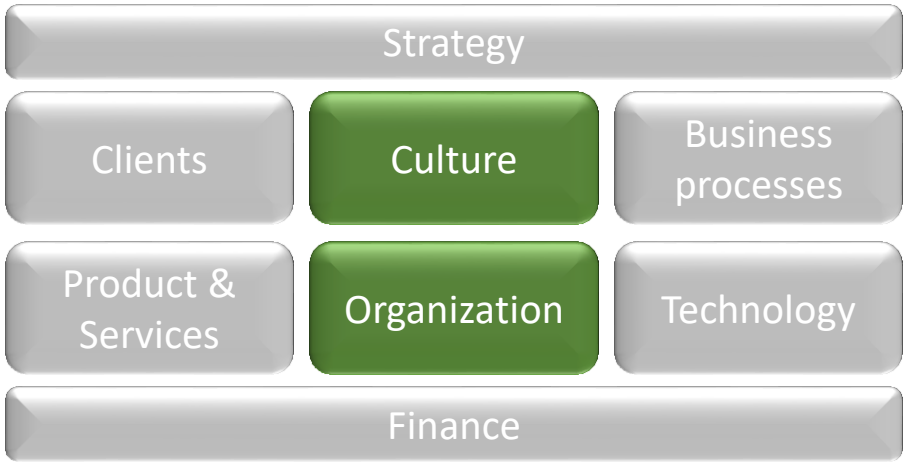
Business Analytics

UNIVERSITAT DE BARCELONA
Facultat d'Economia i Empresa

What are we going to do?

- Presentation.
- What is Business Analytics?
- Impact of Business Analytics in a Company. General approach.
  - Objectives: We will dedicate this sessions to analyze what is the impact of gathering, managing and analyzing data in the different areas of a Company
    - Strategy.
    - Technology.
    - Business Processes.
      - Internet of Thinks.
    - Clients, Products & Services. Marketing.
      - Social Media.
    - Organization

Organization



Culture and Organization: Key activities to ensure success.

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Organizational alignment.

The leaders need to define business priorities and problems to be solved and define road maps that are time-
bound but at the same time measurable and achievable. As intuitive as it may seem, without focus and direction, no processes or technology will make a difference.

Executive endorsement and sponsorship.

It is important for the leadership team to endorse fact-based decision making and identify champions for consumption of analytics. Consumption also requires a lot of walking the aisles, socializing the insights, and maneuvering the dynamics across various business groups. Without conscious focus on these activities, the visually rich reports or sophisticated statistical models will not drive any real business value.

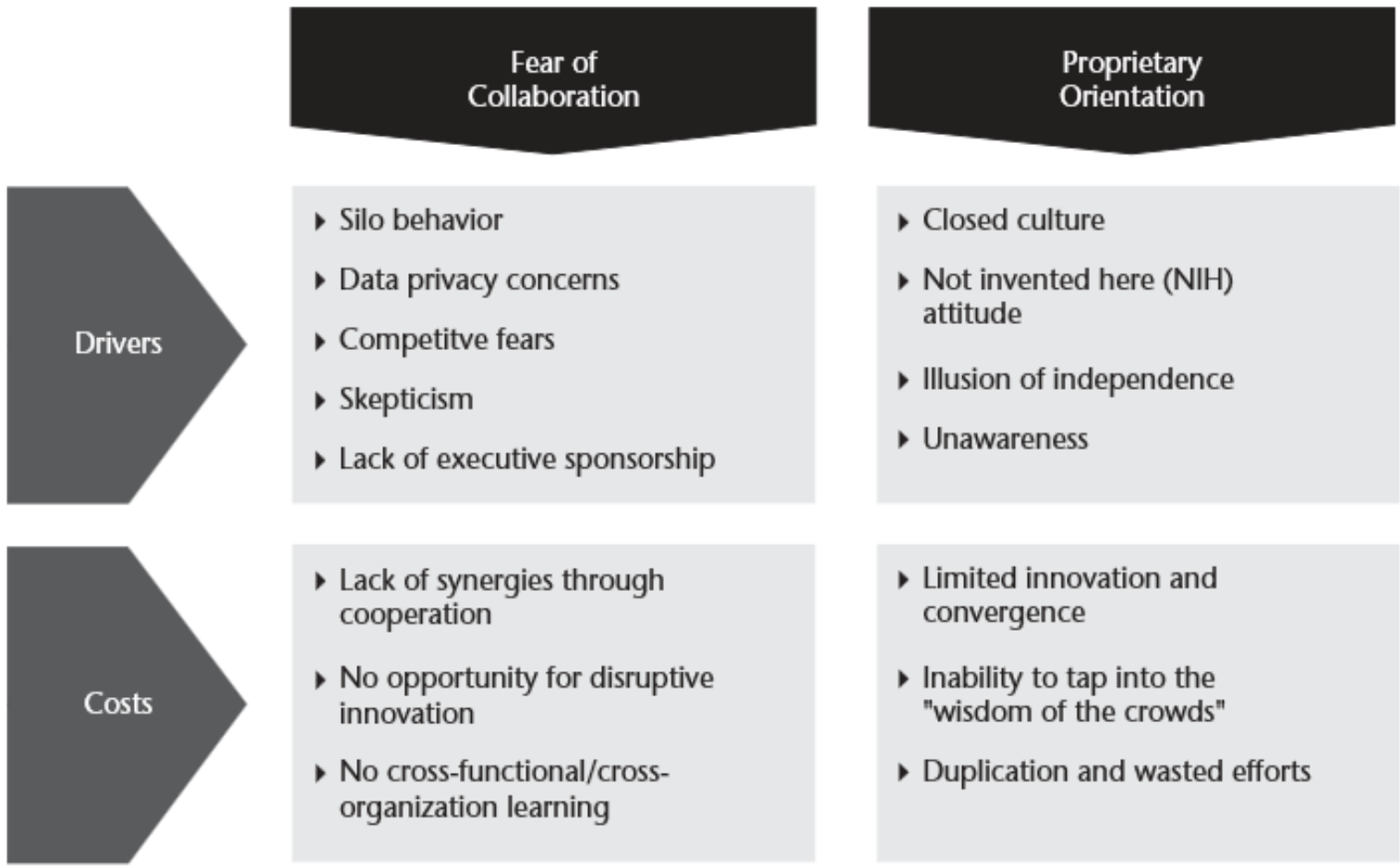
Investing in analytical human capital.

The organization needs to mobilize resources required for analytics and hire the right talent and retain them. There is an increasing demand for analysts who can learn new skills as the situation demands, be it math, business, or technology.

Organizational alignment.

Setting Up the Right Organizational Structure for Institutionalizing Analytics

Organizations are limited by fear of collaboration and overreliance on proprietary information



Different organization models.

Centralized Analytics.

A single team that owns the data and services all the analytical needs across all the business functions. While this carries the promise of an integrated data infrastructure and the economies of scale, a centralized model will not be able to provide the agility and flexibility that is required to keep analytics relevant within the business.

Decentralized Analytics.

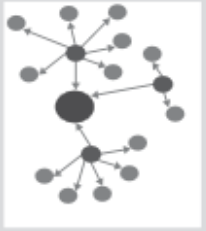
Each business function owns its own data infrastructure and analytics team. While this ensures the agility and flexibility, this model runs the risk of creating different functions within an organization that choose to adopt their respective sets of tools and methodologies. While this approach gets each function off the ground quickly, it runs the risk of creating redundancies or worse, conflicting approaches ultimately resulting in fiefdoms.

Federated Model.

This seeks to marry the advantages of both the centralized and the decentralized models. While each function is allowed the flexibility to deploy analytics, a governing council ensures that there is broad alignment on data policies and infrastructure.

Different organization models.

Different forms of organizational structure will emerge best suited to the analytical needs of the organization

	Centralized	Decentralized	Federated
Description	▸ Central shared services organization serving multiple departments 	▸ Each department with its own analytics unit 	▸ Central coordination with local execution 
Owner	▸ C-level executive	▸ Business unit/functional heads	▸ C level executive with a team of lieutenants embedded within the business units
Pros	▸ Economies of scale in infrasturcture and process ▸ Ease of promoting a corporate vision of analytics in service of strategic capabilities ▸ Cross functional collaboration	▸ Not aligned with the business units ▸ Risk of spreading too thin in areas that need in depth focus	▸ Retains the agility ▸ Access to the right breadth and depth of skills needed ▸ Autonomy of functional units maintained
Cons	▸ Seen as a cost center ▸ Not aligned with the business units ▸ Slow and Inflexible	▸ Local/silo approach ▸ Short term focus ▸ Lack of control and alignment to corporate vision	▸ Coordination and planning are easier said than done

Dual Organizations.

"The hierarchical structures and organizational processes that have been used for decades to manage and improve companies no longer live up to the challenges we face in a world of accelerating change" - John Kotter

Dual Organizations.

Operating System 1.

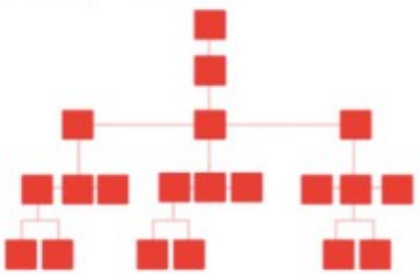
- It is a well-structured hierarchy with the management processes necessary to produce reliable and efficient results on a weekly, quarterly or annual basis. Such an operating system allows people to do what they know to do exceptionally well.

Operating System 2.

- It is a new second redarquical structure, more agile, similar to a network that operates in a system - concert with the hierarchy to create a "dual system" in its operation. This network operating system is dynamic and free of bureaucratic layers. Its core is a guiding coalition in which each level and department are represented in the hierarchy. And its drivers are a "volunteer army" of people committed to the strategic vision and necessary transformations.

Dual Organizations.

Hierarchy



- Planification
- Budget
- Privacy
- Satus Quo

Doing what we do and producing reliable results

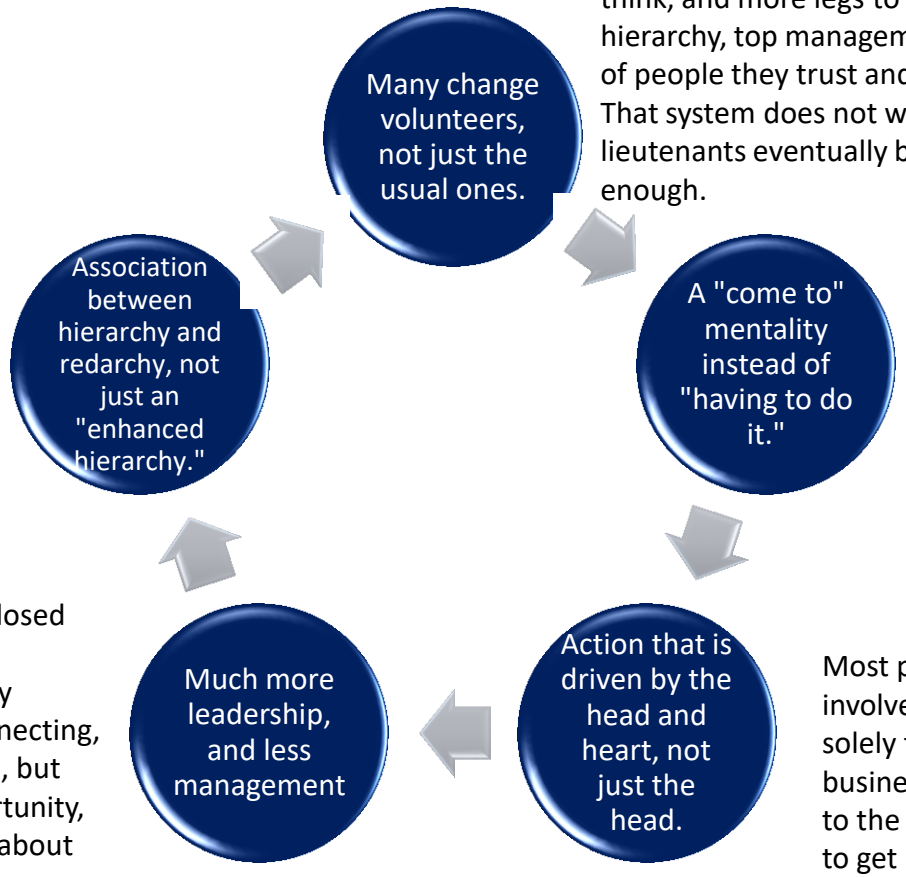
Redarquy

- Emergency
- Self-Management
- Transparency
- Innovation

Mobilizing people to achieve extraordinary results and accelerate the strategy

Dual Organizations.

The two systems function as one, with a constant flow of information and activity between the two systems. The approach is successful, in part because people who volunteer for the network are already working within the hierarchy. It is not a matter of working day in the hierarchy and at night in the redarchy, we must dedicate new spaces and times to the innovation



Major changes are driven by many people at all levels of the company. "It takes more eyes to see, more brain to think, and more legs to act in order to accelerate," In a hierarchy, top management typically has a limited number of people they trust and turn to them over and over again. That system does not work, because these trusted lieutenants eventually burn and the system is not inclusive enough.

"It's not about telling people what they have to do." In practice, people who feel the privilege of being involved in an important initiative for the organization will volunteer, the desire to work with others for a common purpose gives energy to the community.

Most people are not going to get involved in the changes if they appeal solely to the logic of numbers and business cases. You should also appeal to the opportunity it takes for people to get involved in an initiative to make big changes in your company. It is about creating a better future for all, finding meaning and purpose to what we do.

To take advantage of unpredictable windows that can be opened and closed quickly, and to detect and avoid unpredictable threats, leadership by influence is needed. It is about connecting, persuading, arguing and convincing, but about participation, sense of opportunity, agility and inspired action. It is not about project management, budget reviews or follow a plan The game is all about vision, timeliness, agility, inspired action, and not holding project management, budget reviews, reporting relationships , Compensation and liability to a plan.

Executive endorsement and sponsorship.

Executive endorsement and sponsorship.

Recognize the value of information as a Critical Activity

Only 0.5% of the total volume of data is analyzed. In fact, most companies analyze less than 1% of the information they store or have available.

Know its state of Analytical Maturity.

It is good that Management understands the opportunities and the potential that the data open to it, that it knows its starting point and that it is able to draw up a road map, according to its context, its priorities and interests

Have a strategic "Agenda"

If strategic planning is falling in almost all business areas, it is even more so in an uncertain, mobile, unstructured and ambiguous space such as data management

Search, nourish and develop Analytical talent

Ability to apply Business + Math + Technology + Behavioral Sciences.

Develop a data-driven business culture

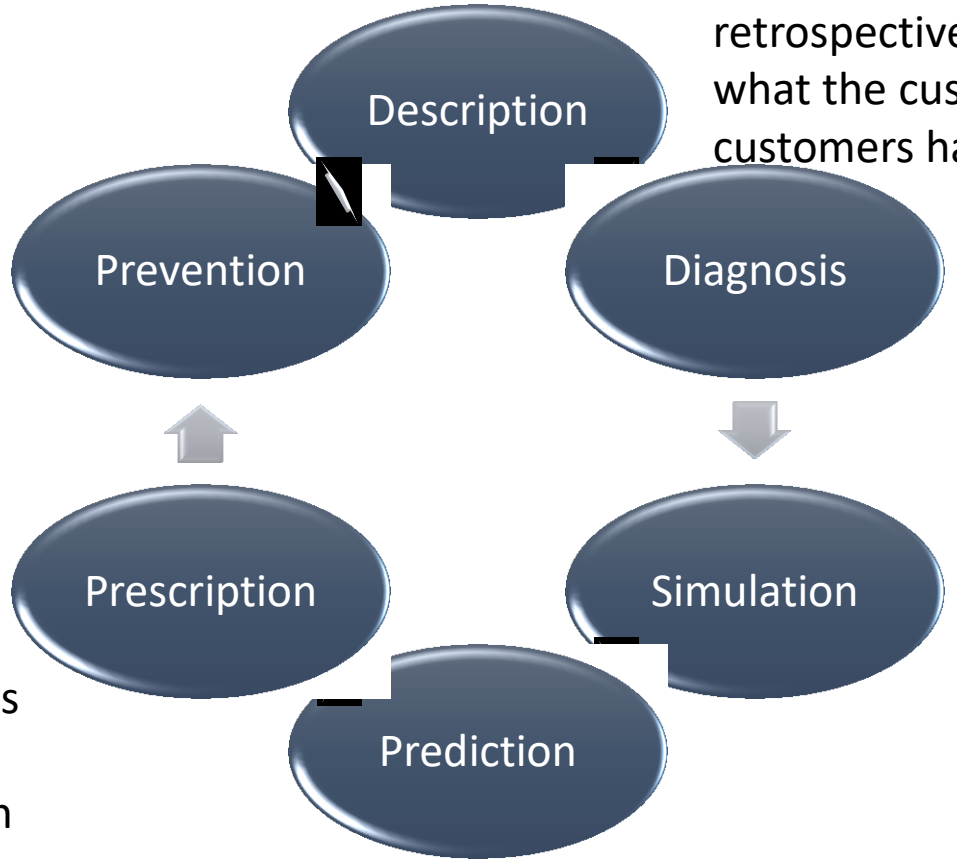
A data-driven organization is managed primarily on the basis of facts, data and evidences or, in other words, has the capacity to transform so that data and models (of analysis) actually lead to better information about reality, generate business knowledge and allow better decisions

Executive endorsement and sponsorship: Value of information – Critical Activity.

- Only 0.5% of the total volume of data is analyzed. In fact, most companies analyze less than 1% of the information they store or have available.
  - Data is cheap or often free, hardware or software is not expensive or inaccessible today
  - But what makes the difference is the intelligence and courage to recognize the strategic sense of information and the ability and talent to analyze it and put it into value.
  - According to research by Brynjolfsson and other members of the Center for Digital Business team at the Massachusetts Institute of Technology (MIT), companies that are able to orchestrate greater investment in technology, in their "stock of organizational capital" (such as Decentralization, process improvement or human capital), in relation to the environment and in the use of information, obtain higher productivity and benefits than comparable companies, up to 5% or 6% more.
- The recognition of information as a strategic asset is something as - or as little - magical as the value that companies give to their R & D, their channels or their brands. It is a special trait that is preserved, cared for and nourished with use and over time. The company must create and obtain the correct data and make it available to the people who need it when they need it, to make a decision, to serve a customer, to complete an operation or to create or improve a product.

Executive endorsement and sponsorship: Analytical Maturity.

The first analyzes were descriptive and retrospective. For example, it was about seeing what the customer bought or how many customers had left.



We then try to establish a diagnosis, understand why and establish cause-effect relationships. For example, why a customer buys a particular product or brand and not another. In this process, we are adding analysis dimensions.

In a third phase, we begin to make more complex analyzes, through the simulation. For example, what would happen if we changed the point of sale, the position in the lineal or the price.

Through simulation, experimentation and field studies, we can make predictions, that is, predict certain behaviors; For example, which customers will leave and why. The virtual world allows continuous and real-time experiments and predictions; The physical world, not so much.

Many companies aspire to make prescriptions, that is, to act on the consumer to obtain certain results. This analysis is based on multidimensional scenarios, which allow us to identify clusters of clients that fulfill certain conditions and on which we apply, for example, certain retention or loyalty strategies.

Finally, in the preventive use we advance to an eventuality (for example, that the client is thinking of leaving) or to a necessity, to propose an offer or a prize to him.

Executive endorsement and sponsorship: Strategic Agenda.

Business transformation projects	These are almost always sectorial: in the area of high consumption are often found in the areas of Marketing and Sales (customer analytics), but in industrial sectors or utilities may be in the information that comes from the Internet of Things (Sensors or meters in the field)
Facilitating projects	Which deal with data and systems infrastructure, technical platforms and their integration, as well as with the data-processing management model.
Talent management projects	Talent management projects and the organization of analytical intelligence in the company and in the relationship with its partners, which are the true key to the success of a data strategy.
Some pilot projects	In new areas of knowledge that go beyond traditional business intelligence, such as Big Data or artificial intelligence.
Think and execute quick wins	Associated with each of the previous categories, that make the change visible and gain traction within the company.
Stop doing things	That do not add value and force key people to devote energy and intelligence when they could tackle projects that are worthwhile.
Take care of things that can not fail and continuously improve	Many efforts fail because of performance problems, trustworthy or interlocution between technologists , Data analysts and end users. Making business intelligence work is a permanent endeavor.

Executive endorsement and sponsorship: Develop Analytical Talent.

- It's the people who make Big Data really work; ... and people are expensive and hard to come.
  - The investment in BI systems is, for the third consecutive year, the highest priority of companies in the field of information systems, according to Gartner or IDC.
  - According to estimates by icrunchdata in 2015 they were left without one million jobs in this area around the world, almost one in four. The professionals of business intelligence and data analysis are therefore the most sought after and best paid in the ICT sector. Why? How are business intelligence professionals?

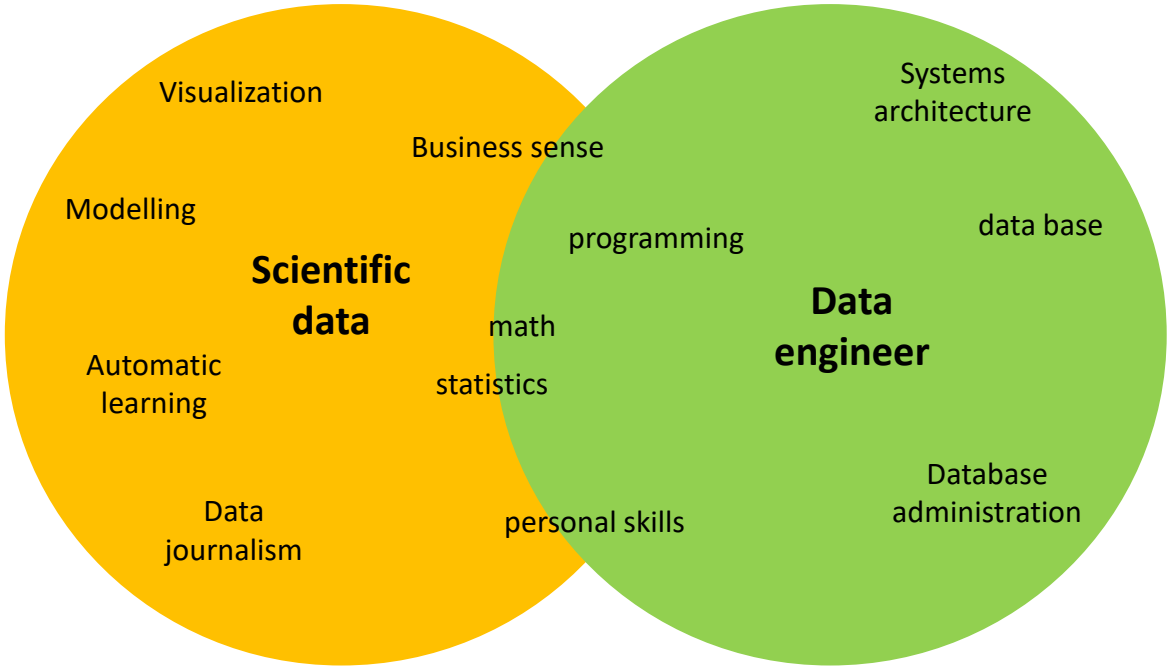
- Only two or three years ago, the bulk of the students and the bulk of the professionals involved in business intelligence were of technological origin, who had acquired other skills through consulting or who liked statistics and had dedicated to the mining of data. The BI professional was a "pro" all-terrain with passion for data.
  - Now, many of those interested are graduates in business or other non-computer careers, science and literature, psychologists, journalists or biologists.

Executive endorsement and sponsorship: Develop Analytical Talent.

- In recent years, it has been observed that the market differentiates two types of profiles
  - Those who design, build and manage data systems, usually with a basic training in computer engineering. They are architects or data engineers.
  - Those who convert data into information to make decisions; That is, those who understand the business problem, prepare and look for the data, create models and algorithms and analyze and interpret the results. They are data scientists.

- The two profiles work together and have things in common.
  - They all need to program (some more and some less)
  - They all need quantitative skills (some more and some less)
  - They all use, to some extent, techniques and tools, everyone needs to understand how the business works and earns money and where to apply the best Analytical intelligence and all must have strong communication, relationship and teamwork skills.

Executive endorsement and sponsorship: Develop Analytical Talent.



Executive endorsement and sponsorship: Develop a data-driven business culture.

- William Deming (1900-1993), engineer, statistician, physicist and inventor of modern quality control, said: "**We believe in God; All others must bring data**.“
- Peter Drucker also said: "**What can be measured, can be managed" and "what is measured is done, what is done is measured**".
- Albert Einstein said: "**Not everything that counts can be counted. Not everything that can be counted counts”**
  - In the world of business, managers and middle managers often come to give their ***opinions or conclusions*** before taking time to understand the problem, formulate the questions well, search and analyze the data, and discuss the evidence. And start again, ask again.
  - Many executives rely on their ***intuition*** and experience and fear the data.
  - Technology capabilities have also had a perverse effect: ***accumulation of data and the game of discovering what they hide sometimes replace the common sense*** of understanding a business need, formulating the appropriate questions, and then, and only then, going to look for the data.

Executive endorsement and sponsorship: Develop a data-driven business culture.

- According to a study by the McKinsey Institute in 2012, the forecast is that in 2018, in the United States alone, there will be an uncovered demand for one and a half million executives and intermediate managers with analytical skills.

Attitude

- Analytical and critical mentality in problem understanding, questioning and data use.
- Abandon decision-making prejudices based on intuition, history or control of power and information.
- Interest and open and proactive attitude towards the use of numbers.
- Interest and willingness to understand the models of analysis and basic statistics.
- Curiosity for methods, techniques and tools for data management and analysis.
- Understand the dynamics, rhythms and ways of working of all professionals involved in business intelligence projects.

Habits

- Replace opinion-based conversations with evidence-based conversations
- Use data in management meetings, reporting bureaus, and team meetings to discuss and analyze problems and make decisions.
- Actively solicit data that supports ideas, insights, facts, theories and observations.
- Ensure that the data are relevant, accurate and of quality and are being interpreted correctly.
- Participate actively in business intelligence projects.
- Evangelize our own teams and the organization as a whole on the benefits of data-based services, processes and projects.

Knowledge

- Have basic digital and office skills.
- Know the internal and external information systems from which the data are extracted.
- Understand the most frequent statistical functions, their uses, limitations and calculation methods.
- Understand the difference between cause and effect relationships and statistical correlations.
- Have a basic understanding of the techniques, tools and technologies used in analytical intelligence.

Investing in analytical human capital.

Investing in analytical human capital.

Yesterday and Today

- Business + Math gave rise to the consulting profession. This allowed us to use heuristics and creativity to make persuasive arguments in the boardroom.
- Business + Technology gave rise to the IT profession. This helped us automate algorithmic tasks, thus improving productivity and efficiency.
- Math + Technology inspired interesting software products that helped us address a wide range of business problems and operate proactively with anticipation.

Tomorrow

- Business + Math + Technology are coming together with the behavioral sciences. The behavioral sciences allow us to connect the dots between interactions and develop a deeper understanding of human behavior. Combining that deep understanding with math and technology allows us to create the appropriate incentives to drive behaviors that align to our business

Investing in analytical human capital.

Investing in analytical human capital. Combination of traits.

Learning over knowledge.

Ability to apply first principles and structured approaches to problem solving as opposed to relying excessively on past domain expertise. Since business is transforming rapidly it is no longer relevant to what one knew five years back; it is more important to be able to infer and learn from what happened in the past few months, weeks, days, and so on.

Agility.

Needed to cope with continuous transformation. Organizations will need to design their organizations to be agile from all three perspectives: people, process, and technology. This implies adopting agile frameworks that enable fast iterations, front-loaded thinking, hypothesis, and visualization.

Scale and convergence.

Synergistic ecosystem of talent, capabilities, processes, customers, and partners that can be leveraged across verticals, domains, and geographies.

Multi-disciplinary talent

Ability to apply Business + Math + Technology + Behavioral Sciences.

Innovation.

Increase breadth and depth of problem solving by constantly researching and deploying emerging techniques, technologies, and applications.

Cost effectiveness.

Ensure sustainability and institutionalization of problem solving across organizations.


OUR CLOUD TEAM WAS WORKING ON A BIG-DATA PROJECT AND GOT STUCK IN A PATCH OF FOG.
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Key Questions.

- Organizational alignment. Of the 4 different organizational models presented, which one do you consider best suits the situation of each company and why would you advise adopting this model?
- What do you think could be a proposal for each company in terms of strategic agenda. include a proposal for each of the points identified in the strategic agenda example, adapting them to each company.

Thank You

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