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ABSURD DECISIONS AND HIGHLY RELIABLE PROCESSES

by

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(pub. Gallimard, march 2012)

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(pub. Calmann Lévy, 1983)

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Overview

After the publication of his book 'Les décisions absurdes' in 2002 (pub. Gallimard), Christian Morel analysed important areas which involve a high degree of risk in order to study the processes which promote well-informed decision-making. In areas such as aviation, the Navy and the nuclear industry, the aim (and generally the result) of many procedures is to obtain a high degree of reliability. Morel's study, which also drew on examples from unusual areas such as high altitude trekking in winter and operating theatres in hospitals, aimed to shed new light on what are regarded as 'good working principles'. He devised a series of 'meta-rules' which enable people to make highly reliable decisions. These rules include working on a collegiate basis whereby power and authority is shared among colleagues, not punishing unintentional mistakes, viewing transgressions as case law, improving communication, and a better understanding of human factors,... Can these rules which have helped to improve security in high-risk facilities, be applied to management in companies ? Jean-Marc Oury has his doubts.

TALK : Christian Morel

In 2002, I wrote a book entitled 'Les décisions absurdes' which suggested reasons for people making erroneous decisions. I will soon be publishing a new book[1] in which I propose solutions to avoid these errors. My motivation comes from observing methods used in facilities which require a high level of reliability such as nuclear power stations, aeroplanes, aircraft carriers, nuclear submarines, and hospital operating theatres. I suggest a number of 'high reliability meta-rules' which I think can be applied to various other areas including the management of companies. My definition of 'reliability' is very broad : it covers ideas regarding quality, security, safety, and also performance, in other words, features which are in keeping with the original intention.

Working on a collegiate basis

In highly reliable organisations, subordinates have a great deal of power in decision-making processes. By contrast with situations in which only one person is in charge, having a situation in which collective responsibility exists ensures that cockpits, nuclear submarines and surgical units are safer places. In the 1990s, Korean Air had 12 serious accidents resulting in 750 deaths. This disastrous accident rate was widely attributed to disproportionate authority in the cockpit. In several separate instances, the captain made a mistake which the co-pilot had noticed, but had not dared to tell him. Measures have been taken subsequently to ensure a more democratic work environment in the cockpit, and as a result the airline has become one of the most reliable in the world.

As a result of Air France's accident in Toronto (when an Airbus overshot the runway) and the fatal crash of the Rio-Paris flight, the airline drew up new rules of organisation in the cockpit in order to encourage shared rather than individual responsibility. The co-pilot can now make decisions about circling, for example, even though it is the captain who remains in charge of the aeroplane. Similarly, on American aircraft carriers, marines can make the decision to stop an aircraft landing.

A study showed that in surgical units or operating theatres, the most 'democratic' teams have the lowest level of surgical mortality because these are the teams which are the most likely to apply new techniques. American researchers have also shown that groups of high altitude hikers who have a strong leader tend to have more fatalities when avalanches strike rather than groups where decisions are taken by all the members of the group.

Suggesting contradictory ideas

The second meta-rule consists of organising meetings in order to discuss the well-known problems associated with group deliberation. Group discussion tends to reinforce opinions held by the majority : if someone disagrees with the group thinking it is likely that he will feel that he is wrong. This example demonstrates that it is often preferable to agree with the group rather than to be influenced by constructive dissent. Consequently, the group may give the false impression of being unanimous because no-one in the group expresses a different opinion. Another problem associated with group discussion is that each person in the group merely uses the discussion to confirm his own opinion. Fear of annoying the leader and the desire to please him encourages lower ranking members to refrain from expressing their opinions. Similarly, when the group has a large number of participants, this can make genuine discussion impossible. Certain rules about behaviour which are generally accepted such as 'not to insist too much/not to labour a point', 'not to intervene unless one is an expert in the subject' and 'not to say anything unless one can support one's argument with facts' tend to prevent people from making their opinions heard.

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[1] Christian Morel, *Les décisions absurdes II. Comment les éviter* (pub. Gallimard, march 2012).

Bernard Manin, the political scientist and philosopher, believes that in order to counter-balance the negative consequences of group debate, discussion in which contradictory ideas can be put forward should be devised in exactly the same way as in a legal discussion. This was the method which John F. Kennedy used during the 1962 Cuban Missiles Crisis : he did not want to repeat the fiasco of the Bay of Pigs, and so he asked his brother, Robert Kennedy, to play devil's advocate in the follow-up committee. Similarly, Admiral Rickover of the US Navy refused to take a decision unless a well-informed counter-suggestion could be made. It is useful to know the opinions of outsiders, in other words, either non-experts regarding a specific subject, or experts on a general subject, and to ask questions routinely in order to ensure that sufficient safety measures have indeed been taken. This is one of the principles adopted in nuclear safety.

Monitoring consensus

In general, consensus is a good idea. However, in view of the negative effects associated with group debate, consensus may be catastrophic, as the example of the Bay of Pigs fiasco demonstrates. Furthermore, although consensus may appear to exist, it is only superficial. Philippe Urfalino examined 172 decisions which were taken by a Swiss political party by consensus, and demonstrated that half of them were in fact neither consensual nor opinions held by the majority, but only by the minority. Every consensual decision should therefore be monitored, and one should take note of one of the tenets of Talmudic law : when a jury of 23 judges is unanimous in its call for the death sentence, the accused is automatically acquitted because such a consensus is not considered to be the outcome of a discussion where opposing views have been expressed.

Generalised interaction

Highly reliable decisions imply daily exchanges of information such as systematic briefings and debriefings, questioning, monitoring, and so on. These interactions are a constant source of education. They are so important on board nuclear submarines that the crews use the word 'university' to describe the submarine.

Monitoring the rifts

The tendency today is for mutual co-operation, subcontracting, outsourcing, creation of subsidiaries, separation of functions, and the creation of new entities for each new problem. All these operations create 'rifts' or openings between the different parts of the organisation which are extremely fragile, and are one of the major reasons for mistakes, accidents and catastrophies.

The Deepwater Horizon oil spillage in the Gulf of Mexico and the Médiator affair in France were largely the result of rifts which developped because too many people were involved. The separation of the French national railway (SNCF : Société nationale des chemins de fer) from the French Rail Network (RFF : Réseau ferré de France) also revealed a number of malfunctions. Before creating new rifts, one should make an in-depth analysis of the costs and the advantages of such an operation and, when the operation takes place, one should look for ways of co-operation which do not just improve communication, but also help integration, such as shared indicators and principles of group action.

Not punishing mistakes

The threat of punishment tends to dissuade people from revealing mistakes which they have made. The possibility of a court case in the Rio-Paris crash put all those involved (Air France, the Investigation and Analysis Office, Airbus, the pilots and so on) on the defensive. If there had been no possibility of a court case, it is likely that discussion of the accident would be more open. The wish to find a guilty party also tends to limit what is known about the accident because it encourages people to concentrate their account on the superficial causes of

the accident and not to look at the broader picture. In the Concorde crash, the judges finally decided to punish an unfortunate boilermaker who worked for Continental Airlines in Texas, and in so doing, they ignored all the mistakes associated with the design and maintenance of the aircraft.

This is why the sixth meta-rule of high reliability states that unintentional mistakes should not be punished. The Air Force chief of staff officially established the decriminalisation of mistakes in 2006. He stated 'we should agree to account systematically for our mistakes, and to comment on and inform our colleagues about all incidents which have been avoided on the ground or in flight, as well as the 'near misses'. In an attempt to learn from our mistakes, we should let our community reap the benefits from all experiences, including unpleasant ones. This is why I decided to set up an approach to decriminalise mistakes. My definition of 'mistake' is any involuntary and non-repetitive deviation from our objectives or intentions.

At Air France, the QAR (Quick Access Recorder), a digital optical disk, records all the parameters associated with a flight and alerts the pilot if there is any deviation from the norm. Any divergences are studied by a commission and treated anonymously (no mention is made of the name, date or place of the incident) and the most serious cases are communicated to the rest of the airline in order to avoid future mistakes.

The principle of not punishing unintentional mistakes is becoming more widespread, notably in the health sector and in forest fire-fighting teams in the United States. It has encountered strong opposition from victims and political authorities who generally want to see the guilty punished.

Viewing transgressions as case law

Not punishing mistakes should be accompanied by what I would refer to as viewing transgressions as case law. When there are differences between theory and what happens in practice, these differences should not immediately be considered reprehensible but should be treated just as a debriefing. An internal discussion may help to establish a new 'case law' : the differences cited may be accepted on an exceptional basis, taken into account in a new rule, or even be punished, but above all, be used as an example which may prove useful for training.

The Air Force makes a distinction between involuntary differences (linked to mistakes in knowledge, rules or routine) and voluntary differences (which may be breaches of routine and necessity, and lack of discipline). The Air Force can accept breaches of routine or necessity on two conditions. The first is that the deviation from the norm took place in a professional context. Take the example of a fighter pilot who flew over Afghanistan and did not respect the mandatory altitude dictated by the weather forecast, but thought that he should protect the troops on the ground, and that the valley was sufficiently wide for him to fly at such a low altitude. The second condition is that these differences are carried out openly and are the subject of briefings and debriefings. For example, four aeroplanes were supposed to leave on a mission, but one was grounded and another had a problem with its radio. Under these conditions, the mission should have been cancelled. However, the pilots decided to continue the mission but, during their briefing, agreed on how to organise themselves in the light of the unfavourable circumstances. When the mission was completed, they discussed how it went and the lessons that had been learned.

Improvement in communication and visual aspects

A very important meta-rule concerns improvement both in the use of language and in visual aspects, in other words guaranteeing the exchange of information by various means such as repetition, confirmation and explanation etc.

A study was carried out on 8,000 patients in 8 hospitals in different countries. In half the patients, the surgical operation was prepared, carried out and finished by ticking off a check list in the surgical unit. Post-operative mortality was 57 % less than in the other half of the patients.

For improvement in communication to be efficient, it must be collective and interactive. In two other cases, surgeons in spite of having the check list still operated on the wrong side of the patient because they went through the check list by themselves.

Improvement in communication should also be concise : people should not be overwhelmed by a mountain of information. On the other hand, it should not be too little : it is sometimes preferable not to make lists, but to have proper sentences because verbs enrich meaning.

Improvement can also be visual. On the Charles de Gaulle aircraft carrier, the 'yellow dogs', (those in charge of the organisation of the flight deck) use a small-scale model on which they put small wooden aeroplanes painted with different colours which indicate whether the fuel tank is full or not. They told me that they had never found any software which was quite as efficient as this model. In Japan, a method of 'visual management' consists of pointing to specific aspects which require attention, for example describing an accident on a flip board.

Training in human factors

In terms of high reliability, 'human factors' are cognitive, psychological and collective mechanisms which hinder or facilitate collective decision-making and action. Training in human factors is more in-depth than training in management tools such as conducting meetings or interviews. Nowadays, all airline pilots follow a CRM (Crew Resources Management) training programme which focuses on the sociology and psychology of those in the cockpit, and is in addition to their technical training.

The Veterans Administration health system which manages a number of hospitals in the United States and had a terrible reputation in terms of the quality of its healthcare, appointed a quality manager who had previously worked in the aeronautical industry and knew about methods of reliability. He organised training relating to human aspects for surgical teams (including surgeons, nurses, anaesthetists and those in charge of blood transfusions) and as a result, there was a notable decrease of 50 % in post-operative mortality.

Lessons learned

Feedback from past experiences is undoubtedly one of the most important meta-rules because it combines several other rules such as not punishing involuntary mistakes, permanent interaction, legal rigour, training in human factors, and so on.

In this field, however, one must know how to use information sparingly. The person in charge of safety at a nuclear power station told me that he received hundreds of accounts of experiences and the feedback from these, and did not really know how to manage this knowledge or how best to use it. Feedback must be selective and presented in a very instructive way.

Cognitive meta-rules

As well as the collective meta-rules, there are also a series of cognitive meta-rules. These include avoiding simplifying analyses ; the need for a global vision ; a realistic appraisal of probabilities ; not 'sticking one's head in the sand' ; sounding the alarm at the slightest provocation ; and finally, realising that science cannot solve everything, and that sometimes one has to resort to solutions which are simple and reliable.

The following example illustrates this last point. In airports, when the weather is poor, pilots have to decide whether the distance which they need to land their aircraft corresponds to the

length of the available runway. For example, with Canadian Fokker aircraft, if there is between 0.03 and 0.1 of an inch of water on the runway, pilots know that their capacity to brake will be reduced by 30 %. Therefore, they make a complicated calculation based on the wind, and also the weight of the aeroplane in order to determine whether the length of the runway is sufficient or not. Unfortunately, these calculations can be very uncertain because the situation may change in a matter of minutes if, for instance, the rain intensifies or the wind becomes stronger. Accidents which occur when aeroplanes overshoot the runway in bad weather are therefore relatively frequent.

In view of the limits associated with 'substantial rationality', sometimes it is better to use 'procedural rationality'. In this case, it would be a simple matter of diverting the aeroplane even though airlines hate this solution because it consumes more fuel, is more costly and is a great waste of time for passengers.

From catastrophy to resilience

The US Navy was shocked by the sinking of the submarine SSN Thresher. Instead of trying to brush this catastrophe under the carpet, the US Navy made it the basis of its initiative to re-establish reliability using the SUBSAFE programme which was applied in all Navy operations, and even served later as a reference for NASA (National Aeronautics and Space Administration). Similarly, following the crash of a TWA flight as a result of a mistake not being made known to the pilot, civil aviation in the United States adopted a policy of not punishing people for their mistakes. Renault, which at the end of the 1980s suffered major vehicle quality problems, put in place a plan to survey quality at all levels.

On the other hand, it is regrettable that the Outreau affair in France, which involved a miscarriage of justice regarding alleged sexual abuse against children, did not result in an overhaul of the justice system. It is also a shame that a number of frauds which have been carried out by very important banks have not led to in-depth reviews of the rules regarding financial transactions.

Two management conceptions

The meta-rules regarding decisions which involve a high degree of reliability constitute a sort of counter-culture of traditional thinking in the field of management.

Traditional or 'politically correct' management emphasises quality procedures, certifications, and training in management techniques. It gives more importance to the organisation chart than to procedures ; believes in the predominant role of the leader ; punishes mistakes (even those which were unintentional) ; and hides or punishes deviations from the rules and procedures. It favours action rather than feedback from past experiences ; only accepts arguments supported by data (the principle of 'speaking with data') ; ignores weak signals ; encourages simple messages, short and infrequent meetings, consensus, scientifically-based solutions, and orderly numerical and copious communication. If catastrophies do occur, traditional management prefers to forget them quickly and to move on to something else.

Management based on meta-rules of high reliability encourages a culture of reliability rather than devices which measure quality and certification ; favours work on processes rather than permanent reorganisations ; advocates sharing power between team members rather than concentrating power in the hands of one person ; prefers not to punish unintentional mistakes ; promotes legal rigour ; encourages recognition and sometimes certification of differences ; takes into account feedback from past experiences rather than taking action at any price ; and pays attention to alerts and weak signals even if they cannot be demonstrated. It encourages complex analyses and makes sure there is strong, visual and succinct communication. This sort of management knows that long and frequent meetings are not always desirable, but are sometimes necessary, that a consensus represents a majority view and is not absolute, and that simple and sound solutions are sometimes preferable to scientifically-based solutions. After a catastrophe, the events leading to the incident are considered to be the basis for a new start.

TALK : Jean-Marc Oury

I began my career in the French nuclear safety authority where I managed the department in charge of the electronuclear programme. Even though I was on the other side of the Atlantic, I clearly remember the accident at Three Mile Island on March 28th, 1979.

Three Mile Island

This pressurised water nuclear reactor, designed by Babcock & Wilcox, presented a risk which had not been anticipated by the manufacturer, namely that zones of steam formed in the primary circuit were likely to prevent refrigeration or cooling in the heart of the reactor. The operators were misled by a water-coolant indicator (which was unfortunately blocked), and they did not understand the nature of the incident, and allowed the centre of the reactor to enter into partial fusion.

The plant's critical situation prompted urgent reactions from its manager, manufacturer and American safety authorities. The crisis team managed to make the correct diagnosis and regained control of the situation while simultaneously limiting the amount of radioactive waste released into the environment. Decision-making was not easy. Steam had to be released deliberately from the primary circuit into the compound. Such a measure appeared to contravene the usual security protocol which in principle demands maximum confinement. However, the aim was to lower the pressure sufficiently to allow the low-pressure injection pumps to function. At the same time, numerous filters had to be supplied to release the voluntary waste in order to reduce the pressure in the compound as quickly as possible, and to avoid risks from leakage.

Numerous lessons were learned from this accident. Special attention was paid to the importance of preceding incidents. Similar problems, apart from the blockage of the water-coolant indicator, had already taken place in other power stations. Requests for systematic feedback from this event were made. Analysis of the situations (the way it had been done previously) was completed by a study of the functioning state of the reactor. Greater attention was paid to the interactions between the teams and the machines. Finally, procedures on how to mobilise people in a crisis situation and what actions are necessary were revised.

Representation of the machine

One of the central questions in this sort of situation is the way in which members of the crisis team construct their representation of the machine.

On July 21st 2011, a Paris-Caracas flight was buffeted by strong descending winds. The automatic pilot device tried to counterbalance this effect by making the aeroplane gain altitude as fast as possible. When the aeroplane emerged from the turbulence, this manœuvre lowered the aeroplane's speed by making it gain altitude too abruptly and it came close to the stalling speed (the speed below which an aircraft can no longer maintain level flight because the wing is stalling). I do not know whether the pilots took back control of the aircraft themselves or whether the automatic pilot device stopped of its own accord because it could no longer function, but a catastrophe was avoided. Luckily, the incident took place in daylight. The pilot and his two co-pilots were in their places and, due to lessons learned from the Rio-Paris crash, they knew what to do to regain control of the aeroplane. Would they have managed if there had been only two and not three pilots, or if the incident had taken place in the middle of the night, or if the aeroplane had not been functioning properly ? It is hard to say.

Generally speaking, machines are more reliable than people, but when they no longer function properly, we have to construct a representation of the real-life situation and its development

very quickly if we want to react appropriately. However, putting in place highly reliable solutions is often tricky making this representation difficult, especially as high reliability makes these incidents extremely rare.

The representation of the machine may also become obsolete without it becoming apparent. Ford designed a 4x4 equipped with special Firestone tyres. During test runs, it became clear that the tyre and shock absorber device was too reactive under the usual tyre pressure of 35 PSI and the risk was that the car would turn over. However, when the same tyres were inflated to 26 PSI, the car reacted perfectly. Some time later, Firestone changed the manufacturing process of this type of tyre, and carried out all its tests at 35 PSI, ignoring the positive results of tyres inflated to 26 PSI. There were a very large number of accidents, some of which were fatal, because of this error, and Firestone had to recall millions of its tyres. To avoid this disaster, the change in the manufacturing process should have been accompanied by a change in the specifications of the tyres as this would have forced Firestone to reassess the new tyres before fitting them to their vehicles.

Two sorts of vigilance

Vigilance can be defined as the representation of one's environment by ensuring its conformity to reality so that one can react accordingly.

There are two types of vigilance. The first is that of the 'watchman' who, having identified a potential danger, keeps an eye on it and is ready to act if necessary. Most of the cases given by Christian Morel fall into this category. The second is that of the 'hunter' who, instead of fearing the event, lies in wait for it. This is the type of vigilance which encourages manufacturers to keep improving their technical performance and encourages retailers to keep looking for new markets.

The role of vigilance in economic activity is often neglected. Securitization in the American housing market (a technique of pooling debt and selling it as bonds or securities) and resorting to the use of specialised companies to raise credit may be regarded as a formidable machine aimed at destroying vigilance both for bankers and their clients. It is not surprising that this system seemed easy to use for some time until it backfired in 2007 when the subprime crisis hit. Credit default swaps and other by-products are also based on a lack of 'organised' vigilance. In these processes, each person takes his profit margin thereby sharing the risk thinly over a number of people. As a result, no-one is certain which risk he is taking as vigilance is often limited to consulting the rating established by the rating agencies, and essentially leaving the risk-taking decision to them.

Is high reliability applicable to company management ?

In his talk, Christian Morel mentioned the application of methods of high reliability in the management of companies. Currently, this is not realistic. Banks generally take decisions with the endorsement of a 'risk committee' which clearly has not played its role correctly over the past ten years. Yet all these decisions were taken calmly by people in positions of responsibility, unlike aeroplane pilots or submarine crews who have to react more quickly and are under pressure. How does one explain this paradox ?

In business, there are two forms of conflicting vigilance. On one side, the decision-makers want to avoid risk, but on the other, they want their company to grow. In business, there are many more criteria which need to be considered than in an aeroplane cockpit, and often these criteria are contradictory. Before checking the high reliability of a management decision, one must determine for whom, why, and in what context this decision is to be taken. From this point of view, a manager's job is often more arduous than that of a pilot, even though the stakes are not life-threatening.

Furthermore, even though, in principle, management decisions can be taken in relatively calm conditions, Claude Riveline has demonstrated that the most important decisions are generally taken in emergency situations. Managers often tend to wait until the last moment, either to cope with the urgent situation or to collect the maximum amount of information before taking a decision. In urgent situations, it is therefore not always possible to resort to methods such as contradictory discussion recommended by Christian Morel.

In conclusion, if the methods of high reliability seem promising and can be implemented in numerous areas of human activity, one might doubt if they are applicable in the world of business management.

DISCUSSION

Sophisticated analyses and simple solutions

Question : *I was struck by an interesting symmetry in Christian Morel's conclusions. According to him, traditional management encourages simple messages and scientifically-based solutions (which he regards as complex), whereas management founded on the meta-rules of reliability promotes the complexity of analyses and simple solutions. I agree with the idea that one frequently starts with quite basic principles to reach convoluted solutions, however I think that it is very difficult to conduct sophisticated analyses which lead to simple solutions. I wonder if this is in fact the crux of the problem.*

Christian Morel : It is true that a simplistic analysis does not necessarily lead to a simple solution…

Unintentional mistakes

Q. : *I worked in the former East Germany. When any malfunction took place, it was impossible not only to find the person responsible, but to understand what had happened because the employees feared sanctions which could be harsh at a time when the communist regime was very authoritarian. They devised very clever strategies to prevent any sort of vigilance in the sense implied by Jean-Marc Oury. To find a solution, I had to say that no-one would be punished if he stepped forward to explain the events which had taken place, but, on the other hand, there would be group sanctions if it was impossible to discover what had happened. This measure turned out to be relatively efficient.*

Bearing the blame

Q. : *How can one apply a principle where people are not punished in a society where public opinion is anxious to find those responsible ? In the case of the Mont Sainte-Odile aeroplane crash in France when the accused were acquitted, the parents of the victims said on the radio 'it is awful. I will never be able to come to terms with this.'*

C. M. : In the United States, there are never any criminal trials for aeroplane accidents. However, the National Transport Safety Board carries out in-depth investigations which look into the technical, organisational and psychological aspects of the accident. The families of the victims rely purely on these investigations to help them to get the closure they need, and, ultimately, this is quite satisfactory. What people really want is not for the guilty people to go to prison, but to understand what happened. We must replace the human scapegoat with the idea that information can be to blame, and that this can help people to get closure.

Q. : *In the Mont Sainte-Odile crash, people were furious because they were under the impression that the judges were ready to incriminate the pilot, but were not at all interested in the aeroplane design or the fact that the instrument panel was not legible. The same is true of*

the explosion at the AZF factory near Toulouse. People do not necessarily want to name the guilty party but want to know whether it was really possible that a quantity of nitrate could explode by itself in very unfortunate circumstances.

Q. : *One of the problems of the French Office of Investigations and Analysis (BEA : Bureau d'enquêtes et d'analyses) is that it is supposed to establish several intermediary and successive reports, while at the same time it is subject to pressure from journalists, victims' families, manufacturers, and a plethora of MPs. The BEA is attached to the French Civil Aviation Authority which comes under the authority of the secretary of state for transport, who in turn comes under the ministry for Ecology, Sustainable Development, Transport and Housing. This ministry is answerable to the Prime Minister. In Canada, the head of the Transportation Safety Board answers directly to the Prime Minister, in other words to the most senior person in the country. The head of the Transportation Safety Board does not publish any intermediary report thereby avoiding the possibility of a debate.*

The judges' point of view

Q. : *How can Air France's stance to preserve anonymity be compatible with the need for legal purposes to carry out an investigation ? Can the judges force people to give names ? In the Rio-Paris disaster, it is clear that the law will try to punish those who are guilty.*

C. M. : France and Italy are countries which have long histories of severe legal sanctions. We need to change this culture, but it is not very easy.

Q. : *I am a flight captain and instructor on Boeing 777s, and a former safety officer on medium-haul Airbus flights. No member of the crew can possibly remain anonymous if an accident takes place resulting in deaths or injury or the destruction of the aircraft. The reports, which are drawn up automatically or following an inquiry, necessarily include the names of the crew. There are two instances when names are not supplied in routine reports intended for the airline. These events are either of a technical nature (which result in an Air Safety Report which is transmitted to the authorities) or an interpersonal nature between members of the crew. The vast majority of catastrophic accidents are the result of human relationships and take place on aeroplanes which are 'sound', in other words, they have no particular malfunction. The Rio-Paris crash is an exception as this was a result of the failure of the Pitot tubes.*
    As far as the judges are concerned, there is still hope. I knew a judge who was not in a rush to find the guilty party straightaway, and he refrained from doing this as far as his position allowed him.

Medical mistakes

Q. : *I investigated two medical mistakes. In both cases, the hospital had let the patients leave the hospital without telling them that there had been some problems during their operations. The patients soon discovered this themselves afterwards, and when they wanted to obtain their files, one of the two hospitals had 'lost' the report on the operation and the other could not find the vital X-rays.*

Q. : *The real question is whether punishing unintentional mistakes reduces the number of mistakes in medical practice. The answer is 'no', of course. On the other hand, it is normal for a patient who thinks he has been the victim of a mistake to turn to the law for compensation, and ultimately for the doctor in charge to be disciplined. However, this does not resolve the question of preventing medical mistakes. French law which forces institutions to declare the 'serious, undesirable events' has been a failure. Over a period of 18 months, only about one hundred 'events' of this sort have been declared in 300 hospitals. Even though this may appear contrary to ethics and law, we have to let doctors establish work groups to discuss mistakes, and devise organisational processes in order to avoid such mistakes in the future.*

Q. : *Nurses should be included in this scheme because the number of mistakes will only decrease if the entire team works together and receives training in human issues.*

Q. : *I was thinking about the largest group of doctors, namely the 80,000 GPs who work in France.*

Q. : *Over a number of years, I occupied a senior position in hospital management at the Ministry of Health. I have a very vivid recollection of two medical mistakes made on the same patient. A surgical team amputated the wrong leg. When they realised their mistake, rather than amputee the leg which should have been removed in the first place, they decided to try to save it without amputation. They were successful !*
One of the paradoxes of hospitals is that there are now 43 groups of safety rules, a large number of which are imposed by fire and safety regulations. This surfeit of rules has become impossible to apply correctly.

Rules which form a system

Jean-Marc Oury : I am very ambivalent about this principle of not punishing people for mistakes made. On the one hand, I understand the need for punishment, but on the other, I see numerous risks associated with non-punishment. If there are no victims or material damage as a result of the incident and things work out, this might be acceptable, but in company life, any mistake can be very costly, for instance if the delivered products are faulty.

C. M. : The various principles which I have mentioned are interlinked. Professional and personal feedback is based on not punishing people for their mistakes, but should be accompanied by permanent, daily interaction and training in human issues. These meta-rules are part of a system which cannot be broken up, but if it does, they become inefficient and even counter-productive.

Presentation of the speakers :

Christian Morel : PhD in political science (IEP Paris). He was the director of a number of large companies. He has written several books including 'La grève froide' (pub. Octarès, 1994), 'Les décisions absurdes' (pub. Gallimard, 2002 and pub. Folio, 2004), 'L'enfer de l'information ordinaire' (pub. Gallimard, 2007), and a book entitled 'La fiabilité des décisions' (due to be published in March 2012 by Gallimard). He was on the board of the National committee for scientific research, and is on the editorial board of 'Gérer & Comprendre' and 'Négociations'.
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Jean-Marc Oury : professor of mathematics, and engineering graduate (École des Mines). He has been teaching company economics at the École nationale supérieure des mines de Paris since 1985 and was one of the founding members of the École de Paris du management. He is the author of 'Économie politique de la vigilance' (pub. Calmann-Lévy, 1983) and a former director of the Compagnie générale des eaux. He is currently managing partner of the E8 Partenaires Group which specialises in high technology.

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