

De profundis? Deconstructing the concept of strategic alignment

Claudio U. Ciborra

University of Bologna

“Briefly, my case is this: I’ve completely lost the ability to think or speak coherently about anything...The abstract words which the tongue has to employ in order to express any kind of daily opinion decompose in my mouth like rotten mushrooms.”

Hugo von Hofmannstahl
- Letter to Lord Chandos (1902)

1. An introductory chronicle

1991 - The results of the MIT research program “Management in the 1990s” are published (Scott Morton 1991). Among them, a rudimentary framework, whereby information technology (IT) is regarded as a variable linked with others such as strategy, organization, culture...The diamond diagram gains widespread following in the profession.

1993 - A special issue of the IBM Systems Journal features a series of articles on the concept of “strategic alignment,” including the leading article by Henderson and Venkatraman (1993), who develop the idea, starting from their research within the Management in the 1990s project, thanks to a grant from the IBM Consulting Group. One of the papers, by Broadbent and Weill (1993), reports an empirical study on strategic

alignment in the Australian banking industry. The aim of the study is “to identify organizational practices that contribute to and enhance alignment.” After finding such practices, the authors come up with a model of strategic alignment based on 15 propositions, concluding that “enhancing business and information strategy alignment will remain a key challenge for both business and information managers in the future.”

Early 1994 - At a meeting in a fancy Californian resort the progress of the research program on strategic alignment is discussed among academics and consultants. Some concern is expressed about the current and future efforts to extend the original strategic alignment model: how to evaluate whether a firm is aligned or not, and how to measure it? Which measurement tool could be developed? Is there a scale to assess the overall strength of the alignment?

Sometime in 1995 - A manager at the IBM Consulting Group expresses, in private, doubts about the fact that the research programme will lead anywhere. Soon after, corporate funding is discontinued.

December 1996 - At the annual ICIS Conference in Cleveland, Broadbent, Weill *et al.* (1996) win the Best Paper Award with an empirical study on “Firm Context and Patterns of IT Infrastructure Capability”. Based on international case studies the authors show how IT infrastructure is critical to firm competitiveness. Their findings focus on “how firms link strategy and IT infrastructure formation process.”

Though the authors quote theirs and Henderson and Venkatraman’s 1993 papers, they never use the term strategic alignment in the whole article. At times,

they write about “integration” among IT and organization.

Several questions emerge from our sketchy chronicle above. To begin with, was the concept of strategic alignment a lemon, so that a research program is launched, but also quickly dismissed by both scholars and sponsors? But, then, why do leading researchers write papers, based on detailed empirical studies, that support the idea according to which this is a “key concept” for management when deploying IT to gain competitive advantage?

Or, even if the “new” concept was not very different from the elusive one of “strategic fit,” but since managers were not fully aware of it, was there a window of opportunity for research in order to create management awareness, fix the competency gap, and move on? So, today the problem would have been solved thanks to informed research and consulting. Then why do the same authors seem to shy away from the term “alignment” in their current material? After all, they are the academic and consulting heroes who disposed of that problem: it should be their trophy. Why rely on the thesaurus even when writing an award winning paper, in order to avoid using that very term?

These questions urge us to engage an inquiry pertaining to both the notion of strategic alignment in business and the business of conducting research, publishing, and in general doing “management science” according to the prevailing business school model.

Our reflections will suggest the following: while strategic alignment may be close to a truism conceptually, in the everyday business it is far from being implemented. Strategy ends up in “tinker-

ing” (Ciborra, 1994) and the IT infrastructure tends to “drift” (Ciborra 1996a). If alignment was supposed to be the ideal “bridge” connecting the two key variables, it must be admitted that such a conceptual bridge faces the perils of the concrete bridge always re-designed and never built between continental Italy and Sicily, (actually, between Scylla and Charybdis) its main problem being the shores: shifting and torn by small and big earthquakes.

Furthermore, a more attentive reflection on the phenomenon of alignment as emerging from the field, and not from the models, shows the strategic relevance of practices such as “care” (Heidegger 1962), “cultivation” (Dahlbom and Janelert 1996) and “hospitality.” Finally, there are characteristics of the IT infrastructure that do not rule out the possibility that “technology aligns management”. At the extreme, technology could be regarded as an actor in itself. Alignment as strategic alliance between humans and nohumans (Latour 1993) may be a better expression to portray the quest of a common, interplay space between them. Armed with such broader understanding, strategies of care, hospitality and cultivation would then make much more practical sense for management, than a sheer, commando-like “harnessing-IT” strategy.

Regarding the research program, one major question begs for our attention: what to say of a science that advances by “burning” issues, such as the one of strategic alignment? How? It deploys careful empirical research, claiming to identify “naturally occurring phenomena” (Bensaou and Venkatraman 1996), but in reality measures theoretical (and artificial) constructs, so that the messiness of eve-

ryday reality (e.g., there is no observable alignment, nor measurable fit, because strategy now is *de facto* bricolage, while the technology is mostly “out of control”) gets virtually hidden. Or, it builds models that should be basic but do not last a couple of years, and quickly fall into oblivion?

To anticipate, such a style of teaching, researching and consulting developed in the (US) business school environment, and acritically imported in most business schools across the globe, slowly empisons management thinking and practice: practitioners and academics increasingly worship simplified models that have a very short life cycle. And careers, research grants and education programs come to depend upon the continuous injections of such disposable models.

At the exclusion of thinking and reflection-in-action, who pays the final (human) price? Our customers. Once they leave the MBA or executive education classes, managers who have been exposed to such illusionary models, presented as the outcome of quasi scientific studies, are left alone and disarmed in front of the intricacies of real business processes and behaviors, which in the meantime have become even more complicated than when these managers left for their courses. People’s existence, carefully left out of the models, waits for them at their workplaces.

2. Beyond geometry: Strategic alignment unveiled

Strategic alignment was originally defined as concerning the inherently dynamic fit between external and internal

domains, such as the product/market, strategy, administrative structures, business processes and IT (Henderson and Venkatraman 1993). Economic performance is argued to be enhanced by finding the right fit between external positioning and internal arrangements (Chandler 1962). The scholars of the research program on strategic alignment claimed to draw a badly needed connecting line between strategy and IT master plans (usually formulated as an internal response to business strategy).

We have seen the trajectory of that research program. We submit that the need for (a different style of) research comes from at least two phenomena:

IT strategic plans have been around for years, and their link with the business strategy should have granted, though indirectly, some form of alignment. Often they have not, so there must be still an open problem; many cases of successful Strategic Information Systems seem to show that tinkering, not conscious alignment, was at the origin of (ex post) successfully aligned IT applications (Ciborra 1994).

Alignment, as a conceptual bridge, urges us to reflect on the true nature of its shores: management strategy and technology. The researchers of the original program took these concepts for granted. Alignment often does not obtain, and the relevant research programme collapsed, because those very concepts should not have been taken for granted, but as problematic. To wit, recent ethnographic research about new technology that should be highly integrated within large and sophisticated multinationals, hints at the fact that:

leadership is missing (Zuboff, 1996) and,

technology is drifting, as if out of control (Ciborra, 1996).

How come researchers give privilege to the geometry of the line connecting abstract concepts in a model, while remaining blind to the blurred connection that any, even “light,” ethnographic study would have presented them?

Here we encounter the general problem of the relationship between management models (and their geometric representations, with lines and boxes) and everyday phenomena concerning the existence of people at work.

We ask: what happens when we link the boxes of strategy, organization and IT on the “diamond diagram”? It changes our representation of the interdependencies between some key business variables. We obtain a new “geometrical” representation that materializes the idea of “alignment” in front of our eyes. Thanks to such a representation we can raise the awareness of managers, simply by showing them the diagram, as a reminder of what should be the new map with which to venture into the world of business.

We ask further: how do these (newly traced) geometrical lines translate into a new management performance?

This question is due to the fact that awareness and espoused theories are not enough to learn new behavior (Argyris and Schön 1996). Indeed, despite the research discovery and its translation into new management models, the news from the field is that alignment is not easy to implement, awareness does not suffice, and actually the two main poles of alignment, strategy and technology, are drifting apart for one reason or another.

A representation which does not work, which does not deliver as promised, provokes a breakdown; and through

this breakdown we (at last) encounter the world, possibly with different eyes (Dreyfus 1994). Indeed, the gray world of organizations, always there with its pasted-up sets of arrangements, people, machines, which are not aligned according to our models, reminds us of the following: When focusing on the geometrical representations of business variables and interdependences we tend to grant them essence & existence: it is an ideal, perfect world to which the “real” world has to conform. Thanks to a careful and rigorous research method, smart academic researchers discover the “objective” world, and then they extract the relevant models; effective managers steer the world towards the models, once they have learnt them.

We argue that precisely this belief is the source of breakdowns, deadlocks, and ultimately impotence.

Consider, for a moment, the inverse path: the messy world that we encounter daily, already there, largely outside our control and that we know by pre-scientific evidence and intuition, provides us with the raw materials for our abstract representations. We intentionally take the raw materials, we sanitize them, elicit (through some measurement method) a limited number of connections and we build models by fitting empirical data. However sophisticated, such models remain a de-worlded image of the organization. They are granted essence & existence in the world of abstractions. Outside that world they are simply not “indexed” by the same degree of reality as the “world-out-there.” Thus, for example, we have to admit that we can understand the very notion of alignment only thanks to our (tacit) knowledge of the messy world. But the reverse relation-

ship does not work: from the notion of alignment we cannot reconstruct, let alone intervene into, the everyday world of business.

We tend to apprehend and explain the world with the help of categories that claim to define it objectively as a set of given objects and relationships, existing in themselves and capable of being grasped by exact measurement methods. For example, alignment (or lack of) is out there, and we need to measure it more exactly, so that we will be then able to re-engineer it.

But, Husserl (1970) notes that first the “scientific view” of the world is one among many, the outcome of the practice of a subcommunity of specialists. Second, the world-out-there is the pre-condition for our understanding of such models and methods, and thus they presupposes it, while it is far from being presupposed by them.

Translated in our case, there is no pure alignment to be measured out there. It is on the contrary our pre-scientific understanding of and participating in the world of organizations that gives to the notion of alignment a shaky and ephemeral existence as an abstraction in our discourses and representations about the world.

We need to regard the geometrical models as a superstructure world, as outcomes of an idealization process. But in order to reach for the raw materials of what has been idealized, we need to go back to the foundation of the superstructure: the life-world and the immediate evidence of our lived experience.

If we pay attention to such available evidence from many cases of automation applied in various types of organizations (Ciborra 1996) we can argue that in the

world-out-there alignment does not obtain because strategy is not such a clear concept or practice, since due to various, turbulent and unpredictable circumstances, managers are busy muddling through, betting and tinkering. Furthermore, the use of the technology itself is characterized by improvisations of various sorts (Orlikowski 1996, Ciborra 1996a) and by many unexpected outcomes.

We are now in the position to explain the trajectory of the formerly promising research program on strategic alignment: those researchers made multiple abstractions out of the muddling through and drifting; idealized tinkering and called it strategy; idealized technology as a controllable set of means and called IT; granted to these concepts existence and essence, transformed them into boxes and traced a line between them. Then, they started the difficult journey back to the real world, and found difficulties in measuring “the strength of the line” or formulating prescriptions that would be followed by managers when tracing the line on the field of practice. They ingeniously provided more and more sophisticated representations of alignment, as more analytical and detailed maps for the actors to operate in the real world. To no avail: the higher conceptual detail remained confined to the world of idealized abstractions, but had little impact on the life worlds of business and organizations. The research wheel was turning on empty.

Consider, again, the alternative path. We go back to basic evidences, and encounter the world as it presents itself in our everyday experience. We rely on evidence, intuition and empathy. We listen to managers and we participate in their

dealings with puzzles and riddles, and we do not confer any particular relevance to words like “strategy,” “processes,” “data,” or “system.” In this way, putting into brackets the models of management science, we approach the everyday life of the manager, made of frustrations, accomplishments, gossips, confusion, bricolage, joy and desperation. We are more than discouraged: this is too close to the everyday world we live in! We turn to the door of management science to exit towards an objective and reified world, and we find it locked by our new methodological choice! We are stuck. Can we come up with any sense of this blurred reality and address some of the issues raised so far?

3. A new language

In this section we pursue our methodological turn and try to keep on “going back to the things themselves” (Husserl 1970). If we listen to the everyday conversations of managers we do hear the familiar terms of strategy, product/markets, and even alignment of systems and administrative structures. They can be interviewed on such topics, and some of their statements even lead to measures on a Likert scale. But, beyond their espoused views, we can observe phenomena such as: plans keep being diverted, surprises arise constantly, opportunistic adjustments must be carried out on the spur of the moment, so that planning is espoused while circumstances compel managers to improvise (Ciborra 1996b).

Also the implementation of the technology is punctuated by unexpected outcomes, turns that require frequent adaptations if not re-inventions of the initial

system (Rice and Rogers 1980, Bikson 1996, Mankin, Cohen and Bikson, 1996). We have called this phenomenon “technology drifting.”

At this point we are again confronted with a choice. Either we do what management science suggests, that is “to realize” these “surprises in implementation” as exceptions, build an ideal world of “how things should be” and try to operate so that the messy reality in which managers operate moves towards this idealized model (where surprises are absent or under control), or we suspend belief on what we think we know about strategy, structure, markets, feedback mechanisms etc. and reflect upon what we observe. Sticking to the latter tack, we encounter business phenomena that deeply enrich our geometric notion of alignment. Here is a primer.

3.1. *Care*

Henderson and Venkatraman (1993) note that seeking the fit between strategy and the other main business variables is a dynamic exercise. Our research shows that the driving force behind alignment in-action, as opposed on-paper, is a great amount of care taking performed by the various actors involved in the design, implementation and use of IT applications. What is striking is that there is nothing special, or geometrically sleek, in this caring: it is just familiarity, intimacy and continuous commitment from the initial needs analysis throughout constructing the system, training the users, introducing the system into practice, modifying it as new practice emerges, and so on. Care has itself a “structure” linked to how we are-in-the everyday world:

Care can be performed as intentional *perception*, a way of coping that deals

scientifically with natural, human and artificial “objects”. It is the domain where the new system, for example, is a “thing” (a drawing, an “object”, an “idea”) lying incongruously in front of our attention. Perception idealizes “things” by severing them from the context, the world where models, objects, ideas are usually immersed, so that it deals eventually with “unworlded” systems or objects. These are the outcome of abstraction, idealization and rationalization guided by intentional visions and plans. Perception proceeds by the rule of method (Husserl 1970). Care expresses itself in being able to develop concepts, variables, relations, explicit choice criteria and algorithms in order to design better business processes, regulate implementation processes, design structured systems, and so on. Typically, the results of the strategic alignment research programme have been at the level of perception: they are an instance of this (scientific) way of taking care of certain human and technical issues in organizations.

Recall, however, that there is a limit to the power of perception: it deals with sanitized, unworlded entities, that have not passed the test of being fully immersed in the world. They miss the chance of getting their hands dirty with the everyday practicalities of organization. Hence, the almost ubiquitous gap between the models and the blurred business world.

Getting closer to the world, we encounter *circumspection* as the form of concern that consists in practical problem solving and learning. It is the domain of “situated” implementation and use. Here, the “worldliness” of objects is not rejected through sanitization of the relevant context and situation, but gets

appreciated in action. While systems are in use their handiness is put to test, their friendliness is assessed, their fit with the workflow is monitored, their limits explored, etc. We cope with deficiencies and breakdowns, surprises and shifting effects. We learn how the organization reacts and evolves, how it improvises solutions in an opportunistic fashion (Orlikowski 1996). And we get our hands dirty to manage the process. The neat world of the scientific models is not at the center of attention anymore, rather it is the match to be achieved in vivo between the new systems and the unfolding work situation.

Finally, we have a form of taking care which is deep and invisible: *understanding*. It is the domain of “worlded” objects that naturally mingle with (are) the world. Understanding a system or a tool means becoming so intimately familiar with it, so that it disappears from our alert attention, and becomes taken for granted, that is appropriated into the routines of our daily absorbed coping. Technology can make so much sense in supporting our daily dealings, that it recedes in the background of our conscious, goal-oriented work behavior. Or, the systems are so “aligned” with the execution of our daily tasks that they disappear and become part of the world. So, paradoxically, the better we “understand” alignment, the less we will be able to represent it in our daily activities (it becomes embedded into our tacit knowledge).

This offers an important hint about a new approach to studying alignment: searching for the ways this concept is “drawn” into the flow of practice. We need to go back to the daily, commonsensical practices, while distancing ourselves from the drawing board, the stra-

tegic business desk and the geometrical models.

3.2. Hospitality

What calls us to align technology? First, the general coping with and understanding of the world. Second, alignment presupposes acceptance and hosting. To wit, detailed empirical research shows that, at least for the case of groupware (Ciborra 1996), technology can be both fragile and ambiguous. Fragility derives from the ubiquitous presence of substitutes at the automated workplace, usually tools which are better “understood.” So, often, new, compared to already existing applications appear to be incongruous, an obstacle in the work flow. They require a lot of circumspection and being worked at (or “work-arounds”) in order to be embedded in the workflow and deliver their potentials. They require an extra, subtle effort of acceptance. Second, new systems are complex, open, dynamic (Ciborra and Lanzara 1990). Because today’s platforms enable multiple usages, and since shifting in the practices of coping, use and re-invention occurs in response, they often lead to surprising outcomes. To be concrete: a groupware system designed to enhance transparency and knowledge sharing (Ciborra and Patriotta 1996) can instead raise fears among users of being a “Panopticon” for centralized control (Zuboff 1988). Technology is in motion in organizations, and it is highly ambiguous. Acceptance has to face ambiguity: coping becomes hospitality. On its turn, hospitality is an unstable way of coping with the stranger: it can suddenly turn into hostility. Thus, behind the technocratic idea of alignment, the phenomena from the field

make us encounter one of the oldest arts of mankind: hosting a stranger.

To be sure, if the technology were totally “disambiguated”, univocal in producing its effects and impacts, hosting would consist of straightforward adaptation and alignment. The latter is precisely the picture of the world of implementation as portrayed by structured information systems methodologies: systems are objects, knowledge is data, work is business process, and people are emotionless decision makers who have to align their preferences and adjust to the changes rationally planned for them. It is the “de-worlded” world of business re-engineering models, where designers, consultants and managers juggle around boxes and arrows to come up with solutions that optimize pre-selected performance criteria. The intricacies and uncertainties of hospitality, hostility and ambiguity are ruled out from such a de-worlded world of abstract organizations, but equally ruled out is the “organizingness” of everyday life as experienced by the members of the organization. It is precisely such “organizingness” that helps technology become integrated in the workflow, “aligned” and “understood.” Unfortunately “organizingness” cannot be represented geometrically: it is made by real world participants from absorbed coping, care, being there amidst ambiguity, intimacy, sporting hospitality as well as tamed hostility towards what the new and the unknown is disclosing.

3.3. *Cultivation*

The everyday intricacies of the relationship between strategy and technology, hidden by the falsely clear management science concepts, can also be captured by the notion of “cultivation,” especially

when one has to implement alignment. Itami and Numagami (1992) see cultivation as the dynamic interaction between current strategy and future technology. They mean a process by which technology gets accumulated (often in unplanned ways) with much greater future potential than necessary to meet current needs. For example, Toyota’s lean product system was the outcome of technology investments made out of necessity to cope with short term problems, such as small production runs for small market volumes. But, in retrospect, those investments helped Toyota’s later strategy to become an internationally competitive manufacturer.

Cultivation, then, is based on frequent misalignment and misfit: the technology being accumulated is greater, or different in its potential, than current internal and external needs. The ensuing paradoxical prescription for the firm is to overextend: cultivation is about destabilizing current strategy and “creating imbalances” with the current level of technology. One example is a strategy of co-existence of multiple projects with different stages of technological evolution as opportunities to create new knowledge (Clark, Fujimoto and Aoshima 1991): the resulting tension, misfit and coping will stimulate learning. The line of argument is similar to Penrose’s (1959): the firm accumulates various unutilized resources, often unintentionally as it grows, and these resources represent potential for further growth through new, usually unplanned, recombinations.

Also Dahlbom and Janlert (1996) use the term cultivation to connote a way of shaping technology that is fundamentally different from rational planning, aligning and constructing a technical

system. While constructing, and aligning, are about selecting and putting together a number of objects (tools) to form a coherent socio-technical system, cultivation is about interference with and support for a material that is in itself dynamic and possesses its own logic of growth. Here the main metaphor is: helping a wound to heal. Construction (of which alignment can be regarded as a subtask) is “a radical belief in our power to, once and for all, shape the world in accordance with our rationally founded goals. Cultivation is a conservative belief in the power of natural systems to withstand our effort at design either by disarming them or by ruining them by breakdowns” (Dahlbom and Janlert 1996).

Besides evoking misfits, breakdowns and resistance as the stuff of which “alignment-in-action is made of,” the concept of cultivation invites us to reconsider the role played by the object of alignment, i. e. technology. Looking at technical systems as “organisms” with a life of their own may change even further our whole notion of alignment.

4. Information technology infrastructure: Who is aligning whom?

Recall the evidence from previous research on groupware and teamwork suggesting that as a result of a series of microevents and decisions, almost outside anybody’s control, technology tends to drift when put to use. Here, we want to pursue the idea further of a certain degree of autonomy and inner dynamics of the technology, both as a drifting system and as an organism to be cultivated.

How to cope with the oxymoron of technology as an autonomous organism?

The traditional conception of technology, which originated with Aristotle, is that technology is a human development or arrangement of tools, machines, materials and methods to serve the attainment of human ends. In other words, technology is a “passive” and neutral set of means to achieve some ends. This perspective lies implicitly at the core of most management and economic literature in good currency.

Thompson (1967) suggested an interesting extension to this conception: technology is a set of beliefs about cause/effect relationships; it is thus a body of knowledge, a “system of logic” (Itami and Numagami 1992). As such, however, technology is no longer neutral and passive: as a device or system oriented toward human needs, it becomes the basis, or at least an important component, of the formative context (Ciborra and Lanzara 1994) that shapes strategy and other business activities. Thus, Rosenberg (1976) suggests that technology can be strategy generating, because it induces managers to focus on new directions regarding, for example, product innovation. In the high-tech industries it can also become a source of reference metaphors for organization design—from the computer platform to the platform organization (Ciborra 1996b).

Itami and Numagami (1992) note further that as a logical system, technology possesses its own tendency toward perfection and systematization. In order to see this tendency at work, not only at the cognitive but also institutional level, consider the case of IT infrastructures (Hanseth 1996).

As a mediating technology aimed at decreasing transaction costs (Ciborra 1996c), IT possesses some of the key characteristics of a network infrastructure: it operates through standardization and extension of linkages (Thompson 1967). Further characteristics of IT infrastructure are (Star and Ruhleder 1996):

- being sunk into other social arrangements, institutions or technologies;
- invisibility and transparency: infrastructure is there to support invisibly the execution of tasks; it becomes visible only in case of breakdown;
- embeddedness in a set of conventions of practice;
- installed base: “infrastructure does not grow *de novo*; it wrestles with the inertia of the installed base and inherits strengths and limitations from that base” (Hanseth 1996).

Again, one can take for granted that management can in various degree harness IT infrastructure to achieve business goals, and do scientific-style empirical research about it (Broadbent *et al.* 1996). However, a closer look at the internal dynamics of IT infrastructure would show that:

- many actors are involved in its establishment or development, so that it is not controlled by only one actor. Many interorganizational information systems evolve in this way and become an infrastructure;
- the issue of standardization becomes paramount, and again it is not in the hands of only one actor. Battles of standards are under our eyes everyday: they involve the setting up and management of complex coalitions of actors and technologies

(David 1987);

- history, path dependency, unique events that punctuate the development of infrastructure seem to have an irreversible influence on its configuration at any given moment.

Such phenomena can be observed, for example, when looking at the dynamics of the “installed base.” Thanks to self-reinforcing mechanisms and network externalities, the installed base attracts complementary investments and makes a standard more attractive. A larger base with complementary products increases the credibility and attractiveness of the standard. This brings more adoptions, and so on. In other words, a particular standard, and corresponding infrastructure, gains momentum (Hughes 1987). And momentum can be regarded as the result of a larger “actor-network” that includes the technology, its users, manufacturers, educational institutions, professional associations etc. There is “alignment” in such an actor-network, but is of a different kind from the one assumed by the mainstream management scholars. First, it is an alignment between humans and non-humans, where non-humans (the architectures, the operating systems, the standards) seem to have a say as important as the humans. To the point that some of the humans, if one listens carefully to their declarations, seem to speak and write “on behalf” of the non humans.

Second, humans in such actor-networks face dilemmas that are quite different from the wide number of options that management models lay out in front of decision makers. For instance (David 1987):

- narrow policy windows, during which an actor can hope to influence the development of infrastructure in its own interest;
- blind giants: powerful human actors who lack the knowledge to predict how their choices will impact the future trajectory of infrastructure: they have power but little knowledge;
- angry orphans, users groups, who may be cut out of the development and will push for “gateways” to the non standard (non aligned) domains of the infrastructure.

It is clear that in such a decision making context, the “cultivating” strategy introduced above makes much more sense in coping with the dynamics of the installed base, than any commando-like approach of humans over machines. (Hanseth 1996).

With a bolder move, students of Science, Technology and Society conclude that in order to understand (and, we add, cultivate) modern technologies, their diffusion and usage, taking into account both their cognitive and institutional influences, one needs to abolish the assumption of a “fundamental” separation between “technology” and “society”: each possesses an equal status as an “actant”; each has its own dynamics; each can be seen as endowed by one or many “programs of action” (Latour 1993).

We cannot enter here the debate on the feasibility of an “anthropology of machines”, but just note that these scholars also use the notion of alignment, though in a much more complex and open sense than discussed so far by the management literature. Alignment would correspond to the successful

translation of the interests of one actor into the behavior of another actor, within a complex network of actants and intermediaries, so that shared spaces, communication channels or some form of equivalence between them obtains. (Callon 1991)

The important point is that an actant is anything or anyone endowed with a program of action, so that depending upon circumstances, it can be an organization, and individual, but also a machine, a scientific paper,... a mundane device such as a door knob (Latour 1993).

5. Back to the research programmes

We have now come full circle. Our questioning, deconstruction and investigation have shown that possibly it is too early to sing the De Profundis for the concept of strategic alignment. On the contrary, our post mortem reflection on the managerial research programme on alignment has pointed out several new tracks:

- a style of research that does not estrange us from the worldly existence of people at work and their small and big “dramas”;
- the ensuing urgency to go back to the facts themselves, putting into brackets received concepts such as strategy, technology, and in general the power of models and representation;
- a new language (borrowing mostly from European and Japanese research) to talk about the interaction between strategy and technology, including the terms of care, hospitality and cultivation;
- a series of new perspectives on technology, that go beyond the notion of

technology as a means to achieve an end;

- an enlarged notion of alignment within an hybrid network of semi-autonomous actors.

At this point, we are left with the final question: what is it in the dominating style of research in management science that brings it to identify, and then “jump” on an interesting concept, such as strategic alignment, monopolize publications through sleek empirical research and models, then eventually turning to something else, leaving behind burned ground and oblivion? And all this with little reflection, little or no thinking, and above all, zero questioning of the basic assumptions.

We submit that in trying to closely mimic the scientific paradigm of the hard sciences, the so influential (US-style) management research is not preoccupied with thinking. This is consistent, since science is concerned with observation, measurement and calculation, not strictly with thinking (Heidegger 1962). This may justify the relentless succession of publications with data and models, but very little accumulation of new concepts that last.

And this may also explain the current malaise of MBA programs where it is sensed that new grounds have to be explored since the traditional management education does not deliver a competent manager. This is strange, since MBA teaching can continually feed onto the results of management science research.

Still, we know that more often than not, students are just able to babble formulas and models that get quickly forgotten and in general soon trivialized by the business press. Managers on the front

line seem to know in their guts that all this is not enough to cope with the complexities of everyday business.

The current way of fixing the problem launched by the leading business schools is worse than the point of departure. In order to avoid the superficiality and vapidness of many concepts being taught, it is now widely recognized that more emphasis should be put on research. But we ask: what type of research? Always, and consistently, the answer is research that mimics hard science. So, the schools admit that they have not been science-based enough, and establish research centers to do more of the same. If our analysis above is correct this will generate severe problems ahead. But there remain plenty of opportunities for a different style of research, a style that puts questioning and thinking at the center of our efforts in coping with the management of complex organizations, a style that makes questioning the core activity of management research and practice, more pious and perhaps more effective.

References

- Argyris, C. and Schön, D.A., (1996). *Organizational learning II*. Reading, MA: Addison-Wesley.
- Bensaou, M. and Venkatraman, N., (1995). Configurations of inter-organizational relationships: A comparison between US and Japanese automakers, *Management Science*, 41, 9, September.
- Bikson, T.K., (1996). Groupware at the World Bank. In Ciborra (1996a).
- Broadbent, M. and Weill, P., (1993). Improving business and information strategy alignment: learning from the banking

- industry, *IBM Systems Journal*, 32, 1: 162-179.
- Broadbent, M., Weill P., O'Brien and Neo, B.S., (1996). Firm Context and patterns of IT infrastructure capability, *ICIS Conference Proceedings*, Cleveland, Ohio: 174-191.
- Callon, M., (1991). Techno-economic networks and irreversibility. In Law, J. (ed.) *A Sociology of Monsters. Essays on Power, technology and Domination*. London: Routledge.
- Chandler, A.D., (1962). *Strategy and Structure: Chapters in the History of the American Enterprise*. Cambridge, MA: The MIT Press.
- Ciborra, C.U., (1994). From thinking to tinkering in, C.U. Ciborra, T. Jelassi, (eds). *Strategic Information Systems*. Chichester: John Wiley.
- Ciborra, C.U. (ed.), (1996a). *Groupware & Teamwork*. Chichester: John Wiley.
- Ciborra, C.U., (1996b). The platform organization: Recombining strategies, structures and surprises, *Organization Science*, 7,2, March- April: 103-118.
- Ciborra, C.U., (1996c). *Teams, Markets and Systems*, (2nd edition). Cambridge: Cambridge University Press.
- Ciborra, C.U. and Lanzara, G.F., (1990). Designing dynamic artifacts: computers systems as formative contexts. In P. Gagliardi (ed.) *Organizational Culture and Symbolic Artifacts*. Berlin: De Gruyter.
- Ciborra, C.U. and Lanzara, G.F., (1994). Formative contexts and information technology. *Accounting, Management and Information Technology*, 4, 2, December: 61 - 86.
- Ciborra, C. U. and Patriotta, G., (1996). Groupware and teamwork in new product development. In Ciborra (1996a).
- Dahlbom, B. and Janlert, L.E., (1996). *Computer Future*, Department of Informatics, G
- David, P. A., (1987). Some new standards for the economics in the information age. In P. D Gupta et al. (eds) *Economic Policy and Technical Performance*. Cambridge: Cambridge University Press.
- Dreyfus, H. L., (1994). *Being-in-the-World*. Cambridge, MA: The MIT Press.
- Hanseth, O., (1996). *Information Technology as Infrastructure*. PhD Thesis, Department of Informatics, G
- Heidegger, M., (1962). *Being and Time*. New York: Harper and Row.
- Henderson, J. C. and Venkatraman, N., (1993). Strategic alignment: leveraging information technology for transforming organisations. *IBM Systems Journal*, 32, 1: 4-16.
- Hughes, T. P., (1987). The evolution of large technical systems. In Bijker, W.E. et al. (eds) *The Social Construction of Technological Systems*. Cambridge, MA: The MIT Press.
- Husserl, E., (1970). *The Crisis of European Sciences and Transcendental Phenomenology*. Evanston, IL: Northwestern University Press.
- Latour, B., (1993). *We Have Never Been Modern*. Harvester Wheatsheaf.
- Mankin, D., Cohen, S. and Bikson, T.K., (1996). *Technology and Teams: Fulfilling the Promise of the New Organization*. Boston, MA: Harvard Business School Press.
- Orlikowski, W. J., (1996). Evolving with Notes: Organizational change around groupware technology. In Ciborra (1996a).
- Rice, R. E. and Rogers, E. M., (1980). Reinvention in the innovation process, *Knowledge*, 1,4: 488-514.
- Scott Morton, M.S., (1991). *The Corporation of the 1990s*. Oxford: Oxford University Press.
- Star, S. L. and Ruhleder, K., (1994). Steps towards an ecology of infrastructure. *Proceedings of the CSCW '94 Conference*, 253-264.
- Thompson, J., (1967). *Organizations in Action*. New York: McGraw-Hill.

Zuboff, S., (1988). *In the Age of the Smart Machine*. New York: Basic Books.
Zuboff, S., (1996). Foreword in Ciborra (1996a).

