Algorithms: Who watches the watchmen?

Advanced Analytics Governance

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An Indra company

The data is not enough

Information technology has turned the data into the essential element of business management and supposedly, its correct analysis in the key to success

With this objective, tools are implemented and work teams are employed to trace the itinerary of the data from its origin, assess its quality, verify which transformation process has followed, who has been responsible for making the changes, if that usability has a business reason and how it is influencing in company results.

Advanced analytics is being applied in almost all industries for some time. However, not all of them obtain satisfactory results due to the lack of control over these processes.

The approach that we want to transfer to the market from Minsait is the governance of intelligence, not the governance of the data. In other words, we have to carry out a rigorous supervision on the processes that transform the data into value to know what works and what does not, and why. We need teams that know in depth how to carry out this control and we should build lifelong learning systems so that any expert can take charge of the developments made by others, at other times, giving continuity to the analysis work.

Consequently, it is necessary to go beyond advanced analytics to build systems based in algorithm under continuous control that establish the rules to manage the data that, then, allow to make business decisions.

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Objective: measurement and control

The number of processes based in algorithm in companies grows exponentially. In the 90s, there were only a few dozen that were used to perform very specific tasks, such as risk management and marketing. In the past decade they became hundreds when designing more specific versions for the same areas of work. Today there are tens of thousands of processes based on algorithms, not only because of their specificity but also because their use has reached the entire organization.

Algorithm-based processes use data from diverse sources, process them to recognize patterns and allow decisions to be made and act through their classification, prediction, cause determination, simulation and optimization capabilities. Its effect reaches a few macro-decisions of great impact, but above all to an innumerable amount of micro-decisions that can happen at the rate of thousands per second. They affect prices, the quality of service, the selection of personnel, the management of assets, the use of resources ...

The paradox is that all this intelligence, condensed in those algorithmic systems, is out of control. No one measures systematically the health status of the processes, so in most cases they do not provide a benefit to the business.

When the process does not contribute, or when it does not provide as it used to, there is generally no systematic knowledge to identify where the failure occurred, who is responsible or what impact a change might have. Therefore, a model that considers all these variables is needed. Or in other words, an adequate governance of analytical intelligence.

The customization of the algorithm

Algorithms are not neutral tools, but are conditioned by the prejudices and reasoning of the data scientist who creates them. That expert is the first responsible for converting the data into value. An effective governance of intelligence in a company begins there, in the design of the instructions that define each process. The objective can not be the Data Driven Organization but to implement systems based in algorithm oriented to the business, where the data is not essential but its use to improve the income statement.

Therefore, it is evident the importance of having qualified data scientists, from our point of view: The profile of many of the data scientists is that of a person who very possibly under 30, with a professional experience in his limited field, and less even in the sector of the company for which he works. However, when designing the algorithms that decide what is being offered, how and to whom, it has more impact on the day to day of a corporation than a manager with 20 years of experience in the sector, assuming a loss of control and knowledge.

The conclusion is that a very rigorous framework must be established in the formation of teams, in the creation of the processes and in the investment in technology to guarantee that the models of artificial intelligence (AI) are guided by those who understand what is best for the business.

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The limit of automation

As already noted, there are tens of thousands of processes that manage an algorithmic base. With such a volume of raw information, it seems logical that in the analysis systems establish automatic responses in certain cases. This is what happens regularly in the purchase and sale of assets in the stock market, where millions of simultaneous operations are carried out. Once the parameters are defined, the execution is automated.

Other times the information has to lead to a personal evaluation. For example, the composition of a piece in an industrial process ends up being reviewed by the expert to determine if it has the required quality.

In both cases there is an algorithmic basis that is making a decision or helping to make it. However, too often the technology that is created to measure, to know and make decisions is the part of the whole organization that is less measured, less controlled. As a consequence, that intelligence does not have an effective result for the business or, even worse, it affects negatively.

Continuous learning systems

The models of artificial intelligence in the organization must be well documented and systematized, involving in that task both, the strategic and the business part of the company.

It is essential that systems are 'always on': always learning, always identifying new threats or opportunities, as the case may be. This will allow the whole process to be dynamic, in such a way that it adapts to the new variables that arise during the business activity.

As we indicated from Minsait, "there are organizations that today are doing the same thing as they did ten years ago, but not necessarily because of a lack of technological investment, but because they have not established a learning process. Teams can lose members, but those who replace them must have accumulated knowledge and be guided by well-defined procedures. Otherwise, that rotation of professionals will cause a loss of intelligence that can cause it to return to the starting point"

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Challenges of governance

The development of analytical capabilities in companies, even in the most advanced ones, is generally divided into silos: each unit of data scientists and experts in machine learning has different business purposes (talent management, financial resources, marketing ...) and work with different methods. As a result, it lacks an overview of all the intelligence that the company has.

There must be a scope of general supervision to know how these processes impact on the income statement. In short, it is essential to know what is the capital in IA and know how to manage it as any other asset of the company.

When that appropriate governance is lacking, the utility of the entire system is at risk, leading to different failures in the analysis of the data. These three are the most recurrent:

- **Do not save 'the last mile'.** There are many companies that for years have made significant investments to incorporate analytical capabilities, creating technological environments that generate large volumes of data, but still not clear how to use so much information. They may even have implemented usability processes that have not been effective, for example in the relationship with the client. The reason is that they are not able to save 'the last mile', that is, the way to connect the intelligence that tells me what to offer, to whom and at what moment with the systems that deliver these offers to the client (web, call center, offices ...). Without that last step, all the previous investment is useless.
- **Lack of adaptation.** It is possible to have well-implemented systems that cover up to the last mile and that, however, have stopped evolving at the pace of the process they are trying to analyze. A good example of this is fraud detection systems in credit cards. This crime is a very dynamic phenomenon that continuously creates new resources to avoid filters. If the system is not equally flexible, despite being intelligent and although at the beginning it will add value, it will no longer be reliable. This process of algorithmic analysis should anticipate these variables and detect new fraud procedures in a short time. On other occasions, the ability of the system to adapt is demonstrated by a simple change of regulations in the customer relationship policy, which may affect the entire model.
- **Insufficient information.** Another recurrent case when there is no effective governance is the poor impact of the analytical model on the organization due to the scarcity of data or the fact that they do not reveal the business insights. Therefore, we must look for additional sources of information, build new hypotheses and establish another process of contrasting these hypotheses in a system of continuous learning.

Security in the use of data

How do we obtain the data? Which of them do we understand that are relevant to the company? And from the information obtained, what can we use? The answers to these questions have to do with the security of the system, an aspect often neglected even though it has a very important impact on the reputation of the company. You can also have it in your operative risks, because in the worst case it would suppose a high cost in compensations.

It is key to have control over the data that is being handled: who they are from and at what time, and for what they are used. It is necessary to verify that a responsible and ethical use of the information is made, both of the clients and of the employees.

This control must be carried out in two phases:

- **First, in the design of the algorithms that will determine the data that is collected.** This automated filter must respond to corporate regulation.

- **Second, in the subsequent discrimination of the information obtained.** For example, automated customer service chats can not catalog what the user contributes. All data goes to the system. That is why it is important that there is a personal control that determines if these data can be used.

The monetization of the analysis

Converting organizations into efficient systems for the use of information is a key advantage over competition and the best strategy to obtain a high economic return. The monetization of these processes depends on factors such as the sector or the scope of application of the models in the organization. For example, in the process of manufacturing industrial parts, a knowledge that leads to decrease the waste material will have a huge economic impact. Likewise, it can shorten the development periods of a drug and that would also mean a colossal investment savings. And if you find out which is the most suitable ad for each user who is browsing the internet, you will get a noticeable increase in sales. Calculating the benefits of the governance of intelligence is complicated, but in any case, they are always high.

The Data & Advanced Analytics report, prepared by Forbes Insights and EY, has dared to make an estimate based on the opinion of 1,518 top executives of large companies from all over the world, also Spanish: 66% of the companies with one well defined advanced analytics strategy has managed to improve its operating and profit margins by at least 15%.

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Beyond these estimates, the best measure of the value of an analytical company compared to others that do not make these processes a differentiating element is to study its evolution in the stock market. In the last five years there has been a greater distance in their stock market valuations, not only because of their financial results but also because their management philosophy is appreciated.

Experience is required

As we can see, the adaptation of advanced digitalisation in companies should be a priority objective, although often for the C-Suite it is a challenge that involves making decisions that will radically affect your organization. How to align the objectives of the business with the design of algorithmic base processes? Above all, who should implement the governance of the system?

The experts in charge of this task have to:

- **Understand all the areas of hypothesis generation, of ambiguities, of nuances** that can bias the application of a model.

- **Design the process of identifying and solving problems,** which will allow continuous learning.

These essential capacities give rise to a new question: does the company have the necessary technical and scientific resources to take on the task or do we have to establish innovation alliances with other agents?

The advisable thing is to have companies of wide route in the management and control of the systems of advanced analytics. In any case, they must be professionals with an experience far superior to the average profile of the data scientist.

Minsait offers this differential value:

- **Technological knowledge.** Many pieces are needed in the gear to build an effective algorithm-based process.

- **Scientific knowledge**. To carry out the creation of models and deep analyzes with the aim of optimizing, simulating, predicting and identifying causes that improve the business.

- **Business knowledge**. A multisectorial and multifunctional experience (operations, production, marketing, human resources, financial management ...) obtained from real experiences, which allows a quick identification of the problems in the processes of data analytics and the implementation of systems to correct them.

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Challenges

- Insufficient information
- Lack of continuity in learning systems
- Decontrol of the intelligence of the system
- Lack of adaptability of the analysis systems to the business
- Distrust of yielding data
- Uncoordination and isolation between equipment
- Obsolescence of the systems

Enablers

- Control and monitoring of the technology that measuresand makes decisions
- Connection between business and intelligence
- "Always on" Learning System
- Usability of Analysis Systems
- Complete perspective of the process
- Alignment between the company's Data Scientist teams
- Profiles with multi-sector and multifunctional experience
- Search for additional sources and new hypotheses
- Diagnostic systems to check the reliability of the model
- Prioritization of data security

Governing information

Advanced models of data analysis are indispensable but insufficient because they can hardly answer questions like these: Which AI providers are adding value to the organization? What processes are having a positive impact on the business? Is it possible to make a road map of the processes based in algorithm implemented in the company in the last ten years? Does the analysis model learn by itself to evolve with the environment?

These issues will not be resolved without a system that is able to manage all the intelligence processes in a coherent manner based on the following approaches:

- It is necessary to have a thorough knowledge of the entire production process, from the data to the application of the models with a concrete and mediable impact on the business.
- It is not only about resolving technical questions about, for example, how the data is transformed, how a predictive model is created or how the quality of the processes is determined. Hypotheses should be established to prove that the model always responds to business objectives.
- It is necessary to measure and control both the automated responses and the subjective elements that are incorporated into the processes. It is important to have them documented because they totally condition the approach and the effectiveness of the model.
- We must configure a procedure to check if what worked at some point stops working, with diagnostic systems to find out where the fault is and why it has occurred.
- When this capacity is achieved in all processes based algorithm and in all business units, a complete perspective of the automated intelligence that the company generates and the economic value it is contributing is achieved. In this way, in addition, a continuous learning process can be established.
- The security of the information and its usability have to be a priority in the elaboration of the model.
- Those responsible for each of these functions must be experts in the governance of intelligence, with a broad professional trajectory and multisectorial and multifunctional experience.

All companies have the ability to succeed in the implementation of effective governance of automated intelligence, although this may require a radical rethinking of the organization and its operation. But as the CEO of General Electric, Jack Welch, said, "It's better to change before you're forced to do it."

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Minsait is the company that brings together all Indra's IT businesses; we integrate the vertical markets and horizontal and support units to meet our customers' business transformation needs.

At Minsait we create solutions with impact, prioritizing the value of the product, the culture and the transformational offer so as to drive the reinvention of our customers' businesses.

At Minsait we seek the determination to put experience, talent and intelligence at the service of each customer, providing tangible solutions that can make a difference.

At Minsait we're committed to discovering and opening up new ways to guarantee the generation of innovationbased transformation and impact.

At Minsait we are the mark we leave.
And the mark we want to leave.

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