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Seminar

VIE DES AFFAIRES

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"GRANDS PROJETS", ORGANISATION AND URGENCY

(The text of the following account is by J.C. Moisdon; the discussion is reported by C. Riveline.)

ABSTRACT

When producing a new car, a process that can take up to six years, why are all the major decisions taken in an urgent rush? Jean-Claude Moisdon studies this question in the light of his long experience of working with the teams responsible for resolving the conflicts between the different professional groups involved. Technicians appear to wait for the last minute to suddenly take their differences of opinion up the hierarchical ladder to their superiors, last minute choices then end up being made according to economic or budgetary criteria rather than technical ones. So urgency becomes an "organisational link" allowing two contradictory logics to coexist : a conviviality at the lower level on the one hand and arbitrary conflicts between the bosses on the other.

I - THEME

In keeping with a number of sessions in this seminar course, linked with the theme of urgency[1], J.C. Moisdon asks a simple question which turns out to be a perplexing one:

"When businesses undertake large-scale projects, which in theory take around five to ten years to run their course, why does everyone seem to be in such a hurry all the time?

Without giving away the conclusion at this stage, he indicates its key points: in such situations, far from being merely a response to uncertain exterior events, urgency seems to constitute a positive collective construct which allows the coexistence of two philosophies which are radically different if not actually opposed. On the one hand, there is the designing of complex technical objects; on the other, the economic and commercial mastery of such objects.

In order to develop this thesis he will use personal observations the result of research he has undertaken with businesses on various themes.

More specifically, he focuses on two studies:

- one, undertaken some time ago, with A. Hatchuel at the centre of an oil company

- another, in progress currently, with B. Weil at an automobile manufacturer.

II - THE OIL COMPANY : COMPARTMENTALISATION AND SEQUENTIALISM AS CAUSES OF URGENCY

The CGS[2] had come to the company (Exploration and Production Department) in order to examine with resident economists the potential application of new theories in the area of risk analysis. We should note that the investment in development with an oil company is considerable and that the techniques of economic analysis were particularly uninformative in this case with regard to risks taken: completed cash-flows or returns on investment were calculated as though every factor were definitely known - reserves, costs of investment, prices, etc. Of course, we know that these data can only be considered as uncertain; but there was, at that time, a new and very powerful theoretical application, that of decision theory, which allowed for these uncertainties to be addressed logically by taking the sum of expertise present in the company and formalising its findings. Without enlarging on the theory itself, the speaker emphasises that it seems particularly well adapted to the oil company's case - hence the economists' notion of developing such a theoretical tool.

This said - and here we touch on the theme of urgency - what was striking was that the economists wanted a tool which would be quick and easy to use. In fact, they did not have much time to put together a development plan on an economic base for each occasion - even their determining calculations were not easy, due to horrendously complicated tax issues. They specified a time-lapse of a fortnight; but why so little, when they knew that the project running time for the development of an oil field is traditionally more than five years?

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1 "Faut-il réfléchir face à l'urgence?", discussion with Patrice Bonarelli, 7 july 1989

2 Management Science Center

An attempt was made to introduce a sophisticated calculating tool based on decision theory, and this allows us to understand the phenomenon a little better.

Effectively decision theory, by virtue of its own construction - aiming to elaborate and to formulate the sum of conceivable strategies in the face of possible events, according to available information - presupposes a highly integrated organisation. In order for a strategy to have any sense, geologists and platform constructors must exchange data to help constitute the model.

In the event, this is rarely the case: an oil field constitutes a dossier which takes a fragmented and sequential course through the business - exploration, then discovery of reserves, then production, exploitation and finally economic service.

This actual scheme of organisation is perfectly compatible with the above-mentioned determining calculations, which based their reasoning on one scenario only. In fact the treatment of risk seemed to be based on one major reassuring principle: the organisation showed itself more as a machine generating 'credible images' than as a collegiate structure, feverishly constructing collections of strategic responses and testing them with fine-tuned decision-making instruments.

It is rather difficult to decide whether such behaviour is normal or pathological since, although it might shock those who generally apply a purely economic rationality, it nonetheless has certain advantages - simplicity, coexistence of different professional philosophies etc. - and it is not easy to draw up an overall balance.

Still, there was one genuine problem: the 'credible images' in question were constantly called into doubt (for example, an estimate of available reserves was halved after the discovery of a geological anomaly; new legislation forbade the burning of gases, etc.), causing frequent back-tracking and incessant changes in the work of one group or another (the research team discovered this much when they realised that between one office and another they were reading different descriptions of the same oil field).

Moreover, whilst the impression of urgency did not seem to spread through all departments, the researchers believed they had an explanation for the urgency perceived by the economists: as the last link in the organisational chain, they constituted a kind of shock-absorber and were subjected to the accumulation of successive delays caused by other participants.

At the time, researchers and participants drew operational conclusions which proved very much in keeping with the spirit of the moment: within the framework of a substantial project, one had to find a way towards a system of organisation which respected two correlated principles, namely the parallel alignment (through time) of the participants and the transversal nature (across departments) of their work, with the aim of assuring their effective connection.

The oil companies did indeed move in this direction - not without difficulties - and other industries also worked towards this end, as will be shown by the following account.

III - THE CAR MANUFACTURER : A WELCOME URGENCY

III.1 - The evolution of organisation

In the 1980s projects for the designs of new cars are also characterised by urgency; however, in this case too there is no shortage of time - projects run for about six years! The situation is aggravated by the 'increasing complexities of variety and quality :

a) Even amongst very popular models such as the Renault 5 or Peugeot 205, not five cars are strictly identical. To give another example : in one model studied by the CGS, the engine contained over 1100 components

b) It is thought that clients have become aware of factors which were previously regarded as insignificant (the difference in play of pieces only a few millimetres in size). This results in an excessive workload for those responsible for design and planning, and in their work frequently being called into question, with endless back-tracking - and hence modifications, the industry's bugbear !

However, automobile manufacturers have begun to understand the lessons to be learned, as cited above in the case of the oil companies ; given that their projects are similarly organised in sequence (broadly speaking Engineering Design followed by Manufacturing Tools Design then Manufacture), the guilty party must be the organisation itself - when, say, the production side realises too late that it cannot avoid the discrepancies that appear in parts' alignment, and blames the designers in engineering. There are two corollary observations to be made : on the one hand there is a lack of communication between participants (lack of transversal structure) and on the other time is wasted due to the sequential nature of the process and the weakness of predictions (lack of parallel structure).

Consequently the organisation gradually shifts towards other forms of project management. In this context one might refer to the work of C. Midler at Renault. Thus project teams are established, co-ordinating the launch of a project 'on a level' (with everybody involved present in the same place), and multidisciplinary, cross-sectional (transversal) groups, and so on... In short, there is a scrupulous application of textbook project management !

The CGS has specifically studied the above-mentioned transversal groups at one manufacturer, taking direct part in their work. In effect, the company's general impression was that these groups were not working as well as they might: the expected results did not come through, there were endless modifications, recurrent problems with quality and frequent delays, so that the urgency was felt as much as ever.

III.2 - The dissolution of organising principles in the maelstrom of urgency

As in the case of the oil company, the introduction of researchers aimed to structure the groups' work more (and it must be said that initially their tasks were barely structured at all), by means of techniques which J.C. Moisdon does not describe in detail and which nonetheless were simpler than those developed for the oil company. Actually, whilst the instrumentation in question allowed for certain improvements (taking previously dismissed risks into account, and marginally speeding up the treatment of certain questions), in the end it seemed far from adequate. Some of the points made in the diagnosis were :

- the groups were being taken over by problems as they arose (nobody knew how to mount the rear view mirrors) rather than concentrating as they were supposed to on given quality risk points (the resistance of the window handles or the choke start) ;

- problems were being treated largely outside the groups, even when they had been designated for the groups' attention ;

- tasks were often rescheduled, a fact which was clearly due to a 'reluctant' involvement of the vertical structures;

- many issues were of notably long standing - some had already been raised as much as 18 months previously.

It is not easy to understand what is going on : the working of the whole enterprise is extraordinarily complex, and as many as 1000 people may be working either at close hand or indirectly on one project. Allowing for the fact that up to 3000 components are to be integrated, in several hundred different potential configurations, it is impossible to determine a precise ordering (despite the efforts made in that direction). Neither a participant nor a spectator would be able to reconstruct the internal logic of a project by pure intellectual analysis, and neither would really have an idea of which stage the numerous project study and planning departments had reached (given that there are on average half a dozen major car design projects running at any one time). One can only see a mass of people running in all directions in a sort of obscure maelstrom; and moreover the maelstrom seems powerful enough to swallow and digest progressively the transversal groups which intended to act as structure-imposing and organising forces, and which the CGS was studying in order to brace them with protective methodology against urgency.

Why exactly does this happen? From the basis of their observations, and equally from their efforts to introduce structure, the researchers have progressively built up a certain view of the organisation, resting on two major principles: that two kinds of organisation can coexist, one being structured and the other much less so; and that urgency acts as a means of linking the two. J.C. Moisdon elaborates these theses.

III.3 - A hybrid organisation - urgency and the logic of decisions

These are some of the key points of the researchers' observations:

a) Communication between technicians has in fact never been wanting - at grass-roots level everybody talks to everybody else;

b) Parallelism is equally healthy: despite compartmentalisation and apparent distances between departments, as soon as a designer so much as draws a line, various others from different departments (including planning) will visit his drawing board ;

c) What is lacking is a notion of hierarchy in the issues raised: for a technician, the faulty catch on a door handle may be as serious a problem as the unsatisfactory choke start. In such conditions it becomes necessary to solve the problems of several million component-interfaces on one vehicle, and to resolve several million risk points in terms of quality ;
d) Taking into account the complexity of the whole project, a) and b) are effectively organisational responses to c), along with another significant component - an improvised collective learning process, and the gradual institution of self-organisation, brought about by mutual adjustment in all areas. This mechanism allows for a number

of problems to be solved at the base of the organisation, without higher levels being bogged down by them ;

e) The same mechanism is possible where networks establish themselves at the base, consisting of groups of technicians with long experience of working together in a highly sociable atmosphere based on connivance, camaraderie, shared humour etc.;

f) Nevertheless, these technicians frequently find themselves facing situations of conflict and without recourse to one single solution: in technical matters it is more often a case of compromise (between stylists and cutters, for example, or between chassis builders and acoustics specialists, etc.) than of 'best possible' answers;

g) However, when two technicians are suddenly faced with such a situation, they will tend not to resolve it immediately: on the one hand, this might compromise the collective working manner described above, and on the other, the outbreak of conflict might be referred to higher levels too quickly for their taste (as evidenced by the preservation of considerable room for manoeuvre, the fear of an imposed solution and of accusations of incompetence, etc.) ;

h) And so the problem is - to speak in clichés - 'shelved'; the phenomenon is evidently accentuated because everyone knows they are dealing with a 'project', and that within a few months the problem may have changed its nature altogether !

i) From the point of view of the participants this behaviour is actually for the best, insofar as the system of evaluating individuals has no dimension relating to the management of interfaces, but in essence governs traditional working patterns within vertical structures ;

j) And yet, another significant component of the evaluation system is the deadline - the date, for example, by which designs must be handed over to a supplier for the construction of a prototype, or the start date for construction of equipment, etc... These recognised dates galvanise the project's development to fit in with serial production. There are notably few of them (only four or five per vehicle-function), in contrast to the hypothetical (and impossible) detailed planning suggested above, but by virtue of their recognition they become vitally important; participants establish their work-plan according to such dates, thinking in terms of '... at the latest'.

The interesting feature of this reasoning, besides the fact that the above-mentioned network-mechanisms spontaneously incline towards it, is that in this way more modifications proposed by others can be avoided. Evidently such behaviour comprises urgency, within which the remaining latent compromises must be resolved.

k) So how is this resolution achieved ? In order to avoid conflicts at base, the only option is for the problems to be referred to higher levels, where in consequence one sees battles between heads of department, obliged to cut to the quick and yet defending their own interests fiercely ;

l) At this level, the pressure is not due to technical variables (which in themselves would not allow for making cuts) but to commercial, economic, financial ones - more abstract, in effect - which appear as constraints imposed by the higher levels and allow technicians to avoid losing face ;

m) Hence the organisational model's duality: self-organisation to start with, with little structuring, mutual adjustment, absence of economic

thinking, indifference to attempts at making plans, little inclination for written record; and mechanistic bureaucracy at the peak, with budgetary parameters, timetabling, departmental records, preference for regulation, even if a nostalgia for the technicians' 'good old days' is ever-present ;

n) Thus urgency appears as one of the fundamental relay mechanisms between these two sub-systems: the need for quick decisions allied with the abstract nature of variables allows for the resolution of a certain number of controversies which the technicians themselves would be reluctant to bring to a close, and in a way which respects each participant's legitimate domain ;

o) So what is the role of the transversal groups in all this ? As an attempt to introduce structure in areas which tend to reject it, they are bound to run into difficulties. Even if certain of their members (the pilots in particular) are aware of the potential benefits of structure, they may decide that the outcome is not worth the trouble - at least for the moment (cf. the system of evaluation described above). In such conditions, if the groups are not protected and do not have a robust accountability structure (for example, a project team might be more and more responsible for the economic variable) they will naturally divert from their theoretical role as a device for resolving particular risk-points, and will become common co-ordination devices addressing problems as they arise. As we saw earlier, they are swallowed and subsumed by the volcanic intensity of activity all around them.

IV - GENERAL OBSERVATIONS

a) Of course, these findings lead us to question seriously the accepted precepts of project management: communication, transversality, parallelism - what should we understand by this ?

b) Is it such a bad idea in any case? Not necessarily; on the contrary, we are dealing with a strong internal logic which resists attempts to impose too much structure, along the lines of a master plan ;

c) And are the transversal groups quite useless? This too is not necessarily so; they might have the function of anticipating a certain number of choices by making some of the files pending available. Equally, they encourage the emergence of a new role, that of their pilots, who are particularly concerned for the project vehicle as an entity. What does require further documentation is the representation of their ultimate aim ;

d) Here, urgency is manufactured by the organisation by means of certain deadlines around which controversies will come to a head and then be resolved. 'Phased' urgency of this kind allows for handling a certain amount of compromise (in the knowledge that thousands of questions are effectively resolved at base). Of course, one might consider how incidences of this sort affect the final product ;

- which raises the problem of knowing what is happening at other manufacturers, and perhaps more generally of knowing whether or not these phenomena are widespread, in cases of large scale projects concerning technically complex objects. J.C. Moisdon is persuaded that the nature of such objects gives rise to phenomena of the kind observed in these studies. Admittedly, the Japanese seem to operate differently: research and development are separated, and preliminary studies for various scenarios are run concurrently; but we should assess their findings with caution. The given figure for project running time - announced at two years - makes no sense when compared with French or other European data; it all depends at which point one starts counting!

To conclude, we might also consider the case of the oil company further: the impression gained from this account is that we are dealing with two very different kinds of urgency. First, we have urgency due to poor organisation alone; but we also have the urgency generated by an enigmatic organisation which constitutes itself through a learning process around mechanisms which may appear paradoxical. Is there a real difference between the two? Or is the difference rather in the observer's own point of view ?

DISCUSSION

The principal issues raised in the course of the discussion were:

- the analogy between decision-making as described by J.C. Moisdon and the workings of the State;

- Transversality, its inherent dangers and necessary operating conditions;

- Urgency as artifice or as intrusion of reality;

- Urgency as an unexceptional figure or as a methodological breakthrough.

1 - One speaker compared J.C. MOISDON's account with that of Ph. ROQUEPLO (session of 7 September 1990, 'Urgency and Power: a study of the workings of ministerial departments'): discussions in transversal groups are analogous to confrontations between administrations, and hierarchical arbitration to the intervention of the offices themselves. J.C. Moisdon accepted the comparison, but indicated the following differences: in the case of the car manufacturer, there are several levels of arbitration, and back-tracking occurs, and the lower levels may be responsible for their superiors' calling meetings. In other words, there is more flexibility to modify techniques or policies than in the operations of the State.

2 - Several contributions considered the notion of transversality itself and its relation to project groups, and especially the destiny of executives responsible for considering the vehicle as an entity, or at least taking charge of a number of interfaces, amongst professionals who are concerned for their own particular job.

The discussion established the fact that 'project' and 'transversal' groups are two distinct factions, with differing origins and barely in communication with each other. Even so, the two have in common the fact that their usefulness has only recently been appreciated, and that their successful operation depends on a precise instrumentation of their working procedures and on a certain measure of protection from upper levels as well as on the charisma of a few hardy characters or 'saints', determined to make their perilous adventures succeed.

3 - One speaker from an industrial background suggested that urgency was a universal phenomenon in economic affairs, insofar as it represents the meeting-point of fantasy and reality. In the case of projects as yet without ratification anything is possible in theory, but there comes a time when the real world demands results. According to the speaker, a good director is one who can organise fantasies to make them profitable, and who instigates urgency to realise them. However, he concludes, urgency is not credible unless it reflects real external constraints.

In answer to this, it was observed that in an organisation such as the one he describes, exterior circumstances concern very few people, and that essentially deadlines and the urgency they create are constructs generated by the organisation. A deadline is decreed

by one person, without its governing criteria being evident, and is immediately taken as a reference point by somebody else; the date rapidly acquires a tyrannical significance for everybody, and it is usually not possible to discern any exterior constraint which justifies this status.

One speaker suggested that the respective proportions of 'real' and 'artificial' urgencies might be governed partly by the size of the organisation (the bigger the firm, the more 'artificial' dates are likely to dominate) and partly by the nature of operations - whether these are more or less regular or predictable. He quoted the example of the one-time steam locomotive workshops where the organisation was so well controlled that everyone knew precisely where they were with respect to the delivery date.

In any situation the establishment of critical dates, whatever their origin, appears in the light of this discussion as a basic instrument of power, even though its role has barely been investigated as yet.

4 - One speaker suggested that the role of deadlines and urgency is obvious to any business practitioner. Another said that this might be, but the lack of coverage in works of management theory suggested that it was a practice without a theoretical study basis. "Hurry" is probably regarded by company directors as a somewhat embarrassing subject, and authors are careful to flatter their readership; hence, by contrast, the success of books such as 'In Search of Excellence' which contains only portraits of managers in perfect command of their time.

In the interest of encouraging studies of urgency, one speaker raised the topic of the historians' perplexity regarding the Terror, perpetrated by the same men who had achieved such heights of humane action in the Constituent Assembly. Their philosophers had prepared them for legislation, but not for the management of urgency.