Seed data culture in the organizations

UPPERION
Fullstack Innovator
http://www.upperion.fr

Introduction

Publications to transform and innovate

Why these publications?

Our various interventions have shown us that the desire to progress and transform is shared by a large number of organizations, whatever their size. However, there is a difference between envy and taking action. Often fear of the negative consequences of passing to the act. The aim of our publications is to help companies to approach this transformation in a serene and reasoned manner.

About Upperion

Founded in 2018, Upperion is specialized in supporting the transformation of organizations of all sizes through innovation. In this way, Upperion supports project managers and start-ups through its physical but also dematerialised incubation programmes (Theleme-Innovation). But the company also has very good expertise in the major accounts, be they public or private.

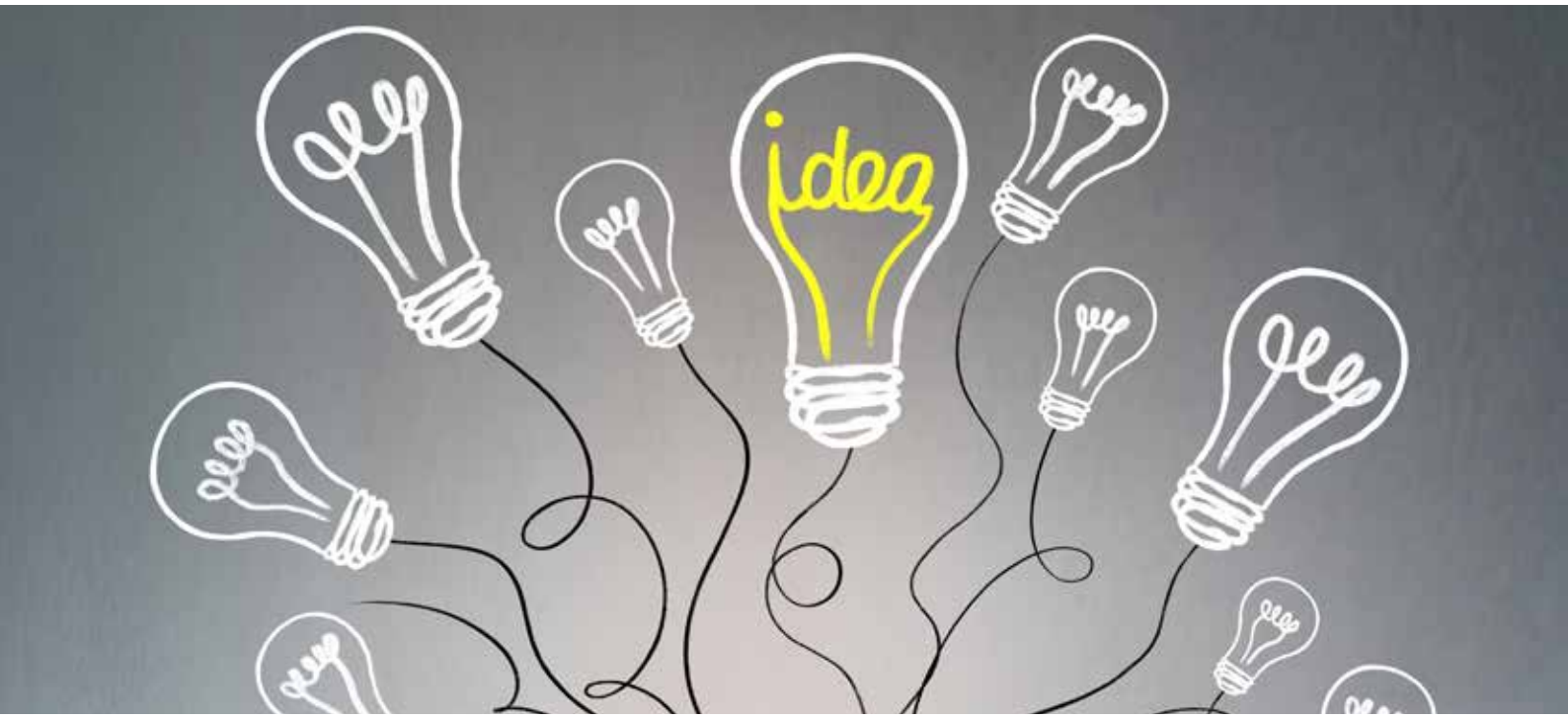
Implementing innovative processes requires changing the habits. It is a process that can be disruptive or even disastrous if poorly implemented.

From training the company's stakeholders to implementing actions such as the design of innovative products or services, Upperion supports managers and their teams in this transformation.

We facilitate Innovation.

Innovation is often a complex process that upsets organizations. However, innovation is the key to competitiveness and the success of adapting to future challenges and changing high-speed environments.

Our Services



Training

Upperion accompanies the transformation by training to the most advanced innovative subjects, in the face-to-face or in the distance, in the form of e-learning or master class.

Coaching

Upperion knows how to stand alongside organizations to help them transform through Innovation in the form of short or long-term missions.

Innovation Designer & Incubator

For organisations that wish to do so, Upperion can use their expertise to help them design innovative products and/or services in order to become more competitive and stand out from the competition. Upperion also provides financial engineering for associated public support.

About the Author

Frédéric DAUMAS

Chairman

Frédéric DAUMAS holds a Phd in Biophysics, specializing in nanovideo microscopy, in which he worked in image recognition, optics and electronics.

He is also a system administrator, a master of different development languages (assembler, java, python, Julia) and different data analysis software (R, Excel, Tableau, Orange3). He taught data analysis and modelling for biology at the University Paul Sabatier – Toulouse III. He created a computer biochemistry center

He has helped create several innovative companies in the Medtech, Biotech, SIG, Enterprise Social Network, Greentech and Industry 4.0 sectors. For most of them, it has developed specialized cyber-physical systems for data collection and model development.

He has also led a start-up incubator for 11 years and is an expert at European level in this sector. Passionate about the data and the models they create, he specialized in data analysis for business at the Statistics Department of the London School of Economics and Political Science before creating Upperion, company specialized in the transformation of organizations through Innovation.

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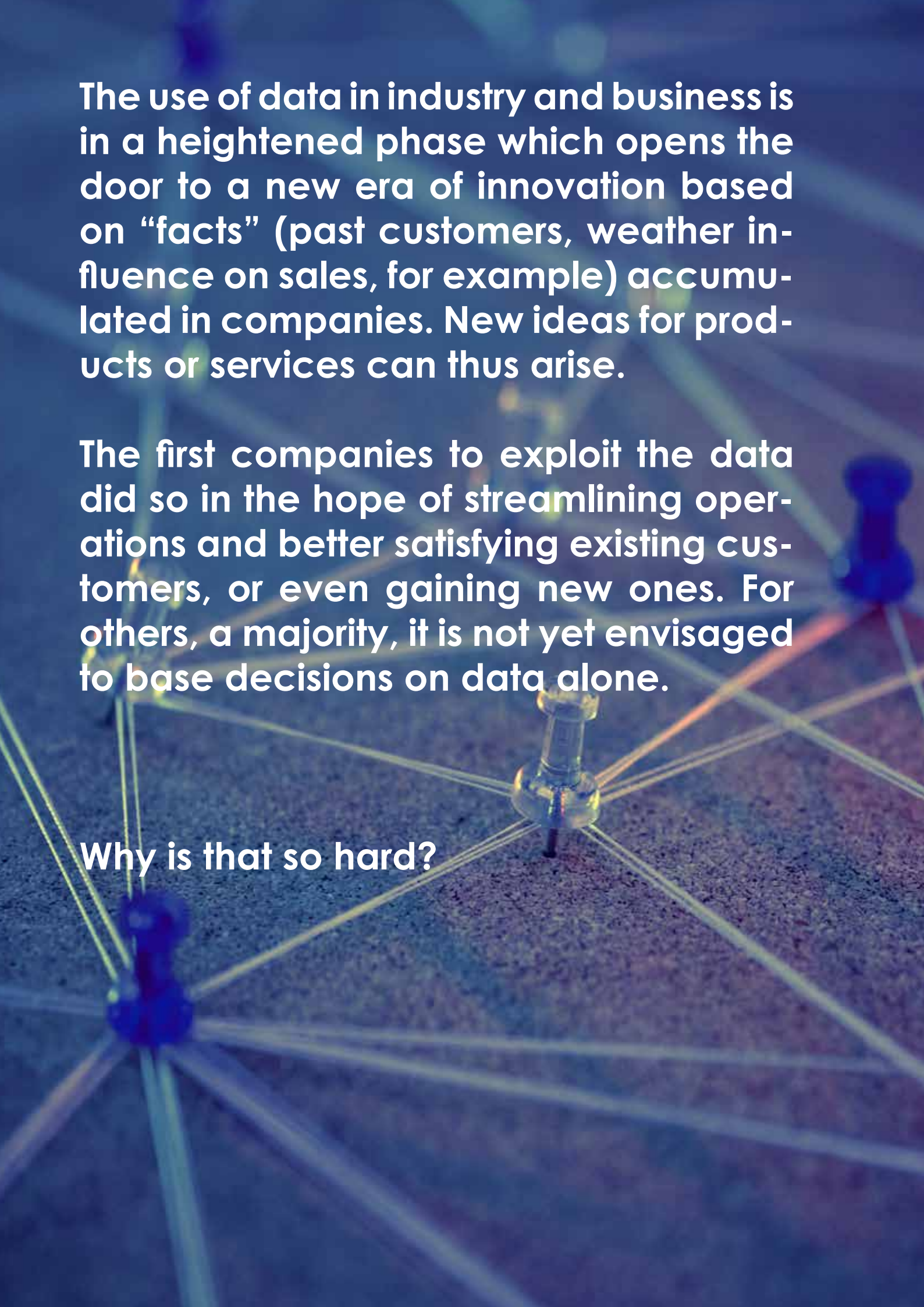


The use of data in industry and business is in a heightened phase which opens the door to a new era of innovation based on “facts” (past customers, weather influence on sales, for example) accumulated in companies. New ideas for products or services can thus arise.

The first companies to exploit the data did so in the hope of streamlining operations and better satisfying existing customers, or even gaining new ones. For others, a majority, it is not yet envisaged to base decisions on data alone.

Why is that so hard?

The Data Culture Clock: 12 strategic points to ensure success.

During our interventions with Innovation Departments of large entities, we were able to realize that the biggest obstacles to data-based decision making are not technical; They are cul-turels. Indeed, it is quite simple to describe the process of collecting and injecting data into an analysis process. However, it is much more difficult for employees to make this normal, if not automatic. We need to change our mindset, which is a major challenge.

This challenge is all the greater when the company or organisation has no financial problems and strong intermediation management.

Who would want to take the risk of changing – and therefore failing – when everything is going well?

Based on our experience and the bibliography, here are 12 ways of action that will promote the creation and maintenance of a culture that is based on data.

1. Data as a management tool.

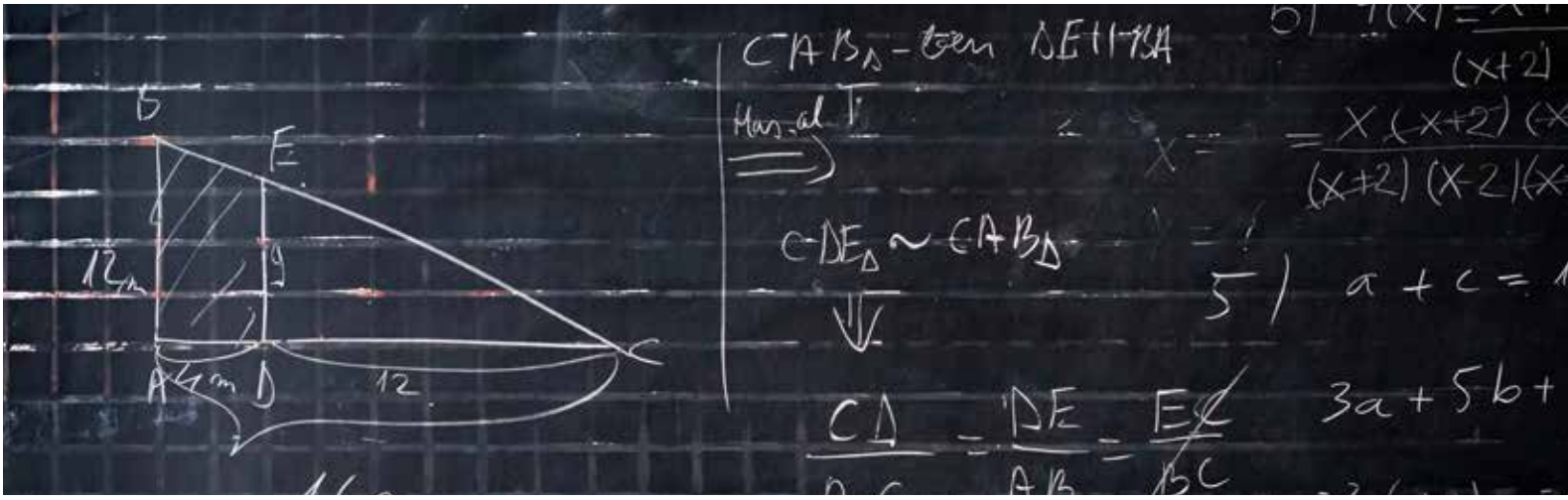
Data-driven culture starts at the top of the company. Accumulating data to "be fashionable" is useless. Managers must take the time to read this data in order to integrate them into decisions. Thus the decision to launch or not a product/service is made on the results of tests carried out at the market, data and statistics to support. These practices must then spread to the employee. He will benefit from speaking the same "language" as his manager in order to better showcase his contribution. So the example starts at the top. The company must be aware that embarking on the path of the data implies a profound change that requires communication within the entity.

> *The world is now flooded with data and we can see consumers in a much clearer way*
>
> Max Levchin, co-founder of Paypal.

2. Select the data and measure it represents.

This is a difficult point. The choice of indicators (Key Performance Indicators – KPI) is of strategic importance. You have to know what to measure and how to interpret it. So choose measures carefully. And don't choose too many. Experience shows that it is not possible to seriously manage more than 5 KPIs on a topic. Too many KPIs kill the KPI. If there are too many indicators, we will have to keep them all up to date, validate their values and especially decide what to do in case of redundant, aberrant or absent value.

The indicators will focus on performance, costs and external constraints such as regulations. Data should therefore feed into these indicators. Leaders therefore have a powerful effect on behaviour by skillfully choosing what to measure and what measures they expect employees to use. The adoption by all will also allow the implementation of continuous improvement loops. It is therefore important that all players in the company contribute: business experts, analysts and CIOs as well as managers.



It is a major mistake to theorise before having data.

Sherlock Holmes, "A study in Scarlett", Sir A. C. Doyle

3. Source the data.

The data has basically two origins. It can be extrinsic like meteorology, or data from competition for example. But it can also be intrinsic. In this case it is the enterprise which produces it either by calculation or by measurement. The company must therefore put in place a control of the origin of the data. In the case of measurement of intrinsic metrics, the use of cyber-physical systems (such as "IoT") will link the real world to the Information System that manages the data.

4. Don’t trust your Data Scientists.

Although brilliant, they are often confined to their service where they apply their mathematical formulas as a shaman prepares mixtures without the patient knowing what he mixes. Data Scientists are often isolated within a company, so that they and business leaders know too little about each other. Analytics cannot survive or provide value if it works separately from the rest of a business. Those who have successfully taken up this challenge have generally done so in two ways: either by simply making the company’s services permeable to data; or by accompanying this permeation of training around the data for the executives. In all cases the establishment of multidisciplinary teams will allow the necessary step back for the analysis.

5. Troubleshoot basic data access issues.

This point directly motivates the introduction of data porosity between services. Indeed, the more services and managers there are, the greater the temptation to keep the data to themself. By far the most complex point remains the sharing of the data. In many cases, the data does not come from a single process but from several. The same data (or part of the data) can then be polymorphic and seen as two different data. If such a problem is not solved then the analyses of the data scientists will be at best biased or totally false in the worst case. In both cases, the culture of data will be doomed to failure.

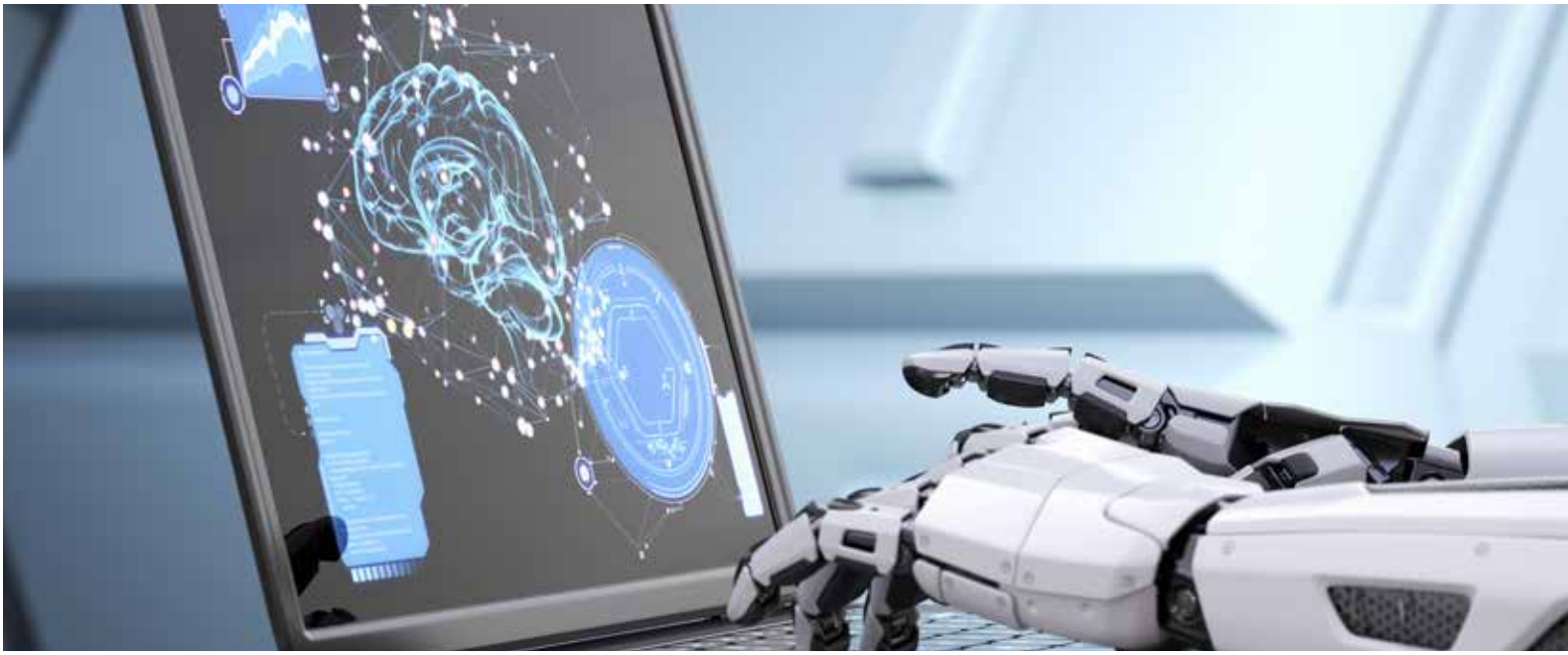
One solution is to set up a data management system whose purpose is, among other things, to unify data.

6. Quantify uncertainty.

Analysing data does not provide a miraculous answer in itself. Indeed, if the data is not up to date, if it is redundant or if it is missing, it will bring a bias in the analysis and therefore will lead to a false conclusion/decision.

The establishment of a culture of data therefore requires the establishment of a culture of the life of data. This must be traceable: where does it come from? When is it dated? Is it still valid in the context of the analysis that needs to be done? What to do if the data is missing or partially missing or if it evolves?

To meet these challenges, the implementation of the data culture must be accompanied by an analysis of the data life cycle, a Data Life Cycle (DLC) in a way. In addition to regulating the relative or absolute validity of the data, the DLC is also involved in the launch of tests, demonstrators ("proof of concept") in order to check whether in a particular context (a particular question) the existing data is valid, sufficient or needs to be supplemented by other data. These demonstration steps require the establishment of small multidisciplinary teams including: data scientists, business experts and decision makers.



7. Test proof of concept in the real life of the entreprise.

The aim here is to ensure that proof of concept is deployable within the company. During this step, the entire company – or at least the employees involved – must be involved in order to validate that the data is accessible, that their validity is always assured and that the process put in place does not result in a loss online.

> Without data analysis, businesses are blind and deaf, wandering the web like deer on a highway.
>
> Geoffrey Moore, Author & Consultant

8. Establish continuous training in data and its use.

Instead of teaching the knowledge of the data at once, far from any practical application, it is necessary to organize a training course in short, sufficient modules, so that the employees can apply it in everyday life. E-learning remains one of the most convenient ways to do this.

> Bigdata is like teenage sex: everybody talks about it, nobody really knows how to do it, everybody thinks everybody does it, so everybody claims they do it.

Dan Ariely, Professor at Duke University

9. Use data analytics to help employees, not just customers

In data management, the source is an important point. If the employer who enters it into the system does so conscientiously, with satisfaction, then the data is valid as soon as it enters the system. But asking employees to do this can be seen as extra tasks. It is therefore necessary to put in place a motivational strategy which will make everyone aware that this step will facilitate their work (such as automating more laborious tasks, for example). This strategy will be more easily adopted than the mere obligation of the hierarchy.

> When we have all the data online it will be a big step for humanity. It is a precondition for solving many of the problems facing humanity.
>
> Robert Cailliau, Co-inventor of the W.W.W.

10. Flexibility in the data without falling into chaos.

The data that enters the system must live and be treated in a consistent manner. However, employees must be able to interact with them flexibly. The same data can be seen by different actors in the company in different situations. The role of the HMI in interacting with data will therefore be paramount. In the construction sector the perfect example is that of Building Information Modeling or BIM or digital model. On the scale of the client or the architect it can be a complex interface (interactive 3D or even augmented reality) but on the site, it is different: little room for virtual reality glasses or even a 12-inch tablet; sometimes only a smartphone will allow to interact at the scale of the construction worker. It is therefore impossible to ask him to enter the data via a form; but scanning a Qrcode will be easier for him. One point of attention concerns the tools used for data analysis. Some will use «button-press» tools like Tableau while others will want to develop their own tools (Python, R, Julia, Matlab). In order to avoid any cacophony, it is important that the company conducts a reflection on a product unit to exploit the data.

11. Discuss data analyses.

In the context of exchanges between data scientists and management, it can be beneficial to organize meetings with the company's business experts. Indeed, the triptych Analyst/Business Expert/Decision-maker will be better able to question the data, the interpretation made of it and the economic reality on which it depends.

> The aim is to transform data into information and information into perspective.
>
> Carly Fiorana, H.P. Chairman

> The data are valuable and will last longer than the systems themselves.
>
> Tim Berner Lee, Co-inventor of the WWW

12. Secure your data.

If more and more companies start collecting and exploiting data, there is no longer any question of doing so in the same way as web giants such as Alphabet (Google's parent company) or Facebook 15 years ago. Regulations have flourished for the good of all. As a result, the value of the data has climbed mechanically and is of major importance to competitors. Economic war has a new battlefield: data. Cyber-activists, cyber-terrorists, cyber-mercenaries exploit loopholes every day to glean this data, sell it or use it against companies. Data can also become a hostage through ransomware. Hackers target Smes more often than large groups. The former are often less secure. We must therefore integrate a culture of data value with employees very early on to avoid these attacks, which are all too often catastrophic.

Conclusion

The way of the modes is to follow the movement without really participating in it. The problem with data is to accumulate it without doing anything concrete. Companies can only become more competitive by giving if they do a real job of investing in data at all levels of society. This process is not immediate and requires everyone's support: it is a real digital transformation, but it leads to the implementation of continuous improvement loops. Thus, if the data accompanies the company so that it improves with respect to performance, costs and regulation, then everyone wins: the company and its customers but also the company and its employees.

> If we have data, let's go back to the data. If we only have opinions, let's go with mine.
>
> Jim Barksdale, ex-CEO of Netscape

Do you have questions about our training, conferences or coaching?

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