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# Manufacturing the Organization, Manufacturing Scripts

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## 1.1. Pragmatic sociology and the pragmatism of scripts

### 1.1.1. A few requirements

The transformation of organizational environments arising from the deployment and complexity of digital apparatus has already been widely studied for several years and across all continents. As we may recall, after the first waves of computerization, the “webification” of work processes (especially those involving the use of intranets) was marked by the same desires for the disruption and reconfiguration of practices – a rather banal process. The companies’ ICT level of equipment was also present as an indicator of economic development. This profound shift is analyzed, or perhaps thought about, starting from the basis of efficiency problems (the optimal economics of the equipment/productivity ratio, for example), working conditions (the psycho/sociological analysis of stress and surveillance situations, compounded by their digital component) or also with regard to the evolution of collective work (after the work done by the CSCW in the 1980s<sup>1</sup>, cognitive sciences and engineering sciences continue to be common objectives for the design of ever more intelligent interfaces and applications). What we are facing are multi-faceted, complex objects and

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<sup>1</sup> CSCW: *Conference on Computer-supported Cooperative Work* – a term used in 1984 to designate an interdisciplinary conference that has been held for several years since (the 20th conference was held in 2017 in association with the CMA), which brings together research related to the contributions of digital technology to collective work practices.

processes that bring several disciplines into play. For a long time, research work has been (and often continues to be) categorized not only according to the disciplines they are connected with, but also according to the “time” and “level of scale” with which they were involved. Are you an economist? Well then, look at the macro sets and productivity statistics in the deployment phase of technological solutions in these business sectors, or look at the “mid-level”, that is, the scale of the company, by linking the investments made by trendy applications with the efficiency of an industrialization of administrative processes (and while they’re at it, making projections on the possible reduction of staff). Are you a semio-cognitive scientist? Then go see how other players, such as paid beta-testers equipped with eye-tracking devices, react to a new search engine company to formulate the best possible recommendations to the publisher or developers, in the hope of improving functionality and making them more affordable. If all the disciplines of the Humanities and Social Sciences are entered by digital means into organization, we also know which obstacles they face when the levels of scale and temporal events are found to be fragmented in this way, the actors and the processes are broken down to their bare essentials. Here, as in other areas (since digital practices outside of working hours are also involved), the quantitative studies of the spread of a technology, or the studies of “user-centric” uses, have told us little if anything about what is being placed within the framework of a technical continuum. How can we explain the failure or the success of the implementation (its description in these terms) of this kind of application, or digital system? What is it that is being configured and recomposed in the context of the design and the implementation of the use of digital apparatuses? What does an ICT project of an organization in the process of redefining itself tell us?

When put to use here, pragmatic sociology may help us to provide some elements in response. Several principles describe this approach (perhaps presented as a vast nebula)<sup>2</sup>. In the case of France, the currents that emerged

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<sup>2</sup> For an analysis that brings together the various related works, see the article by [BAR 13], in which the main theoretical and methodological markers of this current are established. They are the heirs of pragmatist philosophy, whose biggest proponents include Pierce, James, and Dewey. Among the French authors associated with this movement are: B. Latour, M. Callon, I. Stengers, P. Lascoumes, L. Boltanski, L. Thévenot, E. Chiapello, N. Dodier, A. Desrosières, D. Cefaï, J.-L. Chateauraynaud, P. Corcuff, Y. Barthe, D. Linhardt, C. Lemieux, etc. (some of these researchers were able to collaborate at times, and have separated themselves scientifically from the others). Concerning organizational and collective

here in the 1980s and that may be attributed to that have the notable common characteristic that they have all broken away from the critical posture of Bourdieu. For F. Chateauraynaud [CHA 15], there are three of these currents: actor-network theory, or “sociology of translation”, brought about by the Center of Innovation Sociology of the Ecole des Mines (Callon, Latour, Akrich), the sociology of action regimes (cities and justifications) (Boltanski, Thevenot) and situated action (Quere, Theureau) [CHA 15]. Others like J. Noyer [NOY 16] or C. Liccope [LIC 08] by extending, at right, the perimeter to English and European research, bring together within what is presented as “the approaches to activity”, the current of distributed cognition [HUT 95], The psychological theory of the activity [THE 04]<sup>3</sup>, the ethnographic approaches of the situated action [SUC 87]<sup>4</sup> and the theory of the actor-network. Antoine Hennion also highlights all the influences the American work has had in the development of the approaches of the Center of Sociology of Innovation [HEN 13]. For J.-M Noyer, the objective of precisely located and distributed approaches is to “understand the conditions in which cognition unfolds in networks, the modes of circulation of information, the norms in usage and the intellectual technologies involved. These approaches branch into many varied strands [...] we only need to mention that one should think of the co-determination of thinking entities and tools, of cognitive processes and intellectual technologies as situated in the *milieu* of collective assemblages of enunciation, in the milieu of collective equipment of subjectivation, of complex and hybrid actor-networks” [NOY 16].

In this context, specific branches are formed, such as “the cognitive anthropology of modern situations” [THE 96, THE 04]<sup>5</sup> all the while passing

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analysis approaches, the references that can be mobilized relate to works called activities, situated action or distributed cognition. In Information and Communication Sciences (a specific academic discipline in France), links can be identified with the Ecole de Montréal in Quebec, Canada (with J.R Taylor and F. Coreen being representatives).

3 Participatory approach to research (case studies and action research) is part of these work-situation analysis movements (workplace studies). Y. Engeström gives a summary of the psychology of Vygotsky and the study of the “superior psychological functions” by putting the focus on the mediation provided by the tools, signs, and culture.

4 Suchman proposes what Theureau describes as an “empirical science of human action in relation with technical devices”.

5 Theureau describes cognitive anthropology as a branch of cultural anthropology from the 1980s, indicating that it can be traced back to Malinowsky, by way of Lévi-Strauss and his “savage thought”.

through a painful separation of the problems on the basis of their disciplinary fields through the subjection of classic anthropology (its heritage) to a dialogue with philosophy, the cognitive sciences, and sociology. The central project of these surveys on contemporary and concrete situations would be [LAV 88]:

- “The empirical and theoretical characterization of situationally specific cognitive activities”;
- “To arrive at a theory of active social players, localized in time and space, acting reflexively and recursively on the world in which they live, and at the same time, that they transform”;
- “Take the localized nature of the activity (including cognition) as a given, and begin to explore its dimensions”.

These empirical approaches to the activity (which, as a result, involve anthropologists, sociologists, historians, and researchers in information, communication and cognitive sciences, etc.) bringing together an entire collection of surveys led on the fields of organization, research, art, on controversies, law, public action, digital practices, etc.; a vast array of landscapes and subjects, understood through the prism of analyses of ethnomethodological inspiration to describe concrete situations (at the present or in a “genealogical” fashion), the actions conducted within them, and the mechanisms that come to govern and contort them. Though some branches differ in their scientific applications, *at a minimum*, they share this “astonishment with the terrain”, as well as a large part of their methodology. From within this continuity, we present four essential prerequisites for our own work.

First, we consider the question of the inter-definition of organizations and the digital realm, as an object that demands a “pluridisciplinary pragmatism”. Not only because this object may be seized on by the various obediences of the Humanities and Social Sciences, but because it is there that extremely varied acts and processes can be found. At certain times, we must play the role of a legal scholar to understand the co-construction of the law and the policies of cyber-surveillance; at other times, we will put on the glasses of an organizational theorist, to attempt to live through the transformations of work; in still other situations, we will need to live in the world of mathematics, statistics, and digital technology, to incorporate the

actions of algorithms used for digital information processing. “Playing the role of...” does not mean that the researcher is improvising from time to time as a data scientist and management specialist, but that he is located in a complex interwoven environment of problems and actors of very different natures, and that he has to live in this environment: this means giving himself the capacity to make use of multiple propensities that are presented to him, including “human/non-human things”<sup>6</sup> and phenomena. Objects, like other entities, as well as individuals, assume the stature of actors<sup>7</sup>. They act: a notion imported from semiotics [GRE 86], the “actor” is “any element that presents a difference within a course of action and that modifies the outcome of a test” [BAR 07].

In this continuity, by placing the researcher in the situation and without interpretative presuppositions, J. Denis insists on the need for a change of perspective and angle of observation during the same survey. This is one of the points where sociology breaks from the dominant parallel uses in France in the 1970s through the 1990s [PRO 15, DEN 09]. It no longer involves considering “isolated uses in a possibly artificial face-to-face exchange between a user (or group of users) and a certain type of technology, but the emergence and the consolidation in essentially stable socio-technical chains in space and time” [DEN 09]<sup>8</sup>. This transformation requires the researcher to shift from the role of the spectator observing the uses of techniques, to a

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6 From the works of the CSI, from the 1980s and 1990s, to the recent works of B. Latour on the climate [LAT 15], we have begun the shift toward a refusal of the “big share” between human and non-human elements, between all things natural and all things artificial [LAT 91].

7 This symmetry, proposed by B. Latour and M. Callon between human and non-human actors, nature and society, attachment and detachment, has been seen as an empirical continuity of the *strong program*, or “relativist”, by D. Bloor. Starting in the 1960s and 1970s, Bloor and his colleagues in the Edinburgh school began to consider that the *study sciences* should respect four axiomatic principles: the principles of causality, impartiality, reflexivity, and symmetry. These principles apply both to sciences as well as to beliefs (whether true or false), in that they do not constrain a rational cause within the confines of a social cause of the second. This does not imply that therefore there would be “equal validity” between provisions. By consequence, “the concept of truth” only exists within the state of conventional particular knowledge, historically contingent and relating to social and cultural factors interacting with our sensory experiences. Regarding the evolution of the *strong program*, see [BRI 08].

8 “This posture consists of varying the points of view as much as possible, and thus the targets of attention. The second targets the creation of stories, which involve surrounding an observable situation in a limited unit of time” [DEN 09, p. 13].

decoder of meanings and classifier of appropriations (a term still used often, and quite poorly when referring to statistical tables of users) to a person in motion and curious about all situations.

Secondly, our perspective is related to sociotechnical approaches, and more broadly, to the anthropology of techniques, which has largely shown (but nevertheless must constantly recall) the drama of the great separation between “technical” and “human” elements. In the organizational analysis, the same difficulty was expressed logically: the example of the “contingent” or “systemic” readings of technology shows how it can still be studied as a simple “ingredient” or as an independent variable (one that is independent from politics in particular). Conversely, other works insisted on the analysis of the co-determination relationships which remain current, of which B. Latour cites some major works of the 1990s [LAT 94, 88, 06a]:

“The works by Leigh Star on computerized work sites [STA 10], of Ed Hutchins on cognition anthropology, of Lucy Suchman and Charles Goodwin on coordination into work sites, of Laurent Thévenot [THÉ 06] on familiar courses of action, in addition to the studies by social historians of science, and sociologists of science turned to organization like John Law point to a complete redefinition of the divide between the two worlds. In the following sentence ‘information science and artificial intelligence in human organizations’ only the two copules ‘and’ and ‘in’ have remained unscathed! Each of the six other words have been reformed beyond recognition”<sup>9</sup>.

The third principle that we retain is that of the association of the levels of scale: “Globalize the local” and “Locate the global”, these being a condition of renewal of the sociology for B. Latour [LAT 06a]. Connecting, associating, following the trajectories, which have been artificially described as micro, meso, or macro-levels and then, just as artificially, relying on them. The engaging presentation made by a group of researchers [BAR 13] of the theoretical and methodological positions commonly found in pragmatists leads us to repeat this obvious fact: the localized approaches of the organization and work collectives do not erase the situation, the action of law, social norms, or of any other institution which, instead of being rejected in the past, “far away” or “high above”, cross through the “here and now” of

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9 <http://www.bruno-latour.fr/sites/default/files/61-COMPUTERS-GB.pdf>.

collective interactions. Among the many ways these entities can become apparent are as strategic resources (interests, justifications, denunciations) but also as cognitive resources (decision support, representation, information filtering, etc.). When Edwin Hutchins observes the decision-making process on a military boat, he sees the role played by maritime charts and the compass that have this specific nature of being a means of transport, in this place, the Ministry of Maritime Affairs, the Defense, cartographic services, their practices and legacies in the long run... Thus, in a large amount of these works, the “micro” level is not conceived in opposition to the “macro” level but, conversely, as the plane where, from situation to situation, the “macro” level itself is accomplished, realized, and objectified through practices, devices and institutions, without which it could certainly be deemed to exist but, however, would no longer be able to be made visible and describable... This posture is valid for sociological reasoning itself, which, in this respect, cannot claim any kind of privilege: the social sciences deserve to be understood and analyzed as contributing to the processes societies use to reflect on themselves and take control [BAR 13]. Moreover, Latour considers that removing ourselves from levels of scale becomes a requirement for getting rid of the *a priori* nature of the hierarchy of essential characteristics, when one wants to study translation and transformation as major communication processes: as ANT holds, there is no equivalence, there are only translations.<sup>10</sup> Thus, for example, we would be more interested in the processes of performance, as opposed to concepts such as “Culture” or “Structure” (these concepts – if we still want to rely on their existence – must be shown precisely in their processes of designation, transformation, and formatting by digital practices, and not taken as an explanatory variable, etc.) [BAR 13]<sup>11</sup>.

Finally, the last point on which we want to insist concerns the analysis of the phenomenon of politics. Contrary to what some authors claim, the question of politics – far from being removed from pragmatic approaches and socio-technical approaches (something that was presented as the expression of a break with the critical theories of Foucault, Bourdieu, etc.) –

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10 Technologies contain a variety of political, social and economic elements as well as science, engineering, and the particular histories of these practices. Translation, as developed by the French philosopher Michel Serres, is a term that attempts to overcome the arbitrary divisions between these related aspects. See Darryl Cressman <http://faculty.georgetown.edu/irvinem/theory/Cressman-ABriefOverviewofANT.pdf>.

11 Actor-network theory, also known by its other name: the sociology of translation.

is at the heart of the apprehension of organizational manufacturing and the manufacturing of the digital environments that interest us here. The fact that the Marxist reading of technologies has been abandoned does not mean that the phenomena of power have been erased from the analysis; but it must be understood that this concept is used without an *a priori* critical (or worse, ideological) view beforehand, that it refers to a political economy of relations and to an analysis of the assembly of forces in presence (something that should be understood as “power relationships”, and thus irreducible to a mere conflict of forces). The focus is not on the processes of domination and class struggles, but class struggles are reconfigured considering the hardships, power relationships and associations between forces, particularly with ANT, which has enriched the description tremendously. B. Latour formulates one of the limits of the Marxist critique of technology in this sense, mainly seen in an antagonistic relationship (capitalism/workers) for which he induces and reduces the passage to the number of the phenomena and dimensions in play<sup>12</sup>:

“Whenever the introduction of a machine does not attack the workers, many Marxists are left speechless and start talking about technical factors and other determinisms. When a machine does deskill textile workers they know what to say; when companies create new highly skilled workers they see this as a puzzling exception, or even, in MacKenzie’s terms as an “obverse trend” [LAT 88, 06] <sup>13</sup>.

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12 This does not mean they have disappeared. And an entire series of engaging works make it possible to place the question of work within the framework of an extension of what has been described as “cognitive capitalism”, and the formation of a new class known as the “cognitariat”. In this regard, see the work of Yann Moulier Boutang (Moulier Boutang, 2007).

13 B. Latour grants that Marx “saw that a machine may lead to a new job position” in his text “The prince machines and machinations”, reducing the analysis to merely an “antagonistic positioning” of the Marxists, according to the terminology of [MAC 84]. He goes on to say: “[... ] Thus, when it is clear that a new technology cannot be explained by class struggle, they must then either fabricate an excuse, and in so doing, claim it has escaped everyone but them, or – worse still – admit that some aspects of technology may be “neutral” or “positive” after all” [LAT 88, LAT 06].



### 1.1.2. A few trials

In our view, the problem or tension that proves this is the controlling condition materiality has on the situation (which serves as a trace) and by which proof is provided for the understanding of power relationships. It is a requirement of empirical analysis and has been one since it began: the second proposal of irreductions is “there are only trials of strength, of weakness. Or more simply, there are only trials. This is my point of departure: a verb, “to try”” [LAT 93].

The descendant of pragmatic philosophy, also known as empirical philosophy, French pragmatic sociology presents itself as a “sociology of ordeal” [LEM 07, BAR 13, MAR 15], but according to these authors it deviates from the proposal – which we believe is central – of irreduction. In the situations considered here, we are not interested in a social order or a socio-historical complex that would be processed as an inseparable whole, but a combination of elements taken from the same position as the place of the organization. [LAM 00] take the discussion of the term *épreuve*, which translates to “ordeal” or as Latour describes it a “trial of strength”, in English further by stating: “In the Francophone world, however, the term has a more complex meaning, referring also to ‘trial’, ‘ordeal’, and ‘proof’. This approach has been developed in terms of an international comparison. Assuming that individual members of different national groups are, in principle, equipped with the same competences and have equal access to the *cites* permits us not only to pay attention to similarities that are commonly overlooked, but also to shed light on actual differences without having to reify them as ‘natural’, ‘self-evident’, or ‘culturally determined’” [LAM 00, LEM 04, NAC 98].

Moreover, it does not apply exclusively to the long term and the macro-level, for which we have already pointed out the limits for the analysis of socio-technical couplings. Rather, a radical empiricism of technical and organizational policies would require us to consider a discontinuous chain of adjustments that will need to follow the uncertain paths. When examined between intervals of time, the organization is merely the result of bifurcations, and from among these oscillations, sometimes the smallest. To this end, we will show in this work how the digital forces require us to put the question of the politics of interfaces, and the “molecular revolution” that characterizes it, at the heart of our analysis [GUA 12, NOY 13, 16, MAR 15].

With regard to trials, the pragmatic approach adopts both an epistemological position and a methodological position, since this phenomenon is that each of us must think and make the situation able to be grasped and described. As Dewey points out, quoted by Martuccelli, for “any judgment resulting from a problematic situation, the important thing is to determine what problem or problems are posed by a problematic situation in the investigation” [DEW 93]. Among the various currents in the sociology of conventions [BOL 91], currently in an uncertain situation, a trial of strength represents a problem of the construction of judgments, a construct conceived on the basis of the placement of opinions into confrontation (or into equivalence): junctures, couplings, and assemblies between different “orders of magnitude” (commercial, religious, etc.) are thus the basis of disputes and then arrangements (agreements), either local or more extensive arguments analyzed as common higher principles, more generally, conventions (institutions) and therefore, a set of social relations, described here based on how individuals set out to justify (make right) their behavior and decisions (without presuming interest or rational calculations) [BOL 91]<sup>14</sup>:

“Thus, beyond the success or failure of an action, it is important to understand how actors base their beliefs about sanctioning proof considered as fair. Ordeals are at work in case of litigation (within the same city) or in disputes (between various cities), they are also the source of arrangements or compromise, in fact, they come into play every time there is a question of resolving a controversy in court through a trial” [MAR 15]<sup>15</sup>.

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14 In the approach to the theory of conventions, the “common higher principles” or “orders of magnitude” feature sets known as “cities”. In [BOL 91], there are six of them: inspired city, domestic city, city of opinion, civic city, merchant city, industrial city, and then completed with one more: the city by projects, in [BOL 99]. For the authors, this last type of city merges for authors with the dominant connectionist perspective, in which the metaphorical figure of the network dominates (in which the connectionist world precedes the formation of a city). Each city brings with it its universe of explanations, its justification criteria mobilized by individuals. One of the major points of disagreement between Boltanski and Latour remains the persistence of a structuralist sociology, claimed by the former and denied by the latter.

15 Martuccelli describes two main uses of the concept of ordeal in the Humanities and Social Sciences: the “trial-sanction” mainly mobilized, in his opinion, by the theory of conventions and by the ANT; and the “trial-challenge”, associated with work related to existential

If the trial is relevant here (but only partly) regarding a question of power relationships (between registers and delegated authorities) and their transformation [BOL 99], we cannot agree in our approach with either the logic of “these large sets” that would comprise shared higher principles that are dominant (at least in the use that was made by then), the issue of the method of construction and empirical selection, of which they are the product (which we find to be of interest in the first place), nor the domination of the verbal enunciation of the theory of conventions, which, incidentally and at the risk of a “psychologizing” reading that the project by Boltanski and Thevenot has nonetheless sought to avoid, may slip into the reduction *a priori* of the action of objects, or even the time and space, into a “context” – even if they have been included in his remarks. For us, the forces acting within the structures of enunciation come first, and the contents of the words come second<sup>16,17</sup>.

For science studies, a trial of strength comes to describe the formation process of scientific controversies, or when they are exhausted, their processes of closure [CAL 91, LAT 84]: we are dealing with multiple trial-sanctions in scientific research, for example, in proof-stabilization in the controversy for the ANT, but also in trials of strength that are relaunched, opening new opportunities and confrontations. Thus, we find that these collective disputes arise, as a way of putting to the test not only relationships (hybrids, since they are not only inter-personae) but more broadly, the assemblage itself, within which these relationships are built (the term “assemblage” is now preferred by Callon and Latour to the somewhat

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problems and self-training. For the author, “regarding the proof-sanction, much of it depends on the strength, the evidence and the legitimacy of the sanction, whether the objectivity of the world, the success or failure as criteria of truth and of the verification of the action, or also, a possible role of closure and escape from controversies through relationships of power and justice”. We advocate another approach.

16 We don’t feel it would be useless to “decide”, as desired by Martuccelli, between a trial of strength presented as either a punishment “directly controlled by the objective reality itself, [or] conversely, as a sanction [...] dependent on elements external to the inherent objectivity of the world” [MAR 15]. We stressed the incompatibility of the dichotomy of “internal/external” with the project of the analysis of socio-technical elements and fixtures.

17 However, in 2004, Latour stressed the possible convergence between Luc Boltanski, Laurent Thevenot, and his work, the need to abandon the covering of “reason”. “We relate certain evidence to situations, and we don’t add a test of reason to the tests,” he said, in [LEM 15].

confusing “actor-network”). Our perspective on “trials” or “events” thus relates fundamentally to a political dynamic, formed within the frameworks of Gilles Deleuze and Felix Guattari, following the thinking of assemblages. To describe the organization-digital connections, we cannot limit trials to situations of dissent. Describing and understanding the transformation of assemblages implies that we now consider the trials as “events”: when the individual, the rules or the object resist, when the desires compete, including technology “that no longer wants to work”, at the time when new alliances are created between laws and computer standards, when an algorithm for recommendations on the Internet and the recommended clicks it performs, etc., each time we experience a trial-event. What are the trials that characterize the establishment of a socio-technical process? What are the events experienced in the digital manufacturing of organization? What are the driving forces in the experience that are related in these tests, to ensure the performance (the result of these tests)? And we will still need to see how the test is participating in a shift – even one that is infinitesimally small – of the assemblages, in the two-way movement of “deterritorialization” (from which it takes its capacity to transfer) and “reterritorialization” (that it selects and makes use of as a given medium until a new deterritorialization) [DEL 80, LAT 06b]<sup>18</sup>.

### ***1.1.3. Following the scripts in action***

On the occasion of these trials, the actors demonstrate their ability to affect and be affected. Multiple mediations take place, taken from what we describe as socio-technical scripts. The movement of the organizational assemblage is tested in terms of the power of scripts and the propensity for deterritorialization / reterritorialization they authorize.

One of the first objectives of this ethnographic study is to observe the process of development and mediation borrowed from these scripts. Putting the phenomena of performance and trials at the heart of these processes involves seeing what they do or “cause” and following the tensions that aggregate around these particular actors. Again, we form part of the continuity of the works of sociology of innovation (1980s–1990s), but this

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<sup>18</sup> Procedures, testing protocols, evaluation, various instruments of scientific research, funding, etc., can all be an opportunity for multiple tests. See also [LAT 79].

survey will allow us to discuss certain contributions and pursue our reflection on the regimes of enunciation. To claim that this interplay of scripts has been instilled in our research on organizations is an understatement. As we will try to show, we see it spread throughout all parts of the work because it has to do with their microtranscendances and their macro/meso colleagues. Because it concerns the establishment of particular livelihoods organized together, as well as between organizations and beyond them, as regards our relationship with the state of digital affairs. In short, it refers to those elements comprising the framing beings who act: how they happen, what do they do and how to spot them? We try to offer some answers by including the digital manufacturing of the organization within our study, that is to say, the establishment of the way that organizations and their components exist, the codetermination of ICTs and organizational practices (from workshops for employees to management offices). Since these technological agents are routinely put to use in order to meet the demands of change and continuous innovation, this socio-technical perspective and co-evolution will be one of our connecting threads<sup>19</sup>.

The approach places processes of inter-definitions of social and technical elements, and the varied nature of their connections, at the heart of the analysis. It highlights the components of pragmatism, or as Guattari writes, “a generative pragmatism corresponding to the mechanisms of the linguistization of semiotics and a transformational pragmatism that is not transformational, not meaningful”. To take it even further: it bears on semiotic pluralism in its very heterogeneity and hybridizations.

Rather than ask the question of the “social significance of technology”, it is preferable to find one that aims to examine the technical construction of all things social, the performance of practices and subjectivities, the weaving together of populations of technical beings with populations of legal, moral, or managerial entities. This leads to conceiving innovation as a process that gives rise to an invention, the ability or lack thereof to meet the

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19 On the concept of creation with Souriau and its differentiation from construction (of constructionism), see Latour B., “Take the fold of the techniques” *Networks*, No. 163, available at: <http://www.cairn.info/revue-reseaux-2010-5-page-11.htm>. “The artist, as Souriau tells us, is never the creator, but remains the founder of a work that comes to him but, without him, would never come into existence”.

conditions of happiness that will allow it to incarnate, to update and produce, with a singular purpose, a world of meanings.<sup>20</sup>

The antithesis of a “shot sequence” in film, a plan to file without interruption or editing, innovation in the organizational field is overly coded practically everywhere: it is applied to times, places, situations, objects, diagrams and it is connected by slogans, legitimization, rationalities, and strategic models, often afterward. The socio-technical, techno-political couplings of the digital organization operate as redistributive slices, constraints, and desires. The scripts are one of the actors. To clarify our direction, let us elaborate a bit further on the film metaphor. Established on the basis of a plot, a film script is a document, providing various pieces of information: reproductions, behaviors of the actors, the technical data required in the shooting (lighting, sound, etc.), staging elements (sets, spatial configuration) and camera movements (tracking shot, close-ups, etc.). In production, the script makes reference to the person in charge of ensuring the continuity of the movie, that person will work on the connections between plans, scenes, and sequences, connections that will allow for continuity, compliance with the plot (for editing) and that, by making continuous adjustments to the script, will “document” it (registration). In reclaiming the project and its purpose (a work to be “projected”, as it were), by embodying and bringing it to the screen, this initial document serves three purposes: descriptive operator, connector and modeler. It is also the mission assigned to the “Project Leader” in businesses<sup>21,22</sup>.

Thus, as with designing a cinematic apparatus, here the project organization, approach and associates are all placed together, varied elements in businesses, which are objectives and management requirements, distributions in space-time, situations and singular contingencies, objects and material constraints, programs and interfaces, individuals and their roles

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20 Commenting on the work of Latour, Fischer says, “We need not celebrate “humanity as technological detour”, but focus on the “peopling of technologies”” [FIS 14].

21 The concept of the script has enriched much research in the human and social sciences: social anthropology (sexual scripts, criminal scripts, etc.), cognitive sciences, the sociology of science and technology, and the sociology of uses. It has been adapted in favor of these movements. The many uses cognitive sciences have made of the world of film have been discussed by [PER 01].

22 In the world of film professionals, the distinction between “scenario” and “script” can sometimes seem unstable. In the cognitive sciences, the difference is slight.

(principal, MOA/MOE designers, developers, experts, spokespersons, users, etc.), text (annotations, data, images, diagrams, explanations, language elements, etc.), routines and professional standards. This forms the first type of script: the script draft. However, unlike the cinematographic elements, the technical-organizational scripts are, firstly, immanent, practices and the organization itself (can you imagine a film without the start of a script and only designed from improvisation?). From the initial idea to the handoff to the users, the scenario of a digital apparatus in an organization can always be replayed differently, and change the assignment of duties and roles of the various “human and nonhuman” entities that it composes, becoming secondary or at least asynchronous from this perspective. The characteristic itself of the projects is the uncertainty and instability of the actors, who are impossible to list in their entirety at the beginning of the design and thus to define their attributes and behaviors *a priori*. This is the paradox of “project-risk management” in the design of information systems where inductive approaches have to face the innovation process itself, namely the existence of blind and uncertain areas.

The script presents itself as both the process by which links are created (between different entities), and as the program that reassembles courses of action [THÉ 06]. As such, the sequences, the narrated segments, can be edited independently (as in the context of an organizational “narrative” in film); we then proceed to make “connections”, associations between different themes/planes, doing so in order to ensure a level of overall consistency and to serve the rational nature or the goals of the project (participants may have only partial knowledge). Thus, in a project intended to design a new digital apparatus we adjust our actions in response to the events that occur over the course of the project and the order of the presentation of the arguments. They are enriched and modified by other narrative sequences.

In the same sense as “actor-network”, “problematization”, “controversy”, “stakeholding”, etc., the script is one of the key concepts of the sociology of translation. More recently, Latour has devised one more of the major means of analysis, the “modes of existence” and the two ways in which they tend to work (difficult to hold in place), metaphysically and pragmatically. What does it mean to him to read our social groups through their scripts? In particular, we need to contact the “beings of passionate interest” (economic interests, for example) and “attachment beings” (which will be connected): in this context, “that which we refer to as “Society” is not, from the

viewpoint of this mode, the effect of scripts stacked on top of each other, the exact nature and type of the stacking has been lost from sight, and to those, a giant dispatcher was surreptitiously added, by way of confusion with politics; this meta-distributor, this providence that would allocate seats, roles, functions, without our being able to know in which offices it would exercise its wisdom, nor by which mechanisms it would transmit its orders, its formats, its standards” [LAT 12]. To unfold and deconstruct scripts requires us to discard any temptation to reach transcendence, without giving in to the excesses of constructivism and relativism. The concept of mediation will help us in this<sup>23</sup>.

The anthropology of Modernity proposed by Latour is vast, and to the extent that it focuses on organizations, we must consider this mode to be in different areas of application: business, government, religion, the market, etc. Thus, regardless of the field, “the organization” does not emerge as an outcome, but as a process, an institution whose dynamics we must analyze, in addition to as a mode of existence in itself. Yet, several issues remain common (how are entities within a script connected? What is their performative force and where is it drawn from? What is it that ensures the effects that frame this? What mediations does it employ<sup>24</sup>? How can it be transformed in time and what is it that transforms it?), phenomena to which the connected scripts may vary, depending on the point of view from which we examine it and what we look at: a set of organizations (in our case, for

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23 In the chapter entitled “Correcting a Slight Defect in Construction” [LAT 12] Latour responds to the double critique (he claims to be neither relativist nor constructivist), emphasizing the need to equip us with new tools. Among these, he includes mediation. In his view, to mention science or an organization they are built from, for example, would mean saying three things at the same time. The first: we are facing mediations that “cause us to act”. Second: the author of the construct becomes a mystery. The situation we have here, by contrast, is one of oscillation, varying alternatively between the construct and the constructor, and the hand of the puppeteer to the puppet. Third point: “to remove oneself from this oscillation”, he adds an ingredient. “Saying that something has been built implies the introduction of a value judgment, not only on the origin of the action [...] but on the quality of construction”. Therefore, this commits us to take seriously the act of construction in itself, in order to study it. This is something that constructivism, according to Latour, can no longer do, since he has cast doubt on all the “artifacts” and their veracity. Given the heavy connotation of the term today, he agrees to substitute the concept of design for that of construction, which he borrows from Souriau.

24 For the 12 ones proposed in [LAT 12a], see the following address: <http://www.bruno-latour.fr/sites/default/files/110-ORGANIZATION-PASSOTH.pdf>.



example, a company and the army of partners and stakeholders that are related to it), a specific company, and the various internal processes that characterize a particular situation of working in a team, or the work done by an employee on his computer. Perhaps, we may already sense that these different levels of scale can be considered discontinuously. In this first part of the work, the scripts indiscriminately take us from the office of an employee to the CEO of the company, at times passing through professional rules and others, through the settings put in place by a digital developer. We show that manufacturing an organization is the equivalent of producing scripts (and not exclusively linguistic scripts) and that they are no longer a matter of “floors in the building that is the company’s headquarters”, but the creating of relationships, as well as power relationships. In our view, following the scripts and their heterogeneous grammar (their production and action) amounts to performing a crossing of arrangements. They are constructed and from them, distributed themselves in others.

We therefore agree with the ambitious vision of Latour and the fundamental position he gives to scripts in his analysis of organizational phenomena. However, we will try to clarify the elements that attach and tie together within these scripts, to extend the length of the networks that feed into them and stem from them (especially in the study of the process of performance, discussed later). Finally, our work here involves describing what is presented as a study of the conflict between scripts (the conflicts or the reinforcements between them) while placing the issue of digital semiotics at the heart of organizational performance process. Where did each of these scripts get their names from? And what is the role of their creators (which is difficult), their materials, their spokespersons/representatives, their intensity, and the place from which they express themselves? Besides the common phenomena that we have already indicated, what is it that will distinguish them from each other? This will be revealed over the course of the investigation and the trials that we highlight here.

If we are interested in the construction of theories on managerial actions (ranging from academic theories to orthodoxies on digital strategies), the scripts, “stories” produced in this way, travel and move from company to company, and repeat themselves until they become idea archetypes (an established framework, or frame) [MIN 75]. Thus, some of these encounter fortuitous conditions that allow them to dominate. In this sense, they may be able to have a relatively automatic nature, and approach the script of

cognitive science or IT, which emphasizes the automation of sequencing and behavior. For us, the figure in this case relates to “stabilized” decision-making models (within a short-term period for the company), to frequently repeated inferences: the responses given by managerial, conceptual and normative scripts (we will see further the role that celebratory practice have here). But when, on the basis of the landscape and its contingent weak points (scripts of localized activity), we come to understand that the script is susceptible to the arrival of a new actor (who plays the role of a “Hitchcock”, taking pleasure in punching holes in the logical construction of the filmmaker, who offers to collaborate on a film that has already been scripted), who requires that changes be made, new programs of action be devised, new holes be made in the scripts. Creation and innovation are at play in the introduction of this difference itself [MIN 75]<sup>25,26</sup>.

Drawing from Latour and his anthropology of modes of existence, the act of organization (or “organizing”) in the sense that we understand it, and its maintenance and stability, are conditioned by “a connection, an accumulation, a formidable layering of successive disorganization: people come and go, they carry all kinds of documents, they complain, assemble, separate, grumble, protest, assemble again, they organize once again, they disperse, catch up, all in constant disorder, without ever being able to define the boundaries of these entities that continuously expand or shrink like an accordion” [LAT 12].

According to this philosopher, the script is basically immanent in the organization, an organization that manufactures them, disputes them, and tests them, but a script that, almost simultaneously, it acts out and sets in motion:

“Scripts are not presented as a tautology (we produce the same society that has produced us; at the same time, we are bound externally by the standards to which we nonetheless aspire) that if we forget the slight delay in time, by which it is never exactly

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25 “A script is a structure that describes appropriate sequences of events in a particular context” [SCH 77].

26 For example, see the computer scripting languages that are used to initiate and coordinate the implementation of programs. AppleScript for Mac OS is a scripting interface designed to operate in parallel with the graphic environment. The principle of this script is to automate tasks, reducing the time required to complete these tasks and reducing the possibility of human error.

the same moment and never with exactly the same capabilities that we find ourselves “above” or “below” the same scenario. This sinuous nature, so unique to scripts, is unfortunately not to be found in the concept of tautology. And even if it could follow this expansion mode, this does not always make it capable of serving as a template for politics, religion, law and the psyche – not to mention one’s first or second nature” [LAT 12].

Another figure who in this case leads us specifically to technical materiality, described in detail by M. Akrich, deals specifically with interfaces, with the proposal made by the designer of a technical object to the potential users of this object. Again, this is a scenario of a predetermination of situations of practice. This proposal (which, to varying degrees, can be binding or relevant from the point of view of the user) is accompanied by several movements [AKR 87, AKR 91]:

- indications (as found, for example, in operating instructions);
- descriptions (the formation of a customary meaning, decoding of the scenarios, the singular adaptation of this).

In this chapter, we will have the opportunity to analyze these two movements, and we propose to view them in their continuous state of flux, a major feature of digital apparatuses in organization. The investigation of scripts thus also involves following the trajectories, in addition to numerous iterations and updates made to the socio-technical configuration.

From our perspective, we therefore give the concept of “script” an extensive meaning: scripts are immanent to the organization (in fact, they themselves are organization, through and through) and giving their mobile nature, are based on a semiotic pluralism.

The investigation will not only include this particular level of scale that includes the linkage “localized” between an object and a user (a practice of confrontation between an individual, a situation, and perceptions, and a script framed by a digital program), but also extend to other places and processes that constitute the assemblage within which organizational action programs are produced. In this specific case, the design of digital apparatuses in business, what are the locations and entities that become involved as a result?

The designers and suppliers of ICT solutions, a project group whose members come from a single company or from other companies (project managers, managers of different services, consultants, IT companies, etc.), the employees of this company have do their jobs from multiple applications, and may also include Internet users, trade unions, journalists echoing the achievements of companies, professional associations, and some clubs, which organize meetings and other events, etc. A large collection of objects and inscriptions are utilized in the design processes: specifications, schedules, PowerPoint presentations, reports, email exchanges, financial indicators, computers, software programs, URLs, access codes, cookies, viruses, network and bandwidth infrastructure (which, in some cases, was subject to being devoured by rats<sup>27</sup>), “quality” standards, the company’s internal regulations, legislation work and ICT law, some of the best known websites and online tools (Google, Facebook, etc.). In a way, each of these actors crosses through “worlds”, in which they is linked, and each one “speaks” at their own level but leaves a mark on the group as a whole; everyone participates with varying levels of intensity in the production of scripts, working together with or against the other actors.

To summarize up to this point, we have found at least three precautions to take to prepare for the investigation.

We will be looking at an aggregate script, at hybrids, and then our task will be to “seek to bring to the foreground the materiality of the apparatuses they use to stack up and merge together” [LAT 12]. The attention given to trials and the equipment of these trials will assist us in this task.

On the basis of the regimes of enunciation, whose scripts are both the expression and material that is expressed (as they are immanent to the organization) and the mediations that they borrow, the materials (registration) that are preferred vary in quality and intensity: linguistic materials (speeches, reports), non-linguistic semiotics (interfaces, programs, digital codes), corporeal elements (behavioral postures, physical movement, or activity routines), architectural materials, etc.

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27 This fact was reported to us by the RATP: the appetites of rodents work to undermine the maintenance of networks that run the lengths of the lines that connect transportation sites by digital linkages. And the tastes of these animals are the same in other countries as well; in 2005, field mice were responsible for cutting telephone lines for the entire region of central Sweden for 20 hours, after chewing through the area’s fiber optic cables.

Finally, several scripts can take action simultaneously: digital innovation in the organizational environment appears as a combination of scripts and power between performative processes in which they are included, and which they carry.

## 1.2. Setting the stage

### 1.2.1. *Two gray suits at the Belmont bar*

It's the end of a late autumn day, at the bar in the Hotel Belmont. The bar, with its *Belle Epoque* ambience, is nestled within the heart of the sixteenth arrondissement of Paris. Here, two men have made plans to meet. One is the manager of a communications agency, paid for his hours of consulting with major corporations. His claim to fame is his ability to detect “technological innovations” in the HR field (he was the one responsible for importing the American corporate communications model on the Internet to France). The second is a human resources manager at a multinational company. He has been described as a “strong advocate of social dialogue” and is preparing to carry out missions on a larger scale. The company has just joined with several business branches within a single group (which involves delegated activities of the management of public services: water management, waste management, public transportation, and heating systems). In the coming days, a certain Jean-Marie Messier – with whom, outside of his HR ties, his relationship is not very warm – will be named the CEO. Both of these professionals address each other with a cordial tone, befitting of the aristocratic demeanor of Parisian businessmen, while showing some signs of connivance maintained by their closeness within the same networks. If we were to follow his connections, we would find other CEOs and managers, politicians, key figures on television and in other media, former military officials, technicians, writers who were formerly communications representatives, or vice versa... leading him to “a group to be built”. Because of this, and even though he has no knowledge of digital technology, he feels, he guesses, he knows that there is a fundamental link that will be established between ICT, his organization, and achieving its objectives. He senses the potential of an HR information system to serve his strategy and transform the company (even in spite of the company itself):

“This system, you see, could help to break up the local power brokers, a legacy of the autonomy of the subsidiaries. If the new group could be made known through the system, together

within a single space of communication, and ensure that everyone works in the same way, it would be very effective”.

Under “the system”, the HR director would thus be its ally, working toward the purpose of federating multiple entities within the territory, to gain independence from local authorities in order to carry out an “alignment” (of the processes and organizational strategy). The contract is concluded quickly. The consultant is given the mission to create a single digital communication system dedicated to the management of recruitment and the mobility of employees in the future group.

What will his frame be during this meeting? What forces give credibility to the forces acting between these two? What are the various accounts which operate (and the protagonists who give them)? How are these narratives intertwined and linked to other semiotics and non-linguistic elements?

The description provided here, and the analysis that follows, are intended to identify an initial set of phenomena. Other descriptions follow in the text, which will complete the process at work in the production of digital apparatuses in organizations.

A few preliminary remarks: firstly, we may question the level of permanence among managers, the organizational models of action attached to computerization. This conversation at the Belmont took place in 1999, yet it could just as easily have been 1975 or 2015<sup>28</sup>. Secondly, this scene shows us we must remain attentive to the stories of a project (those within the ethnographic event, and those that we give, or which are fed to us by professionals). The production of organizational projects requires us to consider the status of stories that will be given alongside these projects, the motives that support them, and whose initial rational backings, as expressed here may not correspond to those which are written “after the fact”. Finally – and this is no small task – we must address this astonishing phenomenon that grants these technological objects (even decades after the wave of determinism swept through the management sciences) an ability to affect the

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28 Beginning in the 1970s, led by IBM, Honeywell and Bull, digitized management began to be implemented in various company departments (staff administration, accounting, inventory management, etc.) and the organizational changes related to it have already been the subject of several studies. The link between HRIS, management control, and the decision-making approach – forming, at a minimum, a dashboard for HR processes – is also a target put in place during the 1970s–1980s; see [ROD 10].

organization, subjectivities and the processes at work, to express and be a political power in action.

The research builds on an investigation inspired by ethnomethodology lasting seven years (2000–2007). This choice of methodology prompted us to choose this action as a preferred temporal space for observation. The monitoring of the daily actions of various actors and the written record of their interactions, the developed interfaces and applications, the documents produced, the exchanges of electronic messages, interviews, etc., are the materials used in the “Moeva case”. This project involves the implementation of a digital apparatus made up, firstly, of two “front office” extranet jobs/mobilities dedicated to employees of the group, and a website for external recruitment and, secondly, a “back office” made up of an intra-extranet, available to HR teams (roughly 400 people at the end of the project) who are required to manage thousands of applications and other documents incorporated into HR processes in this way. This is similar to a groupware system, in this case centered on automated business processes (workflows) and the sharing of information resources (supported by defining user profiles)<sup>29</sup>.

To conduct this investigation, we will move from office to office, listen in on official and intimate discussions (outside the project, located in the halls of head offices, or on the phone), allows us to bring users together with the bugs in the functionality, read hundreds of pages of reports, data, and specifications, and thus observe the theater of operations from as close as possible (including the staging of meetings and version releases). We are on a level that is neither beyond nor below these messages (meetings, symposia, professional press): through participatory observation, we attempt to navigate between different plans, around which, for example, a newspaper article may be brought up, because it is circulated by the project manager: this is not so much about describing its “content” in detail than to be attentive to how this article is involved in the process.

The digital production of organizations invites us to navigate within the various narrative orders (first and foremost, the order of objects) and take

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<sup>29</sup> The study of ethnomethods, that is to say, the rules of conduct, all that constitutes and everything that people use naturally and implicitly in everyday life, can be said to be “the study of current practices of the members, experienced in everyday life, through the analysis of the rationalizations given for their actions and their words as reflecting their interpretations”.

advantage of traces of varying natures. This survey is the description and analysis of how locations, strengths and actors, are progressively woven together. By dispensing with any *a priori* definition of “social clusters” and the forces that are in play, by not sacrificing field studies for analytical instruments, by following the associations as given by the actors themselves<sup>30</sup> in producing this ethnotechnology, our purpose is, in taking after the sociology of translation, to produce as rich a description as possible, even if this framing may still only be unfinished, incomplete, with a few holes still left<sup>31</sup>.

The history of these forces, of their stability and instability (with “meta-stability” being a condition for the perpetuation of the organization), convergences and divergences, a story that therefore does not begin and end “around a café”, is presented below by following a path from one stage to the other, stopping to examine tests, approaching the project as a continuous and chaotic evolution.

### **1.2.2. A parade of participants**

The Moeva case brings a multitude of entities into play (actors from group projects, writings, speeches, information systems, internal regulations, etc.) that we understand as many individual actors, that is to say, as entities having the capability to affect or be affected. This perspective of the actors (beings and objects)<sup>32</sup>, allows us to embrace the complexity of organizational situations, guarding against the temptations to analyze only written language and action (the analysis of speech “on” or “in the action”). In a digital project in the process of organization, what are the forces that are expressed, evaluated, that collide with each other, and how does their composition transform itself? To answer this, we must start by following these actors

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30 On these points, see the methodological breakages that were proposed by this current of the anthropology of science and technology, and in particular the work of Michel Callon and Bruno Latour.

31 The incompleteness of the description refers both to the complexity of arrangements (networks of actors in which the actors form linkages and act) as well as the inability of the researcher to transcribe everything in a book while continuously monitoring individuals and objects.

32 This is a notion that Callon and Latour have borrowed from semiotics (Greimas) to enrich the context of the work of the sociology of science and technology.



involved in the situation, in a design activity<sup>33</sup>, or to put it another way, an activity done in various locations and processes of an assemblage. Thus understanding the relationship between these particular entities, and the levels of intensity that circulate, thus leads us to consider the construction of a digital apparatus such as an ecology of relations between actors.

Let's now take a look at one of these ordinary situations: the proceedings of a Moeva meeting in a large office area of La Defense in Paris. Here, we meet:

- the main players in this mission from 2000–2001; the implementation is based on three traditional categories of “project actors” in charge of creating the system. There is the “project management” category: DG of Moeva (which we will thus call the enterprise involved with this research), the management of human resources (the project leader) and a selection of functional managers (from various entities) form some of the targeted users. Then, the “project management assistance” category: internal advising (communications management and the management of Moeva's information systems); the consulting firm specializing in human resources communications, “HRConsult”. The “project management” category: IT solutions for publishers and other external technical service providers. In seven years, there will be changes in different responsibilities or in the people involved, but the profile of actors and the roles remain the same;

- statements produced over the course of the actions taken (verbal interactions, PowerPoint presentations, e-mail exchanges, etc.);

- numerous material registrations (interfaces, databases, repositories of schools/professions, specifications, minutes of meetings, notebooks of functional indications, communication plans, training, user guides, etc.);

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33 Ethnomethodology, the anthropology of science and technology, the approaches of situated cognition, activity theory, in addition to other concepts, have compelled researchers to leave behind the paradigm of “sociological uses” from the 1980s, overly focused on the solely technical objective and its interaction with a user, or on long representationist patterns (values, cultures, etc.) to follow closely what the actors and objects caught in the same situation make. This still requires researchers to take an “unpartitioned and non-exclusive look”, because it must embrace situations with many possible viewpoints: sometimes following designers, sometimes computer programs, sometimes the targeted users, sometimes the legal requirements, sometimes documentary analysis of a project and its history, etc. [DEN 09, LIC 08, PRO 15].

– CVs: this is indeed an element that will gain strength. By changing their material nature (they have become digital), candidates will be transformed into data flows, which will have to be recorded, processed collectively and more “industrially”. They will be quantified, indexed, and taken progressively as the indicator-descriptor of the activity of a recruiter. CVs: in Latourian language, they become a “little thing”, which will permanently put the “big thing” (the company) to the test.

Thus, from the Belmont to the meeting room, the layout is inhabited by a multitude of individuals, objects, places and designs. And it was true that “there were already a lot of people<sup>34</sup>,” since the beginning of history and thus, we are really looking at more than two men in a cafe, except when we consider that they are only the expression of these forces, being the black box of these forces.”

Added to them, this list of entities will provide the project with slogans, screens, codes, files, other individuals. The Belmont or the project manager’s office is simply not able to contain the actant networks. Over time, whether deliberately or by chance, the incessant calls to form new entities “cause the network to flee”, scattering in all directions:

– other targeted users that are employees and applicants seeking employment (who apply on the website). We will often speak in their name, the name of their desires, and the digital practices they assume;

– prescribers and other spokespersons, such as associations and the trade press, whose slogans sometimes become arguments from authority for the project managers;

– a multitude of companies whose policies of interfaces, strategies, IT developments and arguments are displaced within the apparatus through cases of benchmarking (competitors or companies thought to be role models) and offers of thanks to publishers;

– a prime minister, government policies for employment and economic data (at a specific time, the group will need to respond to a recruitment effort explicitly requested by the highest entities of the State); institutional partners

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34 Deleuze and Guattari their book *A Thousand Plateaus* with their famous formula: “We have written *Anti-Oedipus* as two people. As each of us was actually several people, there were already plenty of people involved” [DEL 80].

(such as local authorities sought through recruitment operations from their establishment in cities);

– internal standards (recruitment management rules, mobility, etc.), legislation (the Labor Code), the CNIL, then other legal constraints that will be indicated again as part of the deployment of the device internationally;

– and, in addition, a whole collection of other “things” that they are still connected to! “How many actors are there? We will have no way of knowing this before measuring others” [LAT 84].

Depending on the constraints and variable modes of expressions, all these bodies operate in the same design process involved in the production of networks that are generally extensive, being codetermined by subjective considerations. By allowing ourselves to be guided by the successive connections at play, taking to heart the principle of symmetry between objects and individuals, we are given the opportunity to free ourselves of the heavy burden of “invisible elements” (especially those acting to conceal the collective unconscious, imaginations, representations, and theoretical models, of all social elements), their over-interpretive classification and givenness as “natural” (a pre-established decryption that, incidentally, frees acting individuals on a mass scale)<sup>35</sup>:

“What is a force? Who is it? What can it do? Is it a subject, text, object, energy or something else? How many forces are there? Which ones are strong and which are weak? What is at stake in this force and this measurement? Is it a battle? Is it a game? Is it a market? All these questions will only be defined and deformed by other events” [LAT 84].

Thus, we follow the forces involved, we create a map of these heterogeneous actors from the trials that arise, we identify and update them,

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35 One of the areas of interest to the sociology of translation is to have made individuals exercise their power to act and to avoid any explanatory detours through “social magma”. These are “the actors who make everything, even their explanatory frameworks, their own theories, their own contexts, their own metaphysics and even their own ontologies” [LAT 06c].

and redistribute the powers around them, according to the specific collective arrangements of the project. This means that the story is woven together by events, and sequences-events that push them toward other events.

### **1.3. Moeva “Beta”: building a theatre of operations**

#### **1.3.1. *The English temptation and the IBM test***

In the spring of 2000, the firm HRConsult began its mission with the goal of identifying technology providers that could offer innovative and efficient solutions in terms of Internet application management system (external candidates) and intranet (a system for the mobility of internal employees). At that time, the Moeva group had not yet officially been established, and the project only concerned the branch dedicated to public transport and waste management.

In a book he published in 1997, the manager presented the Internet as a “revolution” for communications for recruitment and “the marketing of human resources”. In particular, the proposal was based on the recommendations and experiences of US-based agencies specializing in the field. Whether idealized or real, once the legitimacy of the Anglo-Americans had been obtained, the first editor selected was English (with a list of multinational corporations added to his assets). “Personic” indicates: “In 1998 around 1.3% of the entire US workforce was placed in employment using Personic software”. Thanks to the mediation of HRConsult, meetings are organized within the company. Designated by the HR Department, the Project group is then constituted by the manager of recruitment and mobility, and the manager of internet/intranet communications. But a few weeks later, the Information Systems Department is asked for an “opinion”, and adds three representatives to the device. Soon, several constraints emerge: the publisher must provide a solution that offers compatibility with ERP HR Access (an ERP Enterprise Resources Planning), marketed by IBM (each system is installed on different databases including both Oracle and Microsoft SQL Server). Led by the DSI, the project involves the modules for training and payment, but also the range of features for recruitment-mobility. The balance of power is then in favor of the DSI-IBM pairing, and against the alliance of HRD-HRConsult. The location of Personic’s development teams, outside of France, and their technical and financial constraints (their

budget approached a current equivalent of 500,000 euros) are the foundation for expressed rationality<sup>36</sup>.

Note that the Moeva-1 project was intended exclusively for the short term, the territory of France (that is, the external candidates and ten thousand employees with access to an internet-enabled computer), a historical space from which the future group would put in place a new identity (thus excluding from the scope the many entities already present all over the world who were, in turn, already equipped with their own HR management system). International expansion will only truly be considered after several years. Seven years later, after which period (representing a significant portion of the career of a project manager!), yet another version of the system will allow for the possibility of integration with another country (England). In fact, the international presence of the company faces constant difficulties in being reflected in the apparatus.

After three months of discussions, aborted quotes and conference calls made between the two sides of the English Channel, another technology provider was presented by HRConsult. This company, without any references abroad (at that time, pragmatism would prevail, prompting it to forget about the world for a certain time), had designed an online recruitment management solution for its own activities. Essentially, this is a small team, competent in the area of digital developments, and enthusiastic about creating a number of extensions to its “DevX” system.

Simultaneously, the HR Access constraint from IBM weakened: at the time, PGI suffered from insufficient “web compatibility” (large ERP systems had not fully carried out their shifts to digital technology, particularly in terms of user interfaces) and recruitment modules were not sufficiently developed to respond to increasingly precise expressions of needs (formalized in a document and quickly adapted into a specifications file). It also involved a head-on opposition to the digital “culture” computer between the DSI, connected with mainframes, and project managers boasting of an innovative and much more “agile” vision, offered by the online world. The DSI-IBM/HR Dept.-HRConsult confrontation ended with the argument of the expected completion times: the transition to the new version of HR Access would take two years. The first of these two called for a long-term

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36 See <http://www.sourcewire.com/news/4372/personic-pioneers-e-recruitment-technology>, accessed October 5, 1999.

vision, while the second wished for it to be brought online in early 2001. At the company's headquarters, no amount of "coffee breaks" soothed the manager's impatience. In early fall, DevX was selected under the last condition established by the DSI, that of repairing databases for future HR Access. The HRConsult/DRH/DevX coalition readily accepted it: they never asked for the data for the ERP.

This was the operational theatre, or at least one of its updates.

### **1.3.2. "We want to think for ourselves!"**

What reflexive actions can be developed by a collective action on the things that move it and run through it?

How can this group take control of the script that is at work on its performance? Luhmann or J.-M. Noyer might ask, what are the instances and processes that are self-simplifying (by the script) that allow it to be used as instances of its own operations?

We will look at the status and role of the interfaces later on. To continue with the action, under the constraints of a rationalized decision-making process to be completed, the arguments meet, collide, reinforce themselves, cancel, or dissolve. The forces that are present are revealed and put to the test. In presenting, first of all, its prestigious list of references, and second, the economic valuation of the return on investment of their solution (that DevX would never risk) Personic seemed to have the balance of power in its favor. Certainly, the obligatory transfer by DSI, unfavorable to a project that was beyond its scope of legitimate action, was an insurmountable obstacle to the sale. But the gradual shift towards an ad hoc approach (partially proposed by DevX), also reflects another perspective opened up by the project manager, Moeva, who said one day in July 2000: "We do not want standardized solutions, we want to think for ourselves!" On this basis, there is no need for benchmarks, "business-cases", references to extensions, and functional modules ready to use (the "good project engineering manuals would eat these pages"), which corresponds to the approach of Personic (a strategy that is already lost) and also to the HR Access approach.

What does this claim mean to the project manager? The argument made by this manager contradicts the process in progress, but this statement allows for the allocation to be made of a place, a position at each camp, to define its

opponent, and as Machiavelli suggests, it allows it to take a hold of time. Incidentally, there is an affirmation of an ability to be autonomous, a desire to express it. Even if we know that “ideas never escape the networks that make them” [LAT 84], the demand for autonomy is an indicator of an organizational world continuously inhabited by a desire to create itself (here, we have the opportunity to recall this, to be used in other areas). The project leader is defeated in his attempt to transfer the DSi connections with the project, and weakens the technical constraints. Invention is pitted against replication, specific programs against rigid systems marketed by the heavyweights of the digital market: this is the word of the day. With a reasonable budget and time limits in the schedule, the project can proceed.

The question of the spread of organizational models of action is part of a tensioning of the distributed, nomadic performance processes. The project manager, despite his statements, responds effectively to internal tactical redistribution of forces, but only has a mastery of the design of the apparatus. HRConsult and DRH design specifications that describe and update models of experiences and relatively heterogeneous practices (methods for the management of recruitment and mobility adopted by hundreds of different managers); interfaces proposed to candidates-users as well as staff-Intranet users, features that were nevertheless studied (separately, by actors) on other business websites; computer programs and features already developed by DevX and used by its clients. True, it is expected that other features will be created, but from the beginning, the design is incapable of being sealed off from “an outsider” or “a forward”. So, here we have it: a new trial and a new way to carry it out.

This sealed-off nature, claimed and brought “to value”, is placed explicitly under the phenomenon of organizational standardization done by information systems. Indeed, the programs and their interfaces (PGIs and other software packages) are an aggregation of contingencies (environments with special characteristics), practices, managerial processes of other organizations, in which the editor draws a temporarily established compromise, corresponding to the most common situations, and assuring optimum commercial potential. This compromise allows for the establishment of a standard offer, which after successive iterations, must meet the configurations and demands frequently made by future customers. Thus, by appropriating the work of many groups and projects, and by selecting “the activity scripts” of other places, a normalization of the processes of information management and organizational action by direct

action programs: a technical performance moving companies in business is operated<sup>37</sup>.

The publisher often offers functional enhancements and also introduces specific developments that other customers have been able to achieve. The process of innovation is thus the result of the cross-fertilization of the systems between each other. This practice also represents a particularly advantageous economic model for the service since, as we have directly confirmed, it involves achieving a return on investment on developments sold to specific customers by later offering them as “standard” in the product. Thus, the project manager also positions himself against this phenomenon, with the key word becoming the “personalization” of the system, its adaptation to the particular context of Moeva. However, the acceptance of such a strategy – this personalization – cannot be carried out without a debate: some called for the rejection of formatting, and the reactionary nature of the company in the area of the “context” (“it is unique in its field”), others counter-arguing by emphasizing the costs of development and the risk of not being aligned with solutions (and thus to organizational models) already tried elsewhere. Is this a specific case within business innovation strategies? The story about the pairing of “peculiarism/standardization” is actually quite commonly found in the world of management, where everyone puts forward large amounts of demonstrations of their efforts to testify that, when confronted with “technology”, it is the organization that is always right. The enemy has been identified: technological reformatting. It then becomes a battle between different actants for a transformation of the organization, and once this transformation occurs, it will often be recalled that technology is “an ingredient, nothing more”. But at the same time, the normative imitation<sup>38</sup> and isomorphism in which companies and their advisors are actively involved are widely considered to be a virtue<sup>39</sup>! This is the case for companies, as it is for “all entities (who) seek not to appropriate external

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37 Drawing on Callon and Muniesa, we defined this as a process of innovation, bringing into conflict the forces acting based on various types of performance, with technical performance being a special case. See Chapter 2 of this book.

38 Here they are considered as a replication of the same.

39 We will come back to this and the case of imitation in Chapter 2.



entities, but for them to be appropriated by them”, and each monad “aspires to the highest degree of possession” [TAR 93, TAR 99].

What the project team progressively begins to perceive is that, by financing the developments of the DevX application, it will directly allow the publisher to capitalize on the new features that will be created for Moeva, and that the contingency and the power of the “Invention” that it is related to will be put into circulation and available to other companies, which in turn will be able to reconfigure them... or take them back as-is. It does not object (contractually, it is not allowed to do so) and even finds a way to be proud of its actions: its management script takes the form of a possible model.

### ***1.3.3. Writing the management script: its manufactured-manufacturing making***

Based on a framework document presenting the expected main features of Moeva, DevX carries out what is known as an “adaptation study”. The purpose of the evaluation is to evaluate the difference between the existing “standard” in their solution and “the expression of needs”, thus identifying the field of the developments to be achieved, and ultimately defining the corresponding financial investment.

At the level of the back-office (the HR user interface), the processes for recruitment or internal mobility proposed as a standard by the publisher are made up of the following functional building blocks:

- offer management: creation of an offer from an input mask, sending of a possible offer to a superior or an operator, publication on the website, search engine for offers following 10 standard criteria;
- applications: a table listing the electronic applications received in relation to an offer, multiple selections of candidates (for sending a group message), a candidate’s record and a candidate’s qualification (unprocessed, negative, called in);
- recording of an application (received by conventional mail or by e-mail);
- a multi-criteria search engine for the use of the shared pool of candidates (10 standard criteria);

- a search engine for events (meeting, notes from the recruiter, level of urgency, confidentiality, etc.);
- a collection of email templates (replies addressed to external candidates);
- an administration of users: coordinates and rights according to two possible profiles (recruiter, manager).

These different “building blocks” make up the script for a professional practice: programs, settings, and application data offer a specific outline of the processes used for work and processing (based partly on automated tasks) of information. Using an interface, this script assembles and models courses of action and operates at the center of the performance of procedures. Some sociological works vividly describe the formalism and standardization of systems of human resources management and selection, a process presented as a “professionalization”, which is summed up in framing judgments and “extending the jurisdiction (HR services) within the company” [FON 14]. Each time, and as Edwin Hutchins pointed out, the distribution of models is developed through mediations: through interactions between agents, and also through artifacts [HUT 00, CON 04]<sup>40</sup>.

Various requests for specifications of this functional base are expected by the project manager and the HR manager. In particular, developments must take into account the practices that continue to be carried out within the company: initially, a desire to reproduce the organizational processes is therefore strongly asserted. This “expression of needs” is given together with a detailed presentation of the internal processes, as they are perceived by the central hierarchies and by the 10 colleagues who will be the first users of Moeva. This expression takes the form of a management script, with a specific form of modeling: it specifies a “life cycle” of a job offer, of a document (the internal or external CV), as well as the various actions that can be performed at each step following the responsibilities of each person in the process.

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40 [CON 04] indicates that for Hutchins, the distribution of cognition is often presented as involving two sides: an ecological side, where cognitive processes are distributed between an agent (or several agents) and artifacts (utensils, equipment, texts, symbols, computers, etc.); and a social side, where cognitive processes are distributed among several agents coordinating within the same site [HUT 00].

Translated into the application, the script advocates a template for:

- the creation and validation of an offer before publication;
- the processes of acquiring a job application, in two possible ways: the “sourcing” is carried out by the website (the registration of the CV by the candidate) or by using conventional mail, through the post office, which requires a registration of the job application with the HR user in the database;
- then, the next step is the selection, involving the viewing/analysis of the folder and the “qualification” step to indicate which status is assigned to the candidate;
- finally, there is the follow-up after the meeting, and the results of the interviews, and the process is completed with the assignment of a position to the chosen candidacy.

On the basis of this process, there should only be minor adjustments made to DevX. Nevertheless, the temptation of the HR manager to “reverse” the established extended application process that allows for the management of applicants quickly leads to a problem: would this then lead to an increase in development costs? After another iteration (a series of exchanges between DevX and project managers), will the requested features be “useless”?

Thus, a few elements in particular are discussed but not retained:

- the enrichment made to the file of the candidate recruited for the job (managed in another existing system: different applications are used interchangeably in the management of the employees);
- the ability to publish offers, not only on the HR site of the company but also on job boards<sup>41</sup>: This proves to be too complex to carry out and requires an approach to these particular sites;
- the addition of a new stage for online applications selected by recruiters. This stage involves asking candidates to send a document via mail called a “standardized CV”: This return to printed messages, which had the advantage of creating files built and enriched according to internal “standards”, was also abandoned, in favor of enriching the electronic application form.

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41 Job boards are websites specialized in spreading job offers.

On the other hand, new features will be designed, again at the request of the project managers, allowing them to move towards a digital “office” of recruiters (with the possibility to record the time of the interview and reports from that interview), dealing with the particular case of spontaneous applications, of re-injecting “paper” applications into the system (via a form and digitization process – the latter of which will always be judged as imperfect, as the users believe the ideal procedure in this case would not require any action done by humans), to communicate to the directors and to each recruiter indicators of the flow and tasks (the number of replies to an offer, the number of CVs to be processed, negative applications selected, etc.). A “personalized” space will also be offered on the candidate interface: this will include a history of the positions sought, an update of their CVs, the option to indicate that they are no longer looking for a job, a password management system, and later, it will be integrated with a function for alerts on new offers).

Finally, the forms and the many “list areas” offered on the interfaces are enriched and backed with a production of various “repositories”, operating as an indexing of documents (CV and Post Offers) and events. The specifications are enriched with several pages, with toolkits that are generally rather extensive. They concern:

- the job offers: the status of the position to be filled (to be validated, publicized, suspended, filled) – the expected candidate profile (beginner, experienced) – localization (list of departments, regions, countries, continents) – level of training expected – the list of domains, professions at Moeva, etc.;

- the applications: education level – type of training – location – languages and language levels, etc.;

- management: list of HR users, subsidiaries, companies – list of tasks and events (convened, maintenance Tel, etc.) – List of typical e-mails to be used and data form for the preparation of selected mails, etc.

Essentially, at this stage, the work on the instrumentation of the employee’s practices would appear to reach its peak.

With regard to mobility, certain specifications are also expressed, though in a more marginal way: the same functional schools of thought are applied to external employees and candidates and they are applying at the time from

the same website. On the other hand, the back-office of the recruiter will distinguish between the two types of applications (the candidate is asked to specify whether he is an employee of the company). Ultimately, they opt for the strategy to attempt to apply a de-partitioning of mobility, through Moeva “Beta”, by bringing together and by sending out notifications directly to employees for the job offerings, without passing through a hierarchical validation. This is part of the policy direction of the management. However, this point will constantly be debated.

At the beginning of the second semester of 2001, Moeva “Beta” began making its first “receipts”<sup>42</sup> of deliveries (including the final validation of the features by the project management): We have already been delayed by a quarter compared to the deadline projected one year earlier.

#### **1.3.4. *What happens in a recruiter’s office?***

The design of the apparatus is based significantly on the perceptions and desires, the normative (and labile) worlds, of two HR professionals who form part of the project team, and take part in mediating it. They essentially become the spokesmen for their few other colleagues who will be the first to use Moeva. This produces a device that has yet to be optimized to reach its full potential, but is intended to be suitable for the most commonly-encountered situations.

Nevertheless, if someone were to go to the office of a Moeva worker to observe him work and to have a discussion with him, this tangled web of action programs described above would weaken, become more complex, coexisting with other scripts. “I’m used to doing it this way”, “Well, it depends”, “There are special cases”, “The processing of responses is done by two service employees, who have their own methods”, etc., this person would tell us. On his table, we see stacks of files with a written title designating the type of applications they contain. This classification differs somewhat from the “statutes” provided for in the application: there are “urgent” files, files “selected to invite”, “waiting for the opinions” of other colleagues, “applications recommended” by a third party (a senior manager, organizations or, by an acquaintance), etc. The latter in this case is “a

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42 The term “receipt” refers to a developmental phase where the conformity of the product with the expected specifications is verified. This phase is also called the acceptance test.

delicate issue in terms of adding into the future system, because it should not necessarily be known by all the users”. Against the walls are stacked piles of archived boxes with applications from the last year or more, and “there are also some in the corridor”. Furthermore, for those sent by mail: “I print them all out!” “That makes it easier to review them”. Indeed, we can see him doing this, quickly ranking all the applications (which are still quite different from the paper files) in his messages, and which – as you can see – does not allow for the attachments to be searched. “So, I print out the message and staple it to the CV, in order to know who it was that sent it to me and the message they sent”. Finally, there are the files with sensitive information, from employees who have responded to a mobility offer: “We need to ensure that their direct supervisor has given the employee authorization to change positions”.

In another office (on a much higher floor), a 50-year-old HRD describes his organization and practice, which reintroduces certain specifications in relation to the first one. For the time being, his biggest concern is to reassure himself about his future ability to use the Moeva system. We put ourselves in front of the screen, then we pick out a page at random: “When we get the hand that appears here on a text that is highlighted in blue, is this where we click?” We agreed, at his request, that this conversation would remain confidential, regarding the other participants in the project ...

These observations are a reminder that a digital script and an organizational script are merely limited models of practices, and if the adjustments made by each of these practices can pose various problems (delays in processing, a lack of coordination (among stakeholders, etc.), these are also conditions of the development of the uses and the efficiency of collectives. Taken as a constraint imposed on recruiters, the Moeva device has given itself the objective of working on the homogenization and standardization of work routines: this will only be the case for certain processes (the management of bids, the use of standardized answers), but it is likely that new workarounds would need to be used. Does an information system have the ability to capture all local and widely varying practices? The performative power of semiopolitics is always prone to washing up on the shores of subjective particularities<sup>43</sup>. It must contend with micropolitics and

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43 We should stress that the use of massive data, or “data mining” and the enormous potential of operations allowed by “big data” tend to make this relative failure uncertain, by reinforcing the power to capture and format specific data points.

diverging desires, while combining with the specific grammar of the interfaces and scripts that form its ordering (up to the risk of creating disorder). *Organizational micropolitics and “libinal economies” in the managerial world lie at the heart of the question of contemporary “Collective Equipment of Subjectivation”* [GUA 89]<sup>44</sup>: debates, conflicts, celebrations, tests, sanctions, alliances, etc., spring up from the processes of subjectivization within organizations, within digital apparatuses, processes that are facilitated or censored to varying degrees.

## 1.4. Extension and celebration

### 1.4.1. Going forward, even blindly

In September 2000, our team was hard at work, with the goal of creating an apparatus for two companies whose HR management processes were almost identical. But this led to the various different activities of the group, and the IPO of the group, which now expands to include four companies, being carried out during the summer. The director, who we met in 1999, became the Deputy General Director. The CEO of the group remained the same but a new president of Moeva was appointed. In its internal newspaper, this new organization was legitimized. “Moeva needed to offer a better readability of its activities. The strategy of refocusing over several years has clearly led to the emergence of two concentrations of skill sets, both of them being particularly dynamic: the environment and communication. In the sector of the environment, to strengthen our global leadership, we must now give our professions more coherence, autonomy and the means to develop”<sup>45</sup>. Moeva became the first global group in its activity area (public services delegated in the field of the environment). In this process, some

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44 This “collective equipment for subjectivization” may be of a religious, political, technical, artistic, or organizational nature, etc. While F. Guattari holds that subjectivity is currently devalued because of the control exercised by mechanisms of power, these also hold the possibilities for change. “Subjectivity is now controlled on a mass scale by devices of power and knowledge that put technical, scientific and artistic innovations to work toward the most backward aspects of social life. However, other mechanisms of subjective production – procedural and individualized mechanisms – are conceivable. These alternative forms of existential reappropriation and valuation can soon become the foundational principles of human communities and individuals who refuse to leave themselves at the mercy of the deadly entropy, characteristic of the period we are going through” [GUA 89].

45 Internal Magazine of the group, July 2000, annex 9.

point to a gradual movement towards disengagement that was initiated on the part of Jean-Marie Messier in relation to these activities (more discreet than on film or television). The CEO is reassuring: “Moeva’s stock prices are not a sign that its principal shareholder is losing interest”. Nevertheless, at the end of 2002, the Vivendi group sold off the entire environment branch.

Our project team navigated in sight and, it must be said, in the foggy areas within strategy, maintained by the leaders. The design that continued for several months remained focused on the initial perimeter. It was assumed that the basis for the needs and features would not be very different in a configuration that potentially widened the perimeter to two additional companies.

It was not until spring 2001 that HRConsult was asked to take an interest in the specifics of water and energy activities in order to create a new specification. The first developments made by DevX therefore had to be modified by taking into account new informational content, new repositories, and potential new expectations. At the same time, the last tests of a delivery carried out by DevX were completed by the project team. For the pilot of this project, it was a matter of valuing the developments already made with the new teams, of integrating them into the process, and to do this, he felt it was essential not “to arrive with a blank page”.

#### **1.4.2. *Making newcomers into allies***

At that point, we’d come across a lot of spokesmen. And they expressed themselves here and there by sketching an initial figure of application users that are HR managers, employees and people looking for jobs. With the extension of the perimeter and a “participatory” approach extended to other HR managers, we heard new voices (those of HR officials from other companies) who made their constraints “talk”, and this mixture informed the employees and candidates to a certain extent. By enlisting the requests of the place, we then exited the project manager’s office, to then occupy the open halls of other directions; we added seats around design tables “as large as a board of directors”. We entered into an environment of solemnity.

The landscape was prepared: the main leaders of the new activities were previously contacted, or met face to face with the project manager and HRConsult. In reality, the process required using a certain art of diplomacy



to manage the apparatus, anticipating the frustrations that may arise (everyone could already own a management system or envision leading such a project), and reassuring and convincing them that the issues were relevant.

With the inter-intranet manager now positioning himself as the project manager for the entire group, the objective was to unite the four activities – referred to, rather paradoxically, as “divisions” – into a collective design process. Here, it was important to consider another dimension, one that was very political, associated with this methodology: the Moeva project is one of the first HRM devices commonly used within the newly created group. For its senior executives, this was an opportunity to meet the HRDs from the various subsidiaries, and a perfect opportunity to “bring the other directors in line”.

Three project meetings took place between June 2001 and March 2002: at these project meetings, officials from all the activity areas and various subsidiaries were present, about twenty people in total, who at this time represented about one hundred of the users of HR functions. HRConsult played a special role in project engineering: it was both the guarantor and rapporteur of development with the assistant director of the group, co-editor of specifications and tester like other members of the project team. This mediation was a characteristic dimension of the missions intended to assist the project managers: the challenge in this case to facilitate dialogue between a digital technology provider and the company. This was a two-way process: from IT engineers to HR managers, from HR to DevX (explanation of user needs and managerial issues that computer scientists cannot understand):

““An actant can only gain strength by associating with others”. So he speaks on their behalf. Why don’t they speak with their own voice? Because they don’t have one; because they are made to be silent; because, by making too much noise, their voices cannot be heard when they all talk together. Someone interprets for them and speaks in their place. But then, who is it that is speaking? Them, or it? Translation is treason. If an actant is challenged on his faithfulness, he shows that he does not say anything other than what was meant by the others. The demands of the forces, without any other purpose than that provisional one, that an alliance built on weaknesses may impose” [LAT 84].

By reinforcing the role of some spokespersons by the number of actors involved, by operating by selecting/filtering, extending the perimeter of the entities and actions targeted, we had another aspect of the geopolitics of the actants and the foundation of scripts that was expressed.

### **1.4.3. *The first debates***

“Why do it?” What is the purpose of engaging individually and collectively in such a project? A “manufacturing of consent”<sup>46</sup> initially took place here, beginning from frequent reminders (by the project leader or by members of the group themselves) of “higher interests”: if “engaging” had meaning for an individual whose mission was to recruit and support the motivation of employees, this HR manager could hardly oppose a project with the issue of “human resources development” and the enhancement of the “intercultural wealth” of the company. As a result, the first questions related to two other dimensions. The first was organizational and managerial: “Before it thinks about the technology”, the company must take advantage of it to rethink the problems related to the valuation of its professions (wage policies), the assistance with the mobility of the employees and the internal rules that govern it. In the “off-the-record” conversations (in the hallway), some of them indicated that they didn’t “recognize” themselves in the formation of a new identity group, driven by a holding with no connections, of the terrain, the “big bosses up there somewhere” who thought for the “workers on the ground”, who are too far away from these bosses and their concrete concerns to know and understand their daily problems in a relevant way.

Faced with this confusion, there were some that confronted it with optimism – but not all participants shared this judgement. These introductions (which, since these “meta” constraints are necessary, imposed on everyone, are sterile) must be terminated, and progress made to the second axis of discussion developed by the new members the team: with regard to the constraints imposed by the Moeva device, what were the gains that each actor was able to obtain from it?

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46 See this issue of the “manufacture of consent” in the work of N. Chomsky, M. Foucault and F. Lordship.

At this point, we entered into a sequence that would be repeated many times over: the presentation of the features, their justification, and the collection of the requirements. There was always some kind of project meeting coming up, bringing into play material recording, managed according to a meeting agenda that was generally respected. The key actants here were the specifications, the description of the databases (repositories), the “demo” (the state of the developments made by DevX and the Web pages with editorial content), and retro-planning.

The features described in the specifications were commented on according to their state of development. The strategic and organizational issues, as well as the basis on which the features are put in place, were not negotiable, but given a degree of leeway, and were open to the participants. In this sense, the process of interest [AKR 88]<sup>47</sup> was based on the presentation of a sufficiently wide space of evolutions and enrichments, such that everyone could express their desires. However, by accepting the other constraint of a collective agreement, they were therefore obliged to negotiate and to reach a consensus.

The different rules and standards used, programmed within the device and directly related to their professional practices, applied to the data: what information should be collected on the candidate (i.e. the design of the electronic “CV” form), on the status of his file (in process, unselected, reply addressed, convening, hiring, etc.)? What automated information processes should be provided for (the multiple *workflows* used to update the recruiter’s dashboard, the candidate’s information, the hierarchies in the case of an employee who is a candidate for mobility, etc.)? What toolkits should be established, and what data should be used in the search engine?

It was, therefore, a question of designing a common grammar within the profession of HR, and codifying the various processes involved: the sequences of the process and the various data associated with it are an activity script. Moeva made these scripts part of its interfaces and programs, it put their practices into its contract. This “contract” was embodied in the principle of sharing information, a unique specification file, but also, later, by the training devices and other user manuals that would be produced. The strategic aim of standardization of the various management processes

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47 The incentive model was proposed against the dual model of the diffusion of innovation (an actor who designs, a passive user) in [AKR 88].

between disparate entities was gradually carried out, and in the process, given the reflexive exercise required (on its recruitment, mobility management), Moeva offered a potential for transformation of scripts and business routines that had previously been prevalent. Nevertheless, it became clear that this was more complex, and that the “technique”, despite its performative power, would often break down when faced with the local practices that each HR actor deployed.

Given the magnitude of the work to be done and the necessary mobilization of HRs to the supervising intermediaries on the sensitive subject of the mobility of employees, the fact was that the effort must be made in the short term on the website, and therefore on the external communication.

In the long run, where was the interest for future users of Moeva? This was recalled in the specifications and illustrated by the outcomes of the developments that have already been made. There are three areas that would seem to be the main cause of membership.

From an economic point of view: the extension of a direct communication without passing through recruiting firms, paying portals for job offers or the press; the possibility of lightening the administrative load of CVs on paper, a “task without added value” and that requires significant time resources for the people who have the responsibility. However, the argument from management is based only on relatively uncertain assumptions: “We will always need the big firms to advise us”, “We need to keep getting press coverage”. At the level of skills management: the potential of a “pool” of candidates to be used by the various activities; a release for the hierarchical mediations for a better distribution of internal offers to collaborators (although conflicts related to this rule are explicitly provided for). Finally, the external attractiveness of the group, by demonstrating innovation in digital issues, demonstrating its ability to be a provider of jobs essential to the French economy, by deploying a common “HR offer” (in this case, it is the editorial content of the site that takes this role) positioning it at the same level of companies judged to be the most ambitious in the matter (whether competing or not).

The prospect of these gains would appear to replace the many constraints that would affect users: it acted at the very heart of the acceptability test. The collective agreement seemed to hold, but remained fragile. Indeed, these

project meetings were characterized by many debates, and over the years, the same ones that were believed to be closed tended to re-emerge (in particular, as the uses of Moeva developed, and during version changes).

#### **1.4.4. Self-glorification: setting the stage for September 2001**

In September, version 1 of Moeva was no longer accessible by the candidates, but training for HR users had already taken place (this would be another occasion for other recommendations to be suggested). The project team sought to achieve a goal of being adopted by eighty HR managers within four to five months, and in the process, spreading to a wider level of deployment: nearly a thousand were possibly affected. These formations allowed them to initiate the process of job offering postings, a condition *sine qua none* for the launch: the volume of these offers therefore needed to be sufficient, because this would make it a Moeva in which one could find only a few dozen positions for a group that, as we recall, employs a hundred thousand people in France.

We left the center of Paris to head for the city's suburbs, but the buildings all shone with the glow of success, new, massive, and gleaming in an immaculate white. The room was imposing: The announcement of the launch of Moeva 1 was well worth its event hall, and three hundred managers had come not only from everywhere in France, but also from other countries where the company was located. The event was called "The Annual HR Convention". The event was important, given that it presented the structuring policies and strategies developed by the general management for the entire company, unified under one identity. The digital apparatus entered into the program between the announcement of the launch of the business savings plan and the new European governance of social dialogue! It was given twenty minutes. The general manager of the group (and of the coffee shop two years earlier) gave the presentation. Here are some extracts:

"An expression of the synergies existing within Moeva, the group's human resources website would be accessible as of November 2001".

"The Internet and intranet sites are one of the first concrete demonstrations of our synergies. They were made in

collaboration with you, the HR managers from our different professions”.

“Intended for external candidates, its goal is to present our ambitions in terms of human resources policy as well as the positions to be filled within the group”.

“Recruiting involves an initial presentation. By designing a joint communication for all recruitment audiences, Moeva offers a coherent and attractive image of the employer that will reinforce its reputation and success with the candidates”.

“This project demonstrates the effectiveness of collaborations and the intercultural richness of Moeva”.

The order words are characteristic of organizational enunciation arrangements. They are well-known and clearly defined performativity processes. This type of utterance is only based on its pragmatic implications<sup>48</sup> and we can consider at least three of them: the on-the-spot introduction of individual participation in a new organization that has just “taken shape”; the simultaneous execution of the word of order and the intensity of the desire (in this case, one of narcissism) which is then acted on; the promise of a professional efficiency that brings into play the abilities of the leaders, the project managers, but also that of the users themselves (since the design mechanism is collective, each of them can have a share of the responsibility that may arise from any possible successes or failures).

The future developments concerned this time were announced, and firstly, the applications dedicated to the employees of the group in France: this V2 was also presented as their first commonly shared information system. The choice of the narrative and staging was no longer considered classic in business practices, and offered a new example of the way these elements could be considered. However, the successive versions of the device benefited from a much more “confidential” communication of its launch. At this point, the players in our scene at the Belmont believed that

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48 For the order words, see the set: “Postulats de la linguistique”, Part 1, in [DEL 80] and the reference to Jean-Pierre Faye on totalitarian languages. We go back to these points in the analysis of the performance processes.

their strategy was a success, and that the follow up would be more than following up on to tactical variances.

Thus, the end of this period involved the presentation of a celebratory narrative within the same performative device, with the collective and reflexive message taken over the course of activity (the experience of the project device) and a semiopolitics of interfaces. This phase showed the interlacing of performativity processes in the production of the digital devices in organization, given that these having presented themselves as tests where networks of extremely diverse actants were brought together. The disturbances continued, intensifying and stretching as they went.

## **1.5. Years of continuous developments and testing**

We now return to a long phase characterized by many debates, a multitude of adjustments, constituting of just as many new events for Moeva.

New actors came into play: seven “administrators” were appointed at the beginning of 2002. Led by the project manager (assigned to the headquarters), these administrators, who were also daily users of the application, represented the four activities of the group and the major affiliates of the group. They were given the task of creating the list of users of their companies in the application, assigning them rights (management of applications according to their area, the creation-modification of form letters, etc.), advising them throughout their practice and also ensuring the proper application of the rules of the processing (in particular, the practice of the “compulsory qualification” of all applications).

### ***1.5.1. The intranet mobility takes over the transformation of the modes of cooperation***

The specific category of actors who are external candidates was not integrated through studies, but presented an ideal as a “projected” entity of the process, typified and embodied in the form of an application, transformed into a stream of data. Starting in January 2002, the regular points consulted on the website were made by the HR manager in charge of changes to the functionality (5,901 candidate files were available by March 2002). This objective of the “candidate” category supported the legitimacy

of the project and increased the visibility of the map of the external audiences defined in this way by the company.

The second “target” category consisted of employees: version 2 of the device referred to the design of an intranet intended to energize professional mobility within the group.

This version was the concrete application of the project of intranet mobility that had been formulated in the first year, but as it was more complex to achieve on a political and managerial level, its implementation was only carried out after the first version for external candidates was made. On the technical level, the intranet site dedicated to the employees of the group offers “dynamic” features (based on databases) identical to the external site: searches for offers, application submissions, the ability to subscribe to offers (based on job criteria chosen by the candidate, with automatic receipt via a workflow of an email with an offer corresponding to the candidate’s choice), with an update of that applicant’s candidacy. In addition, this time, the category of “internal candidates” was mobilized within the design process: collaborators from the group were interviewed on their perceptions of the mobility process and on their experiences in the field, with this phase responding more to a communications objective than to a study of the experiences of employees. Thus, the testimonials were distributed on the site as successful mobility models. The proposed features were the product of a scheme that interconnects the logic of the collaborators and the logic of the human resources managers, in which the following were conceived: a specific form for this target and a workflow designed to perform the process of the processing of a mobility request. New rules are communicated through a “mobility map”,<sup>49</sup> among other methods, which formalizes the internal standard of a mobility process and commitments between three groups (employee, starting entity, and host entity). Indeed, the technical apparatus upset the usual procedures; it was necessary to define the new mechanisms resulting from the “de-compartmentalization” of the information and the collaborations now required between the HR teams of the different divisions: Job offers were accessible without the employee having recourse to his supervisor, HR managers received applications from employees belonging to entities with which they had previously little exchange, etc. As the development of mobility gradually began to assert itself as a strong policy enacted by the HRD group, the term Moeva quickly

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49 Mobility Map of the Vivendi Environnement group.



became the “umbrella brand” of the entire digital device dedicated to human resources in the group. The digital device then took charge of the transformation of local practices, which nevertheless continued an endless cycle of adjustments, and questioning of the politico-technical scripts imposed.

### **1.5.2. *Third identity and access policies***

In 2003, in a break from what had been announced by the CEO during the formation of the new firm and its strategy of aggregating all its subsidiaries, Vivendi disengaged from its “environment activities”. With a new leader, the group then strived to build a distinctive identity of its own around the delegated public services (including a change of its logo and name: the company became “Veolia Environnement”). The three web sites constituting the Moeva apparatus underwent their third evolutionary shift since the project had been initially devised. The management of digital developments and coordination returned to the HR project manager, recruited at the end of 2001. The public relations agency HRConsult then played a strategic advisory role and involved itself more in editorial production and less in the dimensions of testing and functionality. As applications for developments were enriched throughout the year 2002, Moeva ultimately did not want to be put online until the first quarter of 2003: this involved the design of an internal communication plan targeted at the HR network and at the collaborators. As with the external recruitment site, regular consultation points were created. An intense negotiating session had also taken place in order to define the access policy for Moeva: was it be necessary to make the site available through the group’s intranet, or to design an extranet (a site secured through personal codes) allowing all employees to access Moeva from their home? The first option was contradictory to the project’s ambition, as only 20% of the group’s employees actually had access to the intranet within the company. The HRD then requested the firm HRConsult to carry out a short survey on the practices of organizations in this field (consisting of a comparison with other groups, and reviews of the press conducted on enterprises & careers)<sup>50</sup>. The extranet solution had the arbitration in its favor, considering the problem of internal connection, but also because it was a completely new strategic opportunity. In fact in 2001,

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50 A weekly publication in the French press geared toward professionals in human resources management.

Vivendi CEO Jean-Marie Messier launched a plan to equip all the company's employees with access to digital technology. Computers were provided almost free of charge. The only constraint was the start-up screen: the Vizzavi portal, marketed by Vivendi Universal, and presenting "home" commercial offers (at the time, Vivendi's workforce totaled to more than 300,000 people, the same number of users as these online services). Within the continuity of an approach promoting accessibility to information technologies, Moeva was thus launched on the Internet, since the company had seen an increase in the number of personal devices possessed by its employees.

As for the HR teams, they were given access to a "recruiting application" that was also made available through an extranet to solve the problem of access to the unevenly deployed intranet of the group. Training for users and HR was organized on a regular basis, not only to "update" the knowledge of the older employees, but also to echo a strategy for integrating new HR managers from newly-owned subsidiaries affiliated with the group used by the human resources department at the headquarters.

### ***1.5.3. In search of external recognition***

The functional changes continued endlessly, and resulted in the launch of a version 3 in 2005; their creation arose from trained administrators and users. In order to further understand the relevance of these requests, a study of the practices was called for in 2004, but this was not carried out before 2006. Also noting a fairly large number of messages sent by the employees using Moeva to the attention of the webmaster (the HR project manager), a usage guide for the site was written and sent to them. In 2004, the cross-intranet manager would implement various "publicization" actions of the Moeva case on external media. Based on an interview with the manager, an article from the website "Le Journal du Net" ran in March 2004, with the title "Veolia Environnement recruits on the net". In this way, it was echoed by the structural specificities of Veolia ("a very decentralized organization") and the disparate practices developed in the subsidiaries in the field of recruitment tools: "the problem is that each subsidiary develops and uses its own management tools". The issue expressed here was one of homogenization and the image given to the candidates: "to give the candidates a feeling that they have truly become integrated into a large group and not just in a regional entity". The manager justified the technological

choice made in 2000 based on the budget and, “above all, because it is a solution created for and by recruiters”. Secondly, the Veolia representative referred to the methodology of the project (working groups, the solicitation of a consultancy agency) and the launching of Moeva on the Internet (the representative refers to the Messier plan for the equipment of the collaborators). Finally, the weakness of the evaluation and the monitoring of the processes (the statistical module was not created until 2006) were highlighted by the journalist. But, in response, the Veolia representative stated that “during the demonstration, the recruiters understood the tool right away”. The difficulties of the project and the many debates that flared up within the day-to-day activities of Moeva for several years were completely erased. But somehow, magically, it all worked.

At the same time, the company entered Moeva to the “Intranet Award” contest organized by the magazine *Entreprises & Carrières* (Enterprise & Careers). This “price” practice in the professional world was characteristic of another performativity process based in this case on self-reference [LUH 90, 11]<sup>51</sup> and which we will go further to describe as a process of “experiential performance”.

#### **1.5.4. “Villepin’s 100 days”**

In 2006, an extensive operation was launched, with the goal of recruiting three thousand people in France for positions involving so-called “industry” professions (bus drivers, technicians, etc.)<sup>52</sup>. These recruitments were carried out either externally or internally (through a mobility process). This was

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51 Following after N. Luhmann, this leads us to observe how the systems produce their own models of action [LUH 90, 11].

52 It is rather astonishing to see that some major groups in France, both public and private, perpetuate this choice of vocabulary to describe the different categories of employees. The terms designating the first levels in a hierarchy (which in fact include the majority of employees) such as “exploitation” or “execution” (terms used respectively in the RATP – the Paris transportation authority – and the SNCF – the public operator of rail transport in France) are very far from the idea of a “non-hierarchical” organization whose “collaborators” would all be managers, actors, pro-active members, a perspective that has run through the messages of management since the 1990s, the construction of which was described extensively by [BOL 99].

echoed by the press in many articles<sup>53</sup>. This path forward was the result of a thinly veiled request from the prime minister, made to the largest companies in France: to set the wheels in motion to create employment in less than three months, and to make sure everybody knew about it. This was referred to as “Villepin’s 100 days”. And here is how the issue was presented in the nightly news:

“David Pujadas: ‘Let’s return to the details of it a little bit.’ There’s just one point to make: you have not made any commitment in quantifiable terms. Last week, we heard you talk about 100 days, 100 days to change the economic climate. Is that a goal you’ve now abandoned?”

Dominique de Villepin: ‘I did say that. No, not at all. 100 days to recreate the conditions of trust, that is to say, to set in motion all the apparatuses that will enable us, day after day, week after week, to do a better job. That’s what I said, I’m a pragmatist. I want to create a situation where hiring clicks into place, I want to recreate trust, and I am convinced that from there, we will recreate jobs in our country’”<sup>54</sup>.

At the plenary meetings (with nearly 25 participants), everyone was aware that the 3,000 recruitments would correspond largely to internal mobility or jobs that had already planned to be created before the Prime minister’s announcement. “The 100 Days” stirred up additional tensions within the project group: how could they respond to this political directive within a short period, persuading the teams that this was not a forced coordination between the agenda of the company and the agenda of the government, and convincing them that this was a rational action by Moeva, focusing on recruiting using apprenticeships (branded as “Moeva Compétences”, or “Moeva Skills”) and not an act of political maneuvering

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53 “Veolia Environnement has placed its bets on training, recruiting three thousand young people using apprenticeships or professionalization contracts. This decision came following a change of course in the group’s strategy, with Veolia wishing to target the large industrial market, while up to that point the company had been focused on municipal contracts. These agreements allowed it to negotiate on several HR areas. These included training at Veolia Environnement; support for external mobility at Tokheim, Air France, or SFR; employment for senior Citizens at Areva and Alstom”, *Entreprises & Carrières*, no. 827, October 10, 2005.

54 Excerpt from a dialogue between David Pujadas, host of the evening newscast of the channel France 2 and former French Prime Minister Dominique de Villepin (in office from May 2005 to May 2007), accessed December 15, 2015, available at: <http://discours.vie-publique.fr/notices/053001900.html>.

by the government? Indeed, how could they interpret the presence at these long-running meetings of an observer, a specialist in political communications and a communications adviser, very highly regarded by the French political (and economic) elite<sup>55</sup>?

In the company, the apparatus was based on investing heavily on freshly appointed regional HR delegates, dispatched throughout France and representing each of the four areas of activity (now known as Veolia Eau, Veolia Énergie, Veolia Transport, Veolia Propreté). A great deal of operations for communications “events” were organized in dozens of cities in France: buses were equipped with computer stations to welcome job applicants; a logistical system for connections was designed (including a satellite connection, at a time when urban WiFi did not yet exist); the press and local elected officials were invited (who, as we recall, would themselves be the first customers of the company Moeva). During this period (the 100 days), the president of the Republic himself (Jacques Chirac) – a close friend of the CEO – honored them with a visit to one of the group’s training centers [LES 15].

This operation required adaptations to the application and the creation of features and a new site in advance, formalized by the drafting of a specification, which was therefore committed to, and already shows indications of what would later become version 4 (an opening projected for 2007).

This phase was characterized by a confrontation between two coalitions. On one side were the ICT representatives (now affiliated with the Information Systems Department) and the digital editors, who called for, at a minimum, modifications to the application and its functional relevance with regard to the requirements of the Movea Compétences operation. On the other side were the leaders of the operation and the project managers, who defended the need for new developments in the applications, bringing in the end users of that application as their allies: “The tool was made for them”; “I’m working on behalf of my users”. Taking into account several requests for changes that were still “overdue”, including those both related and unrelated to Movea Compétences, it defended the transition to a fourth version. Moreover, since 2004, the relations between it and the publisher have deteriorated considerably, as evidenced by delivery delays and frequent

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55 A few years later, she had taken another position as a communications advisor for DSK.

technical problems (these problems are not recognized by the other opposing camp). Arbitration (between these two sides) was done through a director of human resources, the consulting firm, and the policy officer of the operation: they proposed carrying out a study on user practices. The study and the conclusions to be made would therefore be the deciding factors on the extent of the developments to be achieved and the legitimacy of a new version. The methodology chosen was based on observations of practices and interviews: some 30 situations of usage were analyzed. The conclusions of the study highlight requests for changes and technical dysfunctions, but also reveal significant organizational issues. The areas that are actually brought up relate to the challenges of work practices, the acquisition of user skills (a lack of training and information), the constraints associated with the device and, finally, the meaning given to the large-scale deployment of the Moeva system (an overview of the criticisms is presented in section 1.6.2).

### **1.5.5. Conflicts and paths of rationalities**

Looking back to the very beginning, back at the cafe at the Belmont, the structural changes of the organization put its political legitimacy toward the digital project: it was an issue of aligning the objective of integrating the identities of the multinational firm and the objective of standardizing human resources practices in the field of recruitment and mobility management. The upper management, by contrast, was seeking a mechanism that would allow it both to respond to this demand for incarnation through a process of semiopolitics, and to issues of efficiency. But, as it turned out, *the desires of management would gradually shift toward the second plan*. The group's leaders were not interested in the potential gains associated with the automation of certain tasks (such as managing flows and transferring CV recordings in the database of the candidates themselves), sharing the information between HR teams at different companies (which may explain the relative lack of interest in the practices and the feedback of the experiences at other organizations). The argument by management was only made to better serve the political argument, and while the first of these proved to be weak, the commonly-shared greater interest was thought to be powerful enough to be called upon.

In all the exchanges, including in the interactions between management, the consulting firm and the head of communications the political element remains: the leader needed to remove the structure in autonomous

subdivisions, which had been prevalent until then, to set up a network structure which implied, first of all, a de-compartmentalization and coordination between the business units, and secondly, a level of control reinforced by the integration of decentralized sites with a single digital system:

““The Human resources Intranet forms part of a strategic commitment to foster internal mobility”. It must promote internal behaviors in line with the objectives of the Human Resources Department. Currently, the mobility approach depends mainly on the direct hierarchy (compulsory validation) and is carried out in a very informal and ad-hoc manner (between regions). The incentive device and the material accompaniment seem to have improved. The behaviour of the remaining team seems to be marked by a very strong autonomy of actions”<sup>56</sup>.

The design of a “generic” and integrated commercial offer of all the activities of the group<sup>57</sup> implied, in particular, that the management of human resources must be carried out in this new frame of reference.

On the other hand, communications to field users was based on functional legitimation and on a principle of accountability (a respect for commitments, objectives). The contents of the communication were based on the solicitations of a professional agreement and the excellence of HR practices: “HR officials are responsible for providing the needs in terms of the skills of the entities they are responsible for”<sup>58</sup>. This was the rationale for the Moeva apparatus. In 2000, the human resources intranet enabled “the development of geographical and functional mobility by promoting the transparency of the internal market through the spreading of job opportunities”; raising awareness of the benefits of mobility; responding to a strategic recruitment need; publicizing the training offers that are a pre-requisite for the possibilities for change; offering a dynamic work tool; creating a medium for information, exchanges and the sharing of values between the different

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56 Minutes of the Project Meeting, Human Resources Intranet, July 2000.

57 The availability of Moeva worldwide was built starting in 2002 but initiated as early as 2001: it involves, for example, providing services to an industrialist, waste treatment services, water, cleaning, energy equipment, etc.

58 Intranet mobility specifications, July 2000.

subsidiaries of the group”<sup>59</sup>. These multiple challenges were functionally retranslated into the specifications of the information system, which must allow for the following:

- “– to provide vacancies for the employees of their entities and of the group as a whole;
- actively identify employees with a profile corresponding to their needs, and likely to be candidates. This identification can be done from the pool of candidates established by the application management software;
- to have access to a collection of practical information and a space of exchange with all the professionals playing an HR role”<sup>60</sup>.

An echo was also made in terms of the employees of the group, for whom the technical apparatus must be able to “satisfy their desire for individual advancement”; express these wishes; inform them of the opportunities that exist in their company and in the group as a whole; provide access to practical information that is part of a logic of forming close ties with the HRD of the group”<sup>61</sup>.

The permanent availability of the Moeva Intranet at all times and in all places (and thus of the job offers) became, after certain fears that non-employees would enter into the system reached a tipping point, a decision with a large amount of political content and the mobilization of “markers”, slogans of what was at the time associated with the “e-organization”, became explicit: in particular the concepts of “transparency”, of equality, of “hierarchization” (the process of mobility without one’s hierarchical superior becoming aware), of extended access, of informational efficiency. Once again, the vocabulary used exemplified the order words associated with the digital production of the organization.

The Moeva project may constitute an exemplary case of the manipulation of the technical object for purposes that are not merely functional or

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59 Minutes of the Project Meeting, Human Resources Intranet, July 2000.

60 *Ibid.*

61 Specifications file, July 2000.



managerial, but above all, political. But we can see how these two levels are inextricably blended together. Moreover, it is also a question of not demonstrating the ignorance of these ends by the internal teams: the HR managers of the various companies are sufficiently lucid about the underlying organizational issues of the project and it is not uncommon that in the project meetings, greater demands would be made on managerial policies and the means to optimize mobility flows than on the technical specificities of the intranet<sup>62</sup>. This argument may also be an expression of a questioning of the purpose and relevance of the de-compartmentalization sought by management. With regard to the effort required to transform their practices and routines, what interest does each HR actor have in integrating the system? And, on a more radical level, can the intranet be the single answer to the management problems faced? These are questions that come up at working sessions, and not criticisms expressed in the plenary, because they are perceived as risky (that is, they would be likely to rouse suspicion from higher-ups about the commitment of anyone who would have the audacity to express these questions).

The exploitation of this theme made by some opponents of the project allows for doubts to remain and makes use of a known problem in digital projects: the current inclination of leadership for the formulation of an expression of needs in terms of technical solutions. In our case, the “maneuver” is the result of a clear desire of the management: for the intranet to be one of the solutions to the organizational problem. The project and its overall functional characteristics are therefore not negotiable, but the adaptation of areas of application inconceivable and left to the discretion of the HR network to be agreed upon. The posture of the management is no longer classical in its strategy: it is a question of giving its subordinates the possibility to decide the *modus operandi*, while maintaining the illusion of having control over the entire apparatus. This brings to mind the notion of a “strategic coup”, as described by T.C. Schelling:

“A strategic move is one that influences the other person’s choice, in a manner favorable to one’s self, by affecting the other person’s expectations on how one’s self will behave. One constrains the partner’s choice by constraining one’s own behavior. The object is to set up for one’s self and communicate

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62 In this way, the wage policies, the accompanying modalities and the political rules governing the mobility within the group are convened in the debate.

persuasively to the other player a mode of behavior (including conditional responses to the other's behavior) that leaves the other a simple maximization problem whose solution for him is the optimum for one's self, and to destroy the other's ability to do the same" [SCH 60].

We completed this survey at the end of the year 2007. The director, who had been at the Belmont a few years earlier, left the group to raise cattle in La Creuse (the last CEO of the group became EDF's CEO). The next trial will be for the project manager: the new director of Human Resources asks him for a "PowerPoint" presentation with three slides to understand the Moeva digital apparatus, its purpose, and its uses (no need to give an extensive history of the past eight years).

## **1.6. The designation and description of the scripts**

### **1.6.1. *Scripts put to the test of professional criticism***

"Characters in the script dispatch roles, appointments, performances in a space and time trajectory which is also going to produce novelty but not of the same kind as that of the story" [LAT 95].

First, the criticism of the political and strategic model of Moeva fed on a regular questioning of the initial aims of the device, namely the economic integration of the various subsidiaries, translated by a semiotic and technical integration. The message regarding the efficiency and the sharing of an "intercultural" wealth is opposed by a forced inclusion in the system (and thus, in the new organization) and the loss of autonomy.

At the same time, as the decentralization of the management of information (the reversion of tasks on the premise), also puts in place a system of direct control or delegation of the practices (via application administrators designated by subsidiaries) and the tacit evaluation of users (headquarters seizes the opportunity for traceability offered by the tool). The so-called *reporting* features (the user dashboard) are seen by some as having initially been intended as monitoring tools. At the same time, some of the HR managers regret the loss of control over the processes of mobility: the

access that favored the job opportunities “without screening” by higher ups (deciding on the employees concerned, communicating the offers selected by these employees) opens a loophole in bureaucratic power. For others, on the contrary, the ambitions of management and the resulting application do not mark a fundamental break with the prevailing business routines: maintaining, in the process of processing the mobility of automating workflows, the information of the supervising manager when an employee positions himself for an offer, for an example.

The confrontation could be summed up as an opposition between the neo-managerial model, valuing the role played by an employee who is a manager of his skills, and his career, and a rational/legal model of mobility within a company.

Political criticism is rarely openly expressed. Instead of the actions of flare-ups, the network of users prefers a soft consensus and functional criticism to the disputes over the strategy. Thus, several arguments weaken the managerial script tending to equate the rationalization of processes and the creation of values (time, resources, relevance) with business practices. The operational gains announced would not act as a trial of strength and, instead of offering greater efficiency, the application now assimilates to a time-consuming process, not compensated by any qualitative leap forward.

Below is the interface for entering recruitment and reporting: it is a question of declaring, through a specific interface, the movements resulting from external recruitments and internal mobility, integrating periods of training. The process involves: the recording of a job offer (34 criteria or text information fields); the possible manual registration of the candidate file (if the applicant has not applied via the sites); the registration of 23 criteria qualifying recruitment and referring to so-called “strategic” reporting data.

A target of these critiques, some interface actants present themselves as victims in a privileged position: the repositories presented in the form of a Web “list area” (Figure 1.1), the lists of files to be analyzed and incessantly enriched with a continuous flow of new files, the indications of “to be processed” on the files, the reporting forms on recruitment actions (Figure 1.2) ... all this translates (being described and re-described) as a permanent need for tedious tasks to be carried out, and as a reduction of the autonomy of the professions, as a lack of knowledge of the “realities on the ground” (a critique that could be quite political, and current, at one of the company’s sites and of

its executives). The critique of technology is always a critique of the script within which it is included. But, while some seize on technology to denounce this “industrialization of HR processes” without too much “practical” meaning, others, on the contrary, demand that it be intensified: they formulate the proposal of another script that would be characterized by “more automation” of treatments (automatic replies to candidates, integrated matching as soon as an offer is made, the removal of the steps of “human” analysis).

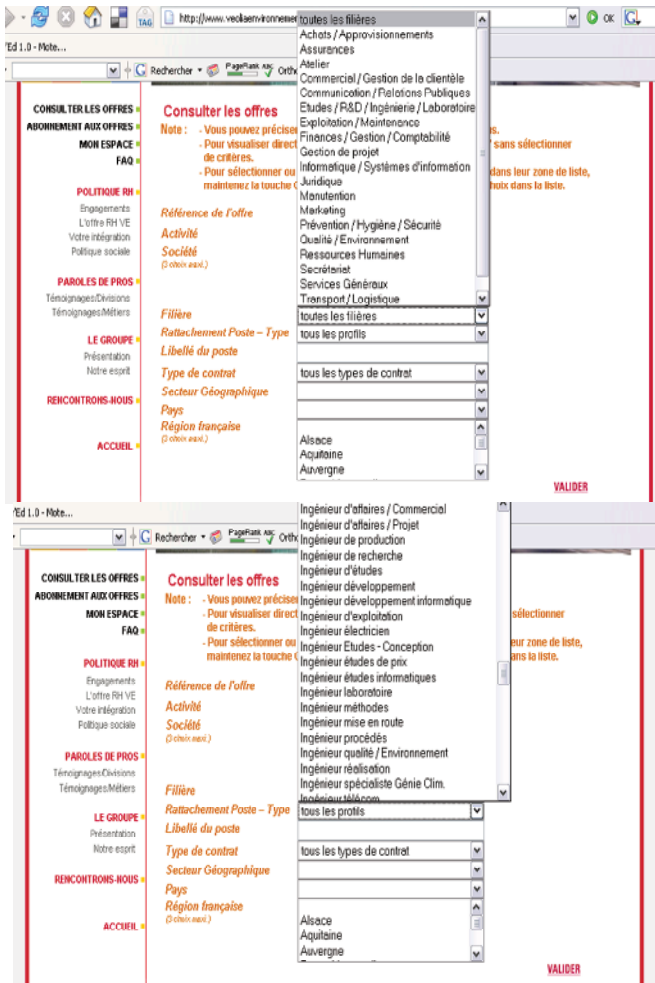


Figure 1.1. The frameworks and standard positions of the Moeva case

1. A partir de la fiche candidat (\*), sélectionnez l'état de candidature « **RECRUTE VEC** »
2. Activez la commande « **QUALIFICATION** »

### QUALIFICATION

NOTE : Les champs à renseigner obligatoirement sont indiqués par

Etat de la candidature :

Orig. Candidat Intense :

Orig. Candidat externe :

0110847

3. Le formulaire de recrutement Veolia Compétences s'affiche
4. Complétez les champs obligatoires spécifiques à Veolia Compétences  
(si le recrutement est associé à une référence d'offre diffusée certains critères sont complétés automatiquement)
5. Validez

Veuillez sélectionner l'état de candidature "Recrute VEC" compléter les informations suivantes

Type de recrutement  Recrutement Vécio Compétences  Oui  Non

Origine de candidat

Date de l'inscription

Reference de l'offre

Classe de l'offre ?  Oui  Non

Filière

Libelle poste

Type de diplôme

Libelle de la formation

Type de contrat dans la formation

Passer obligatoire  s'agir  handicap

UAE

Prise de la formation

Organisme de formation

Nom de l'établissement

Code postal

Motif de recrutement  Création  Remplacement  Autre

Statut

Obligatoire régionale  Obligation CDF

Article

Secteur

Localisation

Zone internationale

Pays

**Figure 1.2.** *The reporting interface of recruitment actions*

Finally, the socio-cognitive dimension that complements the tangled web of criticism is essentially traced back to the tension that constitutes the sharing of information. A new standard, defined in version 1 and which will continue until version 3, establishes the information regarding what is known as the pool of applications as a “common good”. However, this can only be relevant if each recruiter considers that he must process all the CVs received in response to an offer (in electronic or paper form), since these may potentially be of interest to other users of the “base” (in reference to the candidate database). This rule implies, for example, that a recruiter for bus drivers would be required to process the application of an engineer (for

example, to qualify the candidate as a “pooled” resource)<sup>63</sup>. This also induces (until version 3) that all spontaneous applications received by mail must be recorded in the database. As a last resort, the requirement for pooling will be imposed by the functional constraints of the tool. The logical consequence we can find of this is an overload of work. The change in recruiter practice that takes place is accompanied by a relative perplexity as to the gains that could be derived from this pooling of resources. With the goal of clearing up these doubts, the communications media (including the training guide from which the following quotation was issued), highlighted the strengths of the recruiting intranet:

“The recruiter application is intended to optimize the search for applications, to facilitate the management of recruitment and the distribution of offers. With a shared database, you will be able to search for candidates from within the pool of applications of the entire group. This database will be decentralized: each recruiter in the group will be able to manage their own applications and administer them. This application offers you many features designed to develop relationships with potential candidates”<sup>64</sup>.

But two years after it was put in place, the pool appeared to be under-utilized, and the spontaneous applications received by mail would only be recorded in a systematic manner. This requirement disappears from the policy of the deputy head from 2003. Similarly, the constraint imposed by the tool used to qualify all spontaneous electronic applications upstream would be removed: this type of flow will be managed automatically and integrated into the pool without any special treatment (i.e. a reading of the CV and a response from the HRD) being required.

In addition, a specific feature has been put in place: the “booking” of candidates. In contradiction with the objective of capitalization of knowledge that had previously been acquired, it was this area in which a recruiter could regain some control over the resources he wished to share, or not to share, in terms of what the application will make visible or not. Lacking in the standard configuration of the editor, this feature was created in an ad hoc manner. As a sign of a continuing restlessness and the

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63 A qualified candidate (classified within a pool) is usable by all users.

64 Training Guide version 1, December 2001.

instability of the scripts, two years later, this restriction of the consultation and operation of the files would be abolished and replaced by a “notification”. Here, the change was justified by the adverse effect of “reservations”: recruiters would keep files “on reserve” (or they would “forget” to disable this function) for several months, which made it impossible to share them with other users, or to process a mobility request end to end, and to do a precise analysis of the flow<sup>65</sup>. The principle of notification overrides the simple delivery of information to a workflow of processes, leading to an overly bureaucratic logic. It was deemed preferable to value virtuous behaviors (which some users demand).

More broadly, these different debates express the challenges of reflexivity, an issue at the heart of the policy of interfaces. This is an issue of positioning oneself in relation to the practices of colleagues, placing information and local data within a larger set while maintaining the ability to control what can be shared, in terms of what I myself see about others and on what others see about me. The isomorphism between the areas of visibility and the organizational structure, the hierarchy, and the distribution of powers, having become very political, is subject to various discussions as illustrated by a multitude of user reflections. On the indexation of a job offer and the publication rights: “Should we partition it up to the company level?” or should we “default the activity logo and, using a checkbox, allow the possibility to activate the display of the company logo?” On the management of users: “We propose to offer the possibility to create a user solely within the scope of the activity of the administrator” and “the only events to be seen should be the ones that I created for the candidate, the events of colleagues

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65 This is reminiscent of what [STA 10] observed in terms of collaborative practices and maintaining informal areas as conditions of use. “[...] groupware and other technologies of the same type were built as technical infrastructures for assistance to the members of an organization by linking the physical, temporal, and functional domains. The experience with groupware suggests that highly structured collaborative applications will not be able to integrate with local work practices

[RUH 96]. On the contrary, long-term experimentation has led to the emergence of a complex web of applications and inventories, combined with pockets of knowledge and locally-available skill sets. These systems begin to become more and more common to formal infrastructures and create a unique, ever-evolving hybrid. This development is facilitated by that which, in its formal structure, helps to redefine roles at the local level and the emergence of communities of practice at the intersection of particular technologies and types of problems. These observations call for research on the evolution infrastructure over time and how a planned, “formal” structure merges (or doesn't merge) with an “informal” structure arising at the local level”.

do not interest me”. In relation to the recruiting office, the training manual states “after the identification, the application displays a home screen, allowing the user to obtain a personalized analysis of the management of applications and offers”. On the objectivity of the flows and work activities by the traces made available digitally in this manner: “Someone can transfer an application to me and I can see the comments made by other recruiters. Anyone can see the comments made by other recruiters, and some things have shocked me; we all must have professional ethics! Only those who are involved in the applications should be able to access the comments. There are some things that are not to be shared, even between HR members”<sup>66</sup>.

As we will see for other cases presented in this book, the setting of the areas of opacity and transparency is a key characteristic of the techno-politics of the digital aspect of organization. It is not only a condition for the modes of cooperation, but of the operation of the organization itself, namely its metastability. The scripts, as a whole, operate on the systems in metastable equilibrium<sup>67</sup>. The tensions that run through the design, the friction between its clashing scripts, and the local adjustments that characterize it, offer the organization a capacity to continue its movements of adaptation, reinvention, and even innovation (even the hardest conflicts can reflect this metastable nature, with the exception, in some cases, of the closure of the company, and thus a new state of stability).

### ***1.6.2. Naming and distinguishing scripts***

At the beginning of this chapter (see section 3.1 as well), we asked a number of questions about the designation of scripts, how to qualify them,

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66 Interview, survey 2006.

67 Metastability: a system is in “metastable” equilibrium when certain variations can cause a breakage, a transformation of the equilibrium. Death is a stable state (no longer open to any possible transformation). A collective (for example, a company) is in a metastable state: various variations and tensions (even minute ones) run through it, which are the condition by which it is perpetuated, the condition of its change into other systems that are themselves meta-stable. According to G. Simondon, “In all domains, the most stable state is a state of death; a degraded state from which no transformation is possible without the intervention of energy from outside degraded system” [SIM 89]. And the comments by D. Dekiss: “A stable state is a state that is not susceptible to change, except through an external impulse” [DEK 04].



and we suggested different possibilities: through the subject of mediation (computer codes, speeches, etc.) that they borrow, through their spokesperson or principal delegate, by the intensity of the force it carries, by what they do... in the end, these events are encountered in situations that have given us the salient elements to begin to distinguish them from each other. Among these events, we find processes described by Akrich, though the analysis grid of these processes forms only one side of the possible analysis.

The sociology of innovation has stressed the need to take into account the object in the action and the foreshadowing of a user immediately involved, associated with the design of the techniques. On the one hand, according to Akrich, presuppositions are part of the technical object, and are translated into the interfaces (the first movement of the script), and in the developments which the designer postulates that they will agree on, that they are the most suitable for general conditions of future use and certain conventional *subscriptions*<sup>68</sup> (the necessary use of electric current by an electronic device, for example). Different developments, strategic models and other tips can be aggregated into several scripts designed by the publisher of a software solution, all of which join with other professional statements (the second movement of the script). On the other hand, the designer continues to repeat this action incessantly, going back and forth between it, the technical object, the user, the object in the situation and drawing, in the end, the form of the interaction – the coupling that could operate. M. Akrich, in the sense he intends, proposes “a script, a scenario which is intended to be a predetermination of the stagings that users are called upon to imagine from the technical device and the prescriptions (notices, contracts, advice, etc.) that accompany it” [AKR 87]. The managerial script often comes in the form of a legitimizing narrative, with a performative vocation. The rationale for the project that the organization gives itself can be the following:

“The recruiter application is intended to optimize the search for applications, to facilitate the management of recruitment and

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68 According to Madeleine Akrich, an innovator may consider that the destination environment of the technical object already bears the markings that define its relationship with its future environment; these prerequisites, it goes without saying, are subscriptions. “By adhering to the scenario proposed by the apparatus, the user, in a broad sense, subscribes to a number of prerequisites which emerge from his sole responsibility” [AKR 91].

the distribution of offers. With a shared database, you will be able to search for candidates from within the pool of applications of the entire group. This database will be decentralized: each recruiter in the group will be able to manage their own applications and administer them. This application offers you many features designed to develop relationships with potential candidates”<sup>69</sup>.

However, users may not know this presentation and these prescriptions beforehand. It is, therefore, once faced with the interfaces that the user operates the different possible descriptions in the sense of Akrich. This movement of *de-description* corresponds to a phase of interactions in action, in which the meanings of the use (the third movement of the scripts) are updated. During this movement, some possibilities other than those provided for by the initial script will be explored. On the basis of the usage it carries out and its critical analysis, our employee, when obliged to interact with Moeva, creates a description, moves and updates the “generic” or managerial script that has been proposed (designed by the project group and the publisher of the application) but also its activity script put in place, that lives alongside a business script. The use of the concept of “profession” refers to two phenomena: the willingness of project managers to take on the practices and expertise that each employee may claim (with an ongoing struggle to determine who is the rightful holder of “business knowledge”).

Regarding the Moeva digital device, *de-description* (which is done by both the project group and the target user network) is quite easy to learn, and this is learned from anxieties and criticisms expressed during design and after the production of various volumes<sup>70</sup>. The arguments arise both as what fuels the creation of a script and as traces of the updating/activating of the scripts in which the individuals confront each other. In our case, negotiations and criticism focus on three main dimensions: the business model and the standardization of processes, the socio-cognitive dimensions and the modes of cooperation, the politico-managerial and strategic model.

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69 Training Guide version 1, December 2001.

70 This approach, used by the tests of the processes of the *de-description* must be completed by the analysis in situation of the practices, or also of the different traces of practices and data related to it.

	Managerial Scripts	Interface Scripts	Business and Activity Scripts (users)
Politico-strategic dimensions	Efficiency of strategy and communication (scale gains), operational efficiency and economic gains by the federation of entities.	<ul style="list-style-type: none"> <li>– Information system commonly shared with all recruiters</li> <li>– Reporting and tracking tools for practices</li> <li>– Extranet, meaning less hierarchical filtering for employees</li> <li>– Management of opacity/transparency by setting the data status</li> </ul>	<ul style="list-style-type: none"> <li>– Forced Inclusion of entities</li> <li>– Loss of autonomy</li> <li>– Loss of control over the hierarchical chain of internal mobility (extranet for employees) or, on the contrary, critical of too much of a response on the information-mastering routines that were previously prevalent</li> </ul>
Procedural Dimensions	Optimization of information flows (time and density) through the streamlining and standardization of processes	<ul style="list-style-type: none"> <li>– Automated management of flows and alerts for workflows</li> <li>– Shared and obligatory data repositories</li> </ul>	<ul style="list-style-type: none"> <li>– Claims of singularities</li> <li>– Work overload</li> <li>– Request for more automation</li> <li>– Maintenance of pre-existing practices (paper return)</li> <li>– Request for an emphasis on the delegation of tasks within the tool by mass-scale treatment</li> </ul>
Socio-cognitives dimensions	Creating value for decisions through resource sharing, storage shared on a mass level, and access to new information resources (knowledge)	<ul style="list-style-type: none"> <li>– Meta-model of practices</li> <li>– Structured databases</li> <li>– Automated and manual features of flows and data indexing</li> </ul>	<ul style="list-style-type: none"> <li>– The need for control over its local resources (conditions of visibility and indexing shared)</li> <li>– Weakness of the means of exploration in the data</li> <li>– Instead of cooperation, the placement into cooptation</li> </ul>

**Table 1.1. Scripts and criticisms of the Moeva apparatus (simplified model)**

Table 1.1 shows these three arguments or dimensions described in the case of Moeva, from the confrontation between the managerial scripts (involving the main logical assumptions and causalities that characterize them) with the criticism of the users who present themselves as both business scripts and activities. Managerial scripts are not overhanging “mega-scripts”. Managerial scripts (associated with the project group) and business scripts (associated with the activities of users and their perception of “their profession”) coexist. The scripts of interfaces appear as their preferred mode of movement. The tensions that express themselves are the trace and the updating of the scripts.

So now we have a list of the scripts that we have provided here from the words of order outlined by the project management for managerial scripts, major digital processing for interface scripts and the main criticisms by users of the business/activity scripts. It goes without saying that we can determine a direct duality in the activity script as seen by the project management on the one hand, and by the users on the other hand. In summary, we thus observe at least three areas of the test that act between them and in which they can also be confrontations or alliances.

A script is always incomplete in relation to the situation it is seeking to format, since carrying it out implies an active participation of the user and other entities, conditions, with which it is connected and which its designer cannot fully foresee [AKR 98] or know. This incompleteness results in a tension between a world inscribed by the designers in the object and a world described by its displacement:

“It is in this context that we have to agree on the meaning of the description that we propose, such as the identification and analysis of the mechanisms that allow this connection between a form and a meaning that (and who) is the technical object” [AKR 87].

For example, an information system for a business (as is the case with a car, a telephone, etc.) is based on a proposed script for use made to an employee from a prefiguration by the designers of a process of work and associated tasks, assumptions about the aspirations and motivations of uses, inserting them into an enlarged framework that will take into account, in an essentially piecemeal manner, the characteristics unique to the situation of

usage (temporal elements, places of consultation, postures etc.), individual capacities (instrumental and cognitive skills), technical constraints (server power, program interoperability, etc.), and managerial and economic constraints (expressed by one or several companies), normative or regulatory imperatives (which format organizational processes), etc. This incompleteness also determines, in the first instance, the existence of creative areas and adaptive workarounds.

The technical object thus presents itself as a mediation and a system of connections between heterogeneous actants, following more or less long networks, and it is in this unified relationship between the situations and the material constraints, between the worlds of designers and users, that the differentiation of socio-technical couplings occurs.

It is the network between the different scripts, as well as the forces that are associated with them, that will describe the configuration we are dealing with more precisely.

The list of scripts can be filled in as follows:

- *interface scripts* affiliated with applications, their semiotics, programs, algorithms, information architecture;
- *scripts of situated activities* associated with routines, courses of action, unique practices of a technical object, and modes of interaction between employees;
- *profession scripts* associated with the institutional and professional standards of each trade or that the particular collective is given;
- *editor scripts* associated with the proposal, not only commercial but also to the functional and technical proposal of the IT developer;
- *managerial scripts* associated with the organizational and practice model defended by the departments and project managers;
- *projects scripts* associated with the engineering project: methods, distribution of roles and tasks, timetable, steps, deliverables, determination and updating of the results, etc.;
- *theoretical and theoretico-doxical scripts* associated with academic knowledge (which can be found in the training of decision-makers) and the worlds of professional narratives, external prescribers, consultants, associations, trainers ... and opinions;
- *regulatory scripts* associated with laws, business or collective, national or international regulations, applicable to companies and their digital apparatuses.

**Box 1.1. Different families of socio-technical scripts**

Each category of scripts brings with them special forces and mediations, specific vehicles they make use of to move around. For us, the interfaces take a separate place in these configurations, since they have the ability to link the different scripts, to ensure the passage between scripts. They are conditioned by the cooperation of the categories and allow the updating of the materials that are distributed, spread out within other scripts.

## 1.7. Models

### 1.7.1. *Cycles and dynamics*

The problem with a table (see Table 1.1) is that it presents materials in an essentialistic manner; it freezes positions and oppositions. Those things we do not yet see with full accuracy are precisely the phenomena described by the empirical approach, and among them, the reciprocal passages (passes) between managerial scripts and the business scripts, but also the passages between dimensions and their transformations. Indeed, and to complete the perspective of M. Akrich, we consider that the movement of scripting (scripts) is inseparable from the movement of descriptions: the work of the project group (the managerial script) carries out a decoding (de-script) of a business practice that it will then overwrite (in-script) with an action model, and whose interfaces will mediate, with the target users then decoding this second element, and bringing it into a relationship (at the time of a reflexive moment) with the singular script of their own practice, which in turn disrupts the collective script proposed by the management or the project group in charge of the design.

In addition, the perspective of Akrich reverts to a narrative version of the script, which is defined in part, certainly by its effects, but which is no longer immanent to the organization and which acts in a separate way, following a classical dualism: subject/object, human/non-human. These are the “relationships”, influences with one another that should be thought through more extensively beforehand.

This leads us not only to abandon the linear modeling of design processes for information systems (including the now-standard V-model) but to also offset ourselves in relation to other proposals that have integrated the logical processes of updating – confrontation in a short circuit (in agile methods, the

integration of the user from the outset of the process), but also to offer another view of the “Vortex model” of the sociology of innovation<sup>71</sup>.

This metaphor that we propose here, based on a sine wave, has several interesting points.

It allows for us to consider the combinations of different forces on the same design cycle and to think about the question of asynchronicities in the different movements that characterize the manufacturing of a digital apparatus. The variables selected in this way are:

- the magnitude of pressure exerted by a force;
- the time and pace, the moments of interventions of such an individual actant or of such a phenomenon, as well as the cutoffs and restarts of a cycle.

It commits us to thinking about the successive movements of scripting and descriptions (their recordings) according to their reports on speed and slowness, a temporal shift, a movement of scripts (which one could imagine moving like vibrations on a rope).

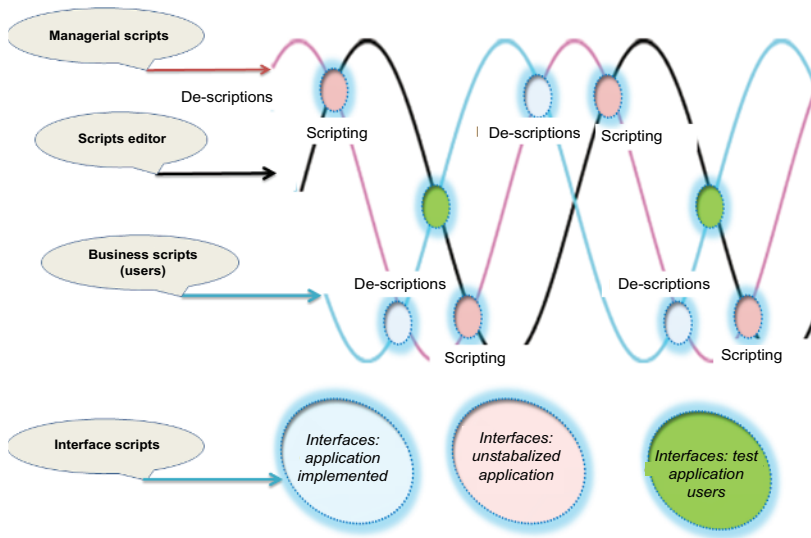
The lines of force are lines of scripts, and they intersect, respond, and oscillate at the pace of the discussions, technical developments, and practices.

In the following figure (Figure 1.3), the bubbles on the left side are the names of possible script lines:

- the scripts provided by the project group (interaction between the scenario of strategic action posed by management, standardized activity patterns, and the rules defined by the project management cooperating with the few members representing user networks);
- the scripts proposed by the editor and the various technical constraints;
- the unique scripts attached to situations and professions (user perspectives).

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71 In [AKR 88], innovation is described as a process following iterative loops, integrating all actors from the outset, a search for compromise and interest. Each ring corresponds to a “pass” and socio-technical transformations.



**Figure 1.3.** Sine wave model of the dynamics of in-scripting/de-scripting of Moeva

Each crossing gives rise to a new state of the interface: at each of these nodes, the scripts of the interface give us a form, and the semiotics redistribute and relaunch other scripts.

Each node can correspond to a particular moment of a technical confrontation: the application is in the process of design or significant change (first node iA), therefore in the phase of translation/programming of scripts (in-scripting in the features and semiotics), for example, carried out by the collaborative work between the publisher and the project group; the application enters the test phase (node iB), a phase characterized in particular by the interactions of the user/publisher/project group that then negotiate the description of the activity model (which is more or less appropriate); the application is put into production (IC node), which means that it is accessible by all recipient users. The interface carries out a mediation before a possible new phase of negotiations and in-scripting/de-scripting is resumed.

In this example, the lines of forces have the same amplitude (symmetry with respect to the x-axis), but it goes without saying that one could vary the



degree of intensity as time progresses, or add new strengths, new groups (of actants) (with scripts fed mainly by legal constraints, for example).

In the sine wave model, the question of asynchronicity, and more generally, that of the differentiation of time, of paces and rhythms, that is of diachronization, is essential. As B. Stiegler points out for organizations and institutions, we see each of these social systems “formed by specific tendencies that instantiate the dynamics of synchronization and diachronization. [...] Each new stage of instilling introduces new synchronization processes, that is new meta-stabilization regimes” [STI 10a]<sup>72</sup>. We also touch on one of the fundamental aspects of the semiopolitics of interfaces.

We still need to go through one more step. According to B. Latour [LAT 12], to report on the course of action means to describe the movement “by which passionate interests and scripts are linked”; the description is then nothing more “than simply the bending of the scripts”.

This implies specifying which of the actants allow these “passes” and the mediations that take place: the local “prescriptions” of a higher-level manager or a colleague; a meeting; a specification or even, for example, as seen in the case of Moeva, a prime minister (with the tour de force here being to create a relationship, within the same script, between the pace of CV processing by a recruiter in Rennes with a discussion in Paris on the settings for automatic alerts and the success of “Villepin’s 100 days”).

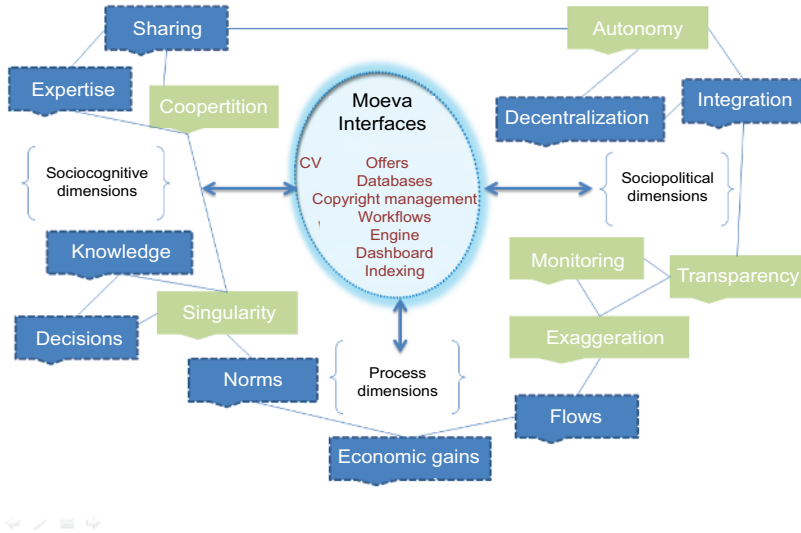
The description of the Moeva years allowed us to account for a course of action specific to business practices and to situations of the design of a digital apparatus, but also to unfold these scripts that are immanent to the organization.

In support of information and observations on the ground, a second modeling of the relationship between the entities of a script can be presented as follows (Figure 1.4). This script is presented here in the form of semiotic-semantic relations, that is, each actor conceives, in its argument and

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72 At the social level, which is the level of the organizations and institutions of the collective individualization, the meta-stabilizing tendencies for the synchronization, a condition of the unity of the social level as a whole, work both for and against the tendencies toward diachronization, which constantly jostle with these meta-stabilized structures through collective individualization [...] [STI 10a, STI 10b].

its actions, a system of relationships between narratives and words of order, the routines of professional actions and a catalogue of functionalities, technical information (the catalogue shown in the central bubble “Moeva Interfaces”).



**Figure 1.4.** Example of relationships within an assembly of scripts

The labels in blue (e.g. “Norms”) refer more to the managerial script-linking features (which can be put to use in the argument to support or criticize the apparatus), the reasons for the application to exist (such as gains) and the execution conditions (such as the changes to internal standards). The labels in green correspond to the semantic register of the criticism: this script can be the emanation of the course of action of a user during which he is in a situation to treat the daily alerts presented on his dashboard (Workflows indicating the delays in its processing). He thus considers that he is in a situation of a work overload (he is suffering from the flow of CV data) and monitoring his practices without compensating them in terms of access to more qualitative resources (he no longer has the time to study and identify the relevant files, thus making the idea of the capitalization of knowledge and better decision-making tangible). The name of his business script is no longer “recruiter”, but “CV indexer”.

The power of a critical script like this one seems to be very weak in the face of the overpowering nature of the introduction of the internet and digital solutions within organizations. In the case of Moeva, this resulted in a gradual distancing of the CV actant, which became very disruptive (it has outsourced its treatment and introduced more automation in the operating mode), in order to realign the tasks of a recruiter with a profession for “Creating Value”.

### **1.7.2. Other dynamics**

This survey examined an arrangement in the process of transforming and describing the manufacture of an organizational techno-politics. The scripts have proven to be a very dynamic and high-performativity process and as a source of disputes. Indeed, during a trial event (in the process of in-scripting and de-scripting) meeting there are at least two scripts that clash, and with them all the forces they are carrying. Studying the production of digital organization is akin to these conditions, to an “ethology of forces” similar to the Deleuzian school of thought as expressed by its heir, B. Latour [SAS 03]<sup>73</sup>.

The case of Moeva also described a set of phenomena that characterize the processes of establishing an organization on the basis of its digital projects:

- the construction of narratives at different levels of scale, their confrontation, their instability, and the differentiation between their status: managerial decrees, narratives, celebratory practices (from the first launch to the micro-celebrations that came with each new version), the prescriptions of the editor, questions from users, etc.;
- the need to link the “messages in the design process” with the many different modes of formalization of narratives, and among these modes, the “documentary” recordings and mediations (with specifications files and User Guides essentially being the consensual culminations of many disputes);
- scripts that travel from organization to organization: scripts are nomadic, and one of the vehicles they use is the application itself. This can be considered as a strength (since the models already selected by others are

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73 Any singularity calls for an “ethology of the forces”, a consideration of the environment that formed it, that made it appear as a “consequence”, an “effect” for the “system” [SAU 03].

returned to themselves, and these “others” can be considered exemplary) or sometimes (as in the posture held in some cases by our project leader), as an admission of a low level of capability to determine themselves. Therefore, what is needed is a hybridization of scripts: specific developments are added to a replication of the features and interfaces chosen by others, in other places;

- unstable forces and forcible reversals, that is, a transformation of the networks linked to each of the members (transformations of the links that leave from them and that connect back to them) and the internal relations within the scripts;

- “capture/modeling” operations on the courses of action, and thus the placement into scripts of a local practice, always done on a partial level: the scripts’ incompleteness is the basis for both their weakness and their strength, as well as their unique intensity;

- a design process characterized by asynchronous wavering between moments of in-scriptions (for example, scripts at project meetings, in the workbooks and in the application programs) and moments of de-scriptions that bring together the actants (project group or users) in the presence of each other, and the latest versions of the interfaces;

- fluctuating rationalities, antagonists, and models of economic efficiency are not always conclusive. Since we see the project being continually revived, we consider that the very condition for the meta-stability of the organization may be the act of moving forward, and doing so blindly to a certain extent.

As B. Latour says:

“To organize is not, cannot be, the opposite of disorganizing. To organize is to pick up, along the way and on the fly, scripts with staggered outcomes that are going to disorganize others. This disorganization is necessary, since the same beings must constantly attempt to juggle attributions that are, if not always contradictory, then at least distinct. Instead of anisotropy, it is heterotopy that wins out” [LAT 12].

Formatting systems are always in a state of tension brought on by the possibilities of closings and openings: creation and innovation can no doubt be carried out only against these constraints even by phenomena of

“resistances” (so decried by management), by the expression of relationships of forces that they will engender. We have shown how the scripts clashed, as did the different figures and rationales that were linked to it – and each time a script enters into play, we are dealing with a combined set of narratives, diagrams, or activity routines (with a specific location), desires and semiotics, with an *assemblage* of all these things<sup>74</sup>.

Each combination or fitting can lead to forces and coalitions of forces of nature and different scales (these are in fact different places, connected with each other). Sometimes, the power relationships seem to be on the side of the management/editors, sometimes on the side of the network of the business users and their representatives, and still other times on the side of the computer code and the functional constraints. In its arguments and actions, everyone designs a system of relationships between narratives and words of order, professional action routines and a catalog of technical features.

The various adaptations that the digital apparatus has seen are the result of the obligation to reach a compromise, the strength of certain arrangements, and the collective or individual strategies related thereto, the investment in the project by uniquely differentiated desires: the confrontation between the requirements of the tool (and of its interfaces) with the scripts for the activities of the professions, to the perceptions-subscriptions of the users, to the particular interpretations, make up the iterative formation of a new technical coupling, of the transductive relationship [SIM 89]<sup>75</sup> that is established here. If presenting this interaction, a director of information systems would likely want to remove the “user test”. In 2007, while the technical solution was actually going to be replaced by another one (as evidence of how thankless a task the creation of computer applications is; after barely completing a seven-year development cycle, they

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74 “The minimum real unit is not the word, the idea, the concept or the signifier but the *assemblage*. It is always an assemblage which produces utterances. Utterances do not have as their cause a subject which could act as subjects of enunciation, any more than they are related to subjects as subjects of utterance. The utterance is the product of an assemblage – which is always collective, which brings into play within us and outside us populations, multiplicities, territories, becomings, affects, events” [DEL 96].

75 Transduction is the operation by which a *one-by-one* action is “exercised” between elements that have already been structured and new elements. It is the “most primitive and most fundamental model of amplification.” “By transduction, we mean a physical, biological, mental, or social operation, by which an activity spreads from one agent to the next, within a domain” [SIM 89]. For a brief overview of the key concepts of Simondon G., see [DEB 04].

are promptly pushed aside for a new one), this manager indicated that the user was “a waste of time”. The functional standards, and thus, the semiotic scripts (imported from other client organizations in the interfaces and programs), had to become established, facing an overcrowded and heterogeneous collection of desires. According to this posture, the performance device of the business world would have already completed its work of “selection”, the identification of what is deemed appropriate, and thus had no need to go out and investigate on the ground. Thus, the most direct powers of performance may attempt to annihilate subjective spaces, but remain blind to all the “heterogeneity” that they will seize (despite this) in the scripts imported from other companies, and thus refreshed.

The forces that are performing constantly call for innovation, but the question is whether they open up socio-technical and professional outcomes.

The question of how multiplicities are written into “organizationally situated” scripts ultimately leads us to difficulties associated with this investigation, to difficulties which are in some respects the ones that may have been highlighted in some of the works of B. Latour on the ethnography of law and organization [LAT 12].

One of the first limits of the approach lies in the requirement in its methodology for the monitoring of actants and events which are able to be seen, without adding any events or any other information that would not have been revealed when these events occur. This has two important consequences: the focus on disputes and the absence of an exterior level. The analysis of the composition and the actions of the scripts have actually been strongly based on observations of salient events, such as the criticisms and battles between the members of the project, on the model of what could be described as “situated controversies” [LEM 07]<sup>76</sup>. Since the scripts become known primarily when they fail or when they are “dissonant” [STA 10]<sup>77</sup> or also when the forces they associate with are few in number, what happens

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76 The classic characterization of controversies, for example by C. Lemieux (which is not exclusively scientific or technical) could be compared to the specificities of organizational conflicts [LEM 07].

77 “An infrastructure that is invisible when it works, becomes visible when it fails: a server crashes, a bridge collapses, the electricity is cut off. Even when there are emergency mechanisms or procedures, their existence only highlights the infrastructure that has become visible” [STA 10].

with the others? The ones that don't make themselves understood who would appear to have met all the necessary conditions of happiness, and would have no need to be made to be understood. However, would it be necessary for us to remove them from the survey, and how do we come upon them? Some scripts can sometimes run through our routines or have enough consensus to "shut us up", while others may still require the researcher to live with the actants outside of the situation set out for the inquiry!

In describing the organization that is being done, we therefore seem to require more than the recording of the tests during "passes": there is no passage here, of the movement of a folder, such as in the Council of State studied by B. Latour, although the specifications of Moeva and its different versions may have common traits (with even a "fetishism"<sup>78</sup> at certain times in the Moeva process, but the contractually binding document was quickly neglected). We must follow in the footsteps of a multitude of people who stretch the network of observable things far beyond the corridors of Veolia Environnement and its partners. Admittedly, the orthodoxy of pragmatic sociology<sup>79</sup> might raise an objection against us here, asserting that this would be the responsibility of the invisible or "weak" entities, for they are seldom summoned in the course of experience by the actants, and therefore have no scientific interest: this is the landscape on which the "sifting" of the facts is carried out, which gives rise to observable differences. However, would we be able to exclude groups such as the councils and the professional associations from the organizational arrangement, which some members of the project group belong to, and which they hardly ever mention in this experience? Should we even go so far as to find out what they read and look up their background in training?

More generally, investigating other places and long networks does not appear to be unnecessary.

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78 In "The Manufacturing of the Law", Latour describes a veritable fetishizing of the files (papers) that are manipulated, traced, indexed, taken from a continuum, marked with stamps, and each action is performed internally ("They are watched like milk on a stove top", p. 93), until they are published in the Lebon. All these manipulations are the passages that this sociologist describes as the subject of the law. "The judges do not reason, they hassle with *legal files that act on them*, that pressure them, that exert a force on them, which make them take one action or another". Nothing remains that would give the impression of any resistance, of anything, of any cause. "Nothing more material, more real" [LAT 04].

79 B. Latour prefers the notion of "empirical philosophy".

Another question relates to this particular regime of enunciation which makes up the organization, which, like the twelve regimes he describes in his *Anthropologie des modernes*, is according to the author, irreducible to others. Presented by Latour as the preferred language and grammar of this scheme, is the script so fundamentally original? Could the potential performing nature of the script, its ability to assign roles and aggregate heterogeneous forces, its ability to launch trajectories, etc., be able to be assigned to another enunciation regime such as the law<sup>80</sup>, science or religion, for example? Moreover, didn't he write in 2004, that the texts of the law “[...] allocate roles and functions, assign abilities, distribute authorities, create all parts of different entities, provide redress procedures, and so on, covering as many scripts as the myriad human interactions – which are still, somehow, below these scripts that give them their action plan, their road map? [LAT 04].

In addition, instead of a principle of the autonomy of the regimes in relation to the others, and as L. De Sutter and S. Gutwirth rightly note in their critique of the ethnography of the Council of State, we would then be in a situation in which the regimes interlace, and not merely in a situation of coexistence of these regimes.

We believe, on the contrary, that what this story demonstrates is that it is the nature of the law to belong to other enunciation regimes than its own – or at least to participate in them. [...] The law is has always responded to the shifts in modern demands: science, art, politics have always governed the way in which the law is said, they have always distorted the determinations of the game of accusations that had been its own” [DES 04].

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80 The production of the law is based on legal deeds, discussions, tests, instruments, and a regime of declarations. “Law engenders human beings, without it itself being made by them”. It belongs to the category of fetishes. “This regime of enunciation does what no other one does: it keeps track of all the disengagements, by tirelessly reattaching statements to the persons making them, through the perilous path of signatures, archives, texts, and files”. In fact, more than any other action, the signature reveals this very particular form taken by the law [LAT 04].