

Weak Signals for Strategic Intelligence

Anticipation Tool for Managers

Humbert Lesca and Nicolas Lesca





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<u>Introduction</u>

Why take an interest in weak signals? Weak signals are a means of helping managers of businesses (or other organizations) anticipate, in order to make strategic decisions in the context of a turbulent environment that requires them to "see things coming early enough". Numerous recent examples in the world of industry and finance, as well as in the public sector, have shown that this ambitious objective is more pressing than ever, given the characteristics of the economic, technological, social, and political environment. The central concept is that of a "weak signal", the first *concrete example* of which is provided at the very beginning of this book.

How should we go about it? A concept is not sufficient *to act*; it is not operational. This book chiefly proposes actionable knowledge, that is, *a method and some tools* to search for, identify, and interpret weak signals. These were gradually constructed within the scientific context of CNRS and university research. They have been applied and validated in the field on numerous occasions.

NOTE.- The phrase "weak signal" has been retained for historical reasons; we are actually dealing with early warning signals, harbingers of changes that matter to the decision-maker.

I.1. Introductory example: a surprising encounter on the corner of an alley: Tata

The following is narrated by A, a sales engineer employed by the German car manufacturer X, who is passing through Cuneo (Italy).

Cuneo is a city in Piedmont of which few foreigners have heard, including non-Piedmontese Italians. Still, this city and its province are rather wealthy: agriculture, viticulture/enology, many SMEs in various industries. It is certainly not seen as a "showcase" by Italians or foreigners. And yet...

I.1.1. Sales engineer A, on a July 2006 morning

"Departing entirely from habit, I go through one of Cuneo's side streets, in a rather remote district, to go and visit someone who has been hospitalized in that neighborhood's hospital. As I am about to cross the street and enter the hospital, a shop sign catches my eye, a Tata sign.

Surprised, I cross the street again to have a closer look at it. It is a Tata car dealership. I cannot resist going in to look around. The premises are quite small, with three cars on show. The attendant looks at me and smiles politely.

I ask:

- "Have you been here for long?"
- "It'll be a year in a few days."

I go out of the shop and, finally, into the hospital opposite. My mind is quite intrigued.

I remember, as any European very well knows, that Fiat has been on the brink of economic disaster, arguably in a worse situation than its European peers/competitors.

On leaving the hospital, I deliberately pass through the Cuneo business park in search of a Fiat dealer. I go in and, after a short while, I ask the store manager whether he is aware of the Tata brand being present in the city:

- "Yes", he replies.
- "That's a new competitor for you, right?"
- "Yes, but we're not overly worried. Tata is unknown to Italians. In fact, I doubt that shop will survive much longer, especially in that location!"
 - "Didn't the management at Fiat express any concern?"
- "No, neither concern nor anything else. They have other fish to fry."

I.1.2. Salesman C (from the German car manufacturer X), late August

Having had a chat with A on a train during August, C declares: "I know someone in Turin who works for Fiat. I'll ask him about Tata, with caution ... he holds a high-ranking position."

A few days later, C telephones A: "I spoke to my pal in Turin. He was a bit embarrassed with my question, and then he said that Fiat was aware of Tata's presence in Cuneo (Fiat's foremost province) and that it was actually a good thing, which Fiat wished for. But he asked me not to talk about it, and he wouldn't say any more."

I.1.3. Financial executive B (an employee of the German car manufacturer X), some four months later

"I read in my daily paper that Fiat is doing better now, toward the end of 2006.

In an interview excerpt, Sergio Marchionne, the head of Fiat's automobile arm, said in reply to a journalist's query that Fiat favors a strategy of *ad hoc* alliances with businesses that are likely to share specific competences which Fiat lacks. He mentioned Ford by way of example."

I.1.4. Post scriptum

December 2006

Fiat and Tata Motors announced in sequence a few months later, namely in December 2006, the setting up of their jointly owned subsidiary, which represents a 665 million euro investment (source: *Les Echos*, 12/15/2006, p. 18).

August 2010

Tata *Motors* discloses its wish to reinforce its alliance with Fiat in the field of trucks as well as automobiles (source: *La Stampa*, 08/13/2010, p. 25).

I.2. Conclusion

Through this introductory example, we have pursued the following objectives, with regard to the reader:

- to arouse the reader's interest in this book;
- to offer an intuitive approach to the concepts of anticipative information and weak signal;
- to provide an example of what will hereinafter be referred to as "information originating from field people".

Chapter 1

Concepts, Issues and Hypotheses

1.1. Introduction: governance and radar

Let us begin with a metaphor, namely the radar, and its likeness, that is, the detection of weak signals by the enterprise.

Generally speaking, governance denotes the art of governing, whether it is a country, a company (corporate governance) or indeed a ship [LES 08a]. In the latter, the main instrument of governance happens to be the rudder. In the following, we shall be comparing the business to a ship in order to introduce the concept of a "weak signal" in the most illustrative way possible, as that concept constitutes the core of this book. Let it be noted that, in the remainder of the text, we will use the word "enterprise" in a very general sense. It will refer to all forms of organization, including industrial, commercial or service companies; government bodies (ministries, etc.); local authorities; public bodies (for example Family Allowances Funds), etc. [LES 02b]. The examples given originate from research projects performed by our team in those different types of organizations.

1.1.1. Steering the ship

The principal objective assigned to the ship's captain is to accomplish the mission assigned to him/her and to reach the destination safely. This has always been and still remains true. In order to fulfill that objective, the ship and its crew need a good captain. A good captain possesses human qualities and technical competences suitable to his/her role. Such human qualities include, among others, humility (the opposite of arrogance), the ability to scrutinize his/her environment, including but not limited to the sea, also to listen to crew members, to exercise curiosity, vigilance, and scanning, to demonstrate anticipation and responsiveness. However, the captain is not the only one involved in enabling the ship to accomplish its mission. So is the ship's owner. Is he/she prepared to ensure that the ship is in good condition and properly provided with suitable instruments? Let us now venture a metaphor and attempt an analogy with the enterprise.

1.1.2. Corporate governance and strategic decision-making

The word "governance" refers to a way of exercising and sharing power among various stakeholders, as well as defining its strategy. Strategy, in turn, designates the formulation of a policy for the enterprise (its objectives, structure, and operation), defined on the basis of its strengths and weaknesses, on the one hand, and taking into account the threats and opportunities identified in its environment, on the other hand. The term "governance" refers among other things to the process of designing the strategy and to the means utilized for governing: various instruments. decision rules. relevant information. supervision monitoring. relationships and responsibilities established between the managers, the directors and the shareholders, where applicable.

The word "strategic", applied to a decision regarding corporate governance, means that the decision has the following characteristics:

- it is made in a situation of uncertainty, of incomplete information, in a complex, variable/mutating environment (as opposed to "all things otherwise being equal");
- it is not recurrent, therefore the decision-maker is relatively deprived;
- the decision-maker does not have experience-proven models (they cannot resort to "turnkey" mechanisms);
- it may have far-reaching (favorable or adverse) consequences that could jeopardize the survivability of the enterprise;
- it is systemic (many elements with many intra- and interorganizational relationships);
- the environment is complex (great many elements and relationships);
- the environment is changeable, volatile, altered by discontinuous evolutions. It is turbulent in the sense specified by Emery and Trist: "the dynamic properties arising not simply from the interaction of identifiable component systems but from the field itself (the "ground"). We call these environments *turbulent fields*. The turbulence results from the complexity and multiplicity of the causal interconnections..." [EME 65, p. 19];
- lastly, the *choice of the time* when the decision is made, and more importantly implemented, may have a decisive influence on the success [SCO 73].

EXAMPLE.— "In 2001, the entry of the first competitor onto the local market came as a surprise, especially as our company was experiencing quality and stock-out problems. That was the perfect time for the competitor to penetrate the market. We hadn't seen it coming..." The manager of an SME in Tunis.

Examples of strategic decisions:

- selecting a new supplier (non-recurrent decision) is of strategic importance for an industrial enterprise, whereas placing an order (a recurrent decision) is not of strategic importance. The selection of a new supplier is therefore a strategic decision;
- in the military domain, the choice of a new combat aircraft (for example the Rafale plane) is a strategic decision for a government. It is a huge commitment for the country concerned, in terms of costs, competences, and technology transfer, and that commitment is long-lasting (30 years or more).

EXAMPLE.- An *anomaly*... on the platinum market. For a number of years, the world price of platinum has ceaselessly and considerably increased. This metal is currently indispensable for fuel cells in, among others, electric cars. China is the world's largest buyer, and thus drives up the price. Meanwhile, in September 2010 a headline in the French newspaper *Les Echos* read: "Anomalies on the platinum market [...] the latter remains very far from its historical highs of March 2008 [...]".

A warning. Could this anomaly be interpreted as constituting a warning? Might some Chinese automobile manufacturers have found a substitute to platinum? Could the manufacturer BYD be one of them?

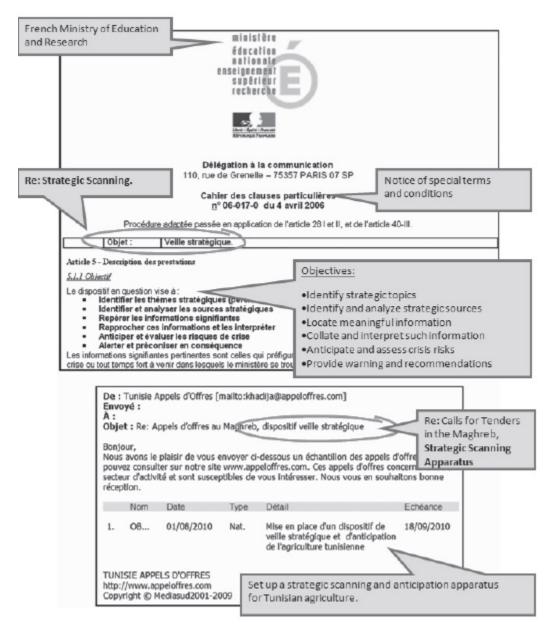
The strategic decision-making process is a long chain of steps, each of which requires information about the environment and its evolution. This chain is called environmental scanning. "Environmental scanning is the monitoring, evaluating, and disseminating of information to key managers within the organization" [AGU 67, p. 1]. "It is an important aspect of strategic management because it serves as" [KUM 01, p. 1] "the first step in the ongoing chain of perceptions and actions leading to an organization's adaptation to its environment" [HAM 81, p. 299]. In this

book, we shall use the phrase "anticipative strategic scanning".

Governance implies that we know which way to go. In this the "pole star" will mainly be sustainable specifically. competitiveness or. more sustainable competitiveness capability, at least where the enterprise in the usual sense of the word (or an economic sector, for instance the agri-food industry or the like) is concerned. "An demonstrates future-oriented sustainable competitiveness capability when it is capable of keeping its status, durably and deliberately, in its competitive, evolving market of choice, while achieving a profit ratio at least equal to the ratio required for its businesses to adapt and survive" [LES 82, p. 13; LES 89, p. 12]. The competitiveness to which we are referring here is therefore a question of mindset, forward-looking approach, motivation. true watchfulness, and scanning. However we will also present examples relating to ministries, wherein the objective is different, for example the ability to make decisions at the right time and in the interest of the country.

In all cases, "scanning" means the ability to scrutinize the environment and pay attention to the signals that are picked up, which may constitute early warnings. An early warning denotes either formal information (provided as text, by an electronic sensor or otherwise), or sensory information (visual, auditory observation, etc.) which is sensed by a human and leads us to think that a potential, relevant and significant "event" may occur within such a time horizon that there is still time for action.

Figure 1.1. Examples of calls for tenders for setting up an anticipative strategic scanning apparatus



This is termed "warning-mode" scanning [LES 03b]. In other words, a sustainable competitiveness capability is not compatible with confessions such as: "We didn't see it coming!", especially from business leaders or boards of directors, or from managers in the economic sector. Consider the following examples.

EXAMPLE 1.- "Stock markets seem to be generating tornadoes much more often than would be expected from observing past movements [...] The markets appear to generate more of those sudden stock hurricanes, at least

much more frequently than the observation of past movements would suggest. Investors and managers will therefore have to learn to live with the 'Deans', the 'Katrinas' and the like, that sweep the financial world and generate volatility in various asset classes" (source: *Les Echos*, 08/23/2007, p. 23).

EXAMPLE 2.– "Crisis communication from the establishments concerned has been focused on irrational disturbances in the market and on the liquidity crisis. It has not dwelt on the responsibility of managers who invested in the asset class in question and *did not see anything coming despite the forewarning signs*" (source: *Les Echos*, 09/10/2007, p. 38).

1.1.3. The ship's radar (radio detection and ranging)

In order to be able to accomplish its mission, adapt to ocean conditions at all times, and arrive safe and sound, any ship nowadays has a tool that serves the captain (and therefore the ship's governance): the radar (typically several of them). Conning the ship takes into account, on a continuous basis, the signals supplied by the radar and the interpretation thereof. We might say that the governance of the ship relies, at least for a large part, on a tool provided by the ship's owner and on the human technical skills available on board. Thus, at any point in time, competent people watch the sea and remain alert. That was not the case for the Titanic, which was not equipped with radar. And we all know what became of the Titanic, a brand new ship! Back to our metaphor, we now propose to look at enterprises. Do they possess a tool that could be likened to radar?

1.1.4. The organization's "radar", a tool for its governability

Countless authors, in whichever language, have compared the business leader to a ship's captain, the ship being, in this metaphor, an organization and the crew being that organization's staff. Such a metaphor was suggested by Aguilar as early as 1967. Why not take the comparison a little further and derive some new, simple but fruitful, avenues of thought?

Thus, regarding businesses, a number of English-language authors explicitly use the word "radar". These include, for example, Narchal: "Business Environment Scanning (BES) System consists of a set of radars to monitor the important events in the environment which may create opportunities or threats for the organization. [...] A good BES system will receive the weak signals and generate early warnings for the organization by developing a set of scenarios indicating the effects of these events on the organization" [NAR 87, p. 97].

An organization's radar is, in fact, the instrument that allows it to observe its environment, perform constant scanning, pick up signals that may serve as an early warning to the business's leaders and provide them with the necessary elements for decision making. Under such conditions, managers can make the decisions warranted by the situation, and make them early enough to avoid potential catastrophe. In other words, organizational radar, referred to above as a *BES*, and below as an *Executive Information System*, is the instrument of vigilance.

Vigilance is another component of corporate governance when it is oriented toward the organization's sustainable competitiveness. "Vigilance refers to:

- being alertly watchful for the detection of weak signals and discontinuities about emerging strategic threats and opportunities in the organizational environment and [TUS 86];
- initiating further probing based on such detection" [WAL 92, p. 47].

In each of these citations, note the phrase "weak signals", which we shall consider in more detail throughout this book. Additionally, let us recall that H. Simon (1978 Nobel Prize in Economics) denoted by "intelligence" (intelligence gathering = search environment for condition calling for decision) the first stage in his decision-making model. We will see the link that unites the concepts of intelligence and weak signals. We will also see why the adjective "weak" is used and which human skills, as well as methods and tools, are useful in picking up and interpreting a "weak" signal.

To conclude this stage, the reader might ask him/herself the following questions:

- 1) can it be asserted that any organization possesses a scanning apparatus, which might be likened to radar, to assist its decision making?
- 2) is the organization aware of the need to have, among its staff, men and women who are capable of detecting then interpreting the signals collected by suitable anticipative intelligence means?

If the answers are negative, let us then think about the Titanic and its fate.

1.2. The organization's environment and its governance through a "storm"

Let us briefly revisit the ship radar metaphor to introduce the topic of the organization's environment and its scrutiny. We shall recount, in the final section, the table from Daft and Weick [DAF 84] presented hereafter, in which the characteristics of the environment are set along the ordinate axis while the characteristics of the scrutiny carried out by the enterprise are set along the abscissa axis (organizational intrusiveness, scanning characteristics), enabling the reader to locate the domain covered by this book.

1.2.1. The ship, the ocean, and any danger to be faced

In order to succeed in its mission and arrive safely, the ship must constantly exercise vigilance and ceaselessly scrutinize its environment, that is the surface of the ocean, but also the latter's depth if necessary, as well as the skies.

What surprises might the ocean's surface have in store? A number of cases may be cited by way of illustration.

It may be an enemy boat or an aggressor ship, for example off Somalia. It might also be a floating object liable to strike the ship and cause serious damage, for example a ship wreck, a "lost" floating mine. It could also be a barely emerging reef, unmarked on nautical charts, or moving sandbanks. Not to mention possible icebergs, as was the case for the Titanic. It might also be thick fog patches that

negate all vision. All this can be compounded by the approach of a possible storm, etc. There is therefore a large number and variety of reasons to exercise extreme vigilance and be constantly on the lookout. By analogy, can the same be said of an enterprise?

1.2.2. The enterprise, its environment, uncertainty, hazards, and opportunities

The enterprise is not a ship, but it, too, has a mission: to be competitive and survive in conditions that are sometimes very difficult. While the organization's environment is not the ocean, it may be simple or complex, static or dynamic, so that most of the hazards and risks discussed above may be retained by way of analogy. We define the word risk as follows: it denotes the possibility of occurrence of an event that is uncertain or has an undefined time horizon, does not depend exclusively on the will of a person, and is contrary to their expectations or interests. The risk may be accepted, when the person acts in spite of their awareness of that possibility.

The terms generally used to denote the threats that are likely to originate from the organization's environment include: *competition, technological rupture,* country-specific national regulations, *lack of visibility, volatility, instability, turbulence* [EME 65], uncertainty, *discontinuity* [LES 03a], *fracture, government overthrow, change of majority...* the list does not stop there.

EXAMPLE.- "Our strategy is aimed at becoming, in due course, a major integrated provider of solar power, from the purification of silicon to the installation of panels," says Philippe Boisseau, director of the gas and renewable energies division. However, in order to reach that objective,

Total is obviously banking on developing a *rupture technology* (source: *Les Echos*, 06/10/2010, p. 19).

Let us briefly go over some of those points again, to try and grade the difficulties they raise. We shall limit ourselves to a few examples.

1.2.2.1. Examples of causes of hazard

1.2.2.1.1. Competitors

As the word competition is more of a statistical term that designates an anonymous and fuzzy phenomenon, we will refer instead to identifiable competitors. These may be current or potential competitors. There is little point in dwelling for long on the fact that every competitor is likely to constitute a hazard to the enterprise. The attention paid to those should be active and deliberate. But the question becomes less trivial when the following remarks are taken into account:

- The potential threat from a competitor should not be confused with the size of that competitor. During our interventions in businesses, we have often heard this: "We don't have to worry about our competitors, as we are the leaders on the worldwide market. They are the ones who should be worrying about us!" The companies where this objection was leveled at us include IBM during the 1980s, for example. Yet many fearsome competitors did emerge and take significant market share from IBM. They also Pechiney, the world-class French flagship include aluminum. Not many years later, that group no longer existed, having been merged into Alcan, a foreign group. And what of the UBS bank in the years 2007-2010? The list could go on and on. Arrogance in governance can be a deadly flaw. Warning signals may come from where we have put our blinkers on, hence the importance of the peripheral vision concept [DAY 06].

– A "current competitor" should not be confused with a "potential competitor." The latter appear suddenly. For example, in China, the BYD company, a manufacturer of electrical batteries, suddenly burst into the car manufacturer market. In other cases, an SME could rapidly become an inconvenient competitor, to say the least, if it possesses a rupture technology in a given domain, albeit a familiar one for a large corporation. Alternatively, a major corporation may quickly leap forward by acquiring an SME that holds a specific innovation or know-how.

EXAMPLE 1.– Essilor, world leader in ophthalmic lenses, will invest 130 million dollars in the purchase of a 50% share in the Israeli group, Shamir Optical, that specializes in innovative technologies applied to corrective lenses (source: *Le Monde*, 10/16/2010, p. 16).

EXAMPLE 2.– Suez Environnement has just announced it was setting up a scheme to identify promising techniques emerging from its activities. The idea is to assist the development of start-up companies thus identified, on the basis of exclusivity agreements or preferential marketing [...] This goes to show what a key scanning instrument this represents (source: *Les Echos*, 12/1/2010, p. 25).

Let us be content with the above, regarding the hazard brought about by current or potential "competition". Signals that may be indicative of danger could come from unexpected places... because nothing was done to watch for them. The enterprise is then like a ship without a radar, akin to the Titanic.

1.2.2.1.2. Instability, volatility, turbulence

The instability and volatility of pointers in the environment are other factors that make its continuous scrutiny necessary. Such events lend themselves to an analogy with a storm that an ocean-going ship has to weather. We need to take into account, not only change and its complexity, but also the faster or slower *rate* at which it occurs. In one extreme situation, authors speak of turbulence [EME 65]. But whatever the degree of uncertainty in its environment, the organization's *ability to remain maneuverable* is a necessary condition for survival.

At the end of the day, corporate governance might want to acknowledge the validity of St. Matthew's advice when he recommended: "Watch therefore, for you know neither the day nor the hour" Matthew 25:13.

1.2.2.1.3. Lack of visibility

By analogy with fog on the sea, the enterprise can suffer from a lack of visibility, meaning the ability of the enterprise to see its environment, which is often a global one nowadays. Such a lack of visibility may have various origins:

- lack of a sufficient *spatially extensive* visibility: again, an analogy can be drawn with warships that are equipped with several radars, some with a short range, but which is more precise, and others which are less precise but with a longer range; the same holds for a car whose headlights would use low beam where long-range, high beam should be used. As for the enterprise, the reason for the lack of visibility lies in the recklessness, unawareness, or incompetence of the management in charge of governance;
- lack of visibility due to the discontinuity of the space to be scrutinized. The organization was used to looking conventionally in one direction. However, things have social changed since then in the economic and environments (among others) and the organization of scanning has not evolved accordingly. The reason for this lies in the drowsiness of the organization's management. Governance has fallen asleep. For example, the enterprise stays on top of the technologies it currently uses, but a technological rupture could mean that the enterprise is watching the wrong space;

- we would like to detect early warning signals of a threat (or opportunity), but no one knows where to focus attention [DAV 00, DAV 01] or what to monitor. This case is more difficult than the previous ones. It requires a more detailed method and a proactive organization.

Observing the behavior of business leaders has shown that such behaviors can be distributed into two groups, based on the more or less acute concern for visibility that is evidenced:

- the leader seeks, first and foremost, to know his/her environment, identify its specificities, the players within it, etc. Then, based on the findings, they construct a strategy that seems likely to lead to success. For this, knowledge of the terrain is crucial. The approach is oriented from the environment towards the strategy;
- the leader defines a strategy *a priori*, according to his/her wishes and ambitions, then strives to implement it. The approach is then oriented from the strategy towards the environment.

1.2.2.2. From the environment to the strategy

The leader(s) pay attention to the environment of their enterprise, seeking to anticipate change and potential hazards. They want to discover as soon as possible the advent of potential situations that may offer opportunities or, on the contrary, pose threats to their enterprise. Moreover, they wish to be the first (or among the very first) to make that discovery to gain an advantage from it. The leader requests immediate notification of any signal that might trigger a "warning". The strategy will therefore be designed on the basis of detected signals and may be redirected when it is both necessary and possible. The emphasis is on responsiveness. The leader is unable to

describe in a precise and detailed manner the information that might be discovered. They require their scanning department, or what functions as such, to remain constantly alert and to inform them immediately. The leader is a *requestor* of weak signals, which he/she will undertake to interpret with his/her aides. But this is not the only possible case.

1.2.2.3. From strategy to the environment

This new case is the opposite of the previous case. In this instance, the leader or leaders design a strategy from scratch, a priori, and plan it. Only then do they consider environmental conditions. Environmental specificities are taken into account when the strategy is applied, taking into consideration strategic limitations. It is at this time that the leader requests information about the environment. They place an "order" with their scanning department, or what functions as such. The leader is in a position to describe his/her needs precisely. They do not want any other information than that requested. Information that confirms the merits of maintaining the set strategy will be favored. The leader is averse to weak signals that might challenge his/her views.

EXAMPLE.— J.-M. Messier forced onto his group his choice of a communication-oriented strategy. A few years later (2009/2010) he admitted to failing and causing very substantial damage to his shareholders. He explained he had been "too far ahead" of the environment. This admission was made in the course of the lawsuits to which he was subjected by his former shareholders. Late in 2010, those lawsuits against him are still far from being over.

1.2.3. Scrutinizing and interpreting the environment