F1
	Sales	Drug Representative		F2
L	Sales	Network Sales Manager Immunology East	Hospital	L1
M	Marketing	Marketing Study Analyst	Hospital	M1
S	Sales	Regional Manager (BU Cardiology)	Hospital	S1
	Sales	Regional Manager (BU Cardiology)	Community	S2
	Sales	Hospital Drug Representative	Hospital	S3
	Sales	Drug Representative	Community	S4
	Sales	Former Regional Manager	Community	S5
T	Sales	Director of Administration of Drug Administration Representation	Non-applicable	T1
	Sales	Administration Director of Operational IT Systems	Non-applicable	T2
W	Management control	Management Accountant	Non-applicable	W1
	Sales	Vice president of sales, Northern France	Community	W2
	Sales	Network Sales Manager North Paris	Community	W3
	Sales	Regional Manager	Community	W4
	Sales	Drug Representative	Community	W5
	Sales	Drug Representative	Hospital	W6
Z	Sales	Regional Manager	Specialists (community or hospital independents)	Z1
	Sales	Drug Representative	Specialists (community or hospital independents)	Z2
	Sales	Drug Representative	Community	Z3
EF	Sales	Regional Manager	Community	EF

¹⁶ GP: General Practitioner

Appendix 3 Information about the six interviewees working outside pharmaceutical laboratories and involved in action at a distance of laboratories' sales forces

Initial Denoting the Body	Activity	Function of the Interviewee	Abbreviation used for the Interview Extracts
H	Consulting Consulting	Reward Information manager Reward Strategy consultant, specialized in short-term incentives	H1 H2
IH	Service Provider	Managing Director	IH
	Service Provider	Managing Director	TT1
TT	Service Provider	Deputy Managing Director	TT2
PHARMA	Drug Sales	Pharmacist (Owner)	PHARMA