BUSINESS INTELLIGENCE AND THE TRANSITION TO BUSINESS ANALYTICS

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ABSTRACT: In recent years, several independent studies conducted by different organizations, show that the data extracted from the companies running the business in different industries in their daily work represents a real gold mine. The huge volume of information hide, most of the times, the key to success and provide clues for understanding market trends and the directions of customer needs. The main problem is that the modern world presents the information in a less natural way. Mobile technologies, decreases price of IT equipment (Information Technology), social networks, and the economic crisis have caused major changes in the behavior of both end users and companies. The speed at which information is produced and circulated, large data volumes increased considerably, so that the need to indentify on time new business opportunities and make appropriate decisions increased accordingly.

KEY WORDS: business intelligence, business analytics, natural analytics, big data, data discovery

1. INTRODUCTION

The companies understand the whole power of the data and complain about a true "flood" of information, being surrounded by too much data for keeping pace and to be able to analyze it effectively. People tend to panic when they face with large amounts of information, being incapable to see how they could be useful or too scared to try to deal with them.

Normally, people are capable to automatically process thousands of pieces of information every second. From the moment we wake up in the morning, constantly we process the images and ideas and make decisions without even realize that we do it [1]. None of these activities is new - our ancestors lived also in full of data environments, where their hunters and gatherers instincts made them to analyze the nature around them to learn what to eat to survive.

The human brain is constantly making associations between different information. Our mind categorizes and connects searching and classifying the most important data. Moreover, we do not stop once I realized these associations. On the contrary, as we understand the present, based on our past experiences, we will constantly anticipate the future.

2. THE TRANSITION FROM BUSINESS INTELLIGENCE TO BUSINESS ANALYTICS

Each of us uses on a daily basis natural instruments, without even being aware that we are doing this. We use the same tools in the business world for helping us to understand complex problems [1]. However, most of the technology we have access to, does not complete, nor capitalize these inborn characteristics that we have. Therefore, people need IT solutions that make all the complex information we are exposed, more affordable and to allow us to naturally discover patterns and make some projections.
An excellent example of technology (QlikView) is addressed to our natural way of using the information due to the **Natural Analytics** approach, which uses the normal human capability to process complex information. Practically, it is claimed the way in which human curiosity it is usually manifested and how search, filter, questioning and looking for associations between data in order to find a meaning to the information - highlighting therefore conclusions and enabling decisions.

In Romania, there are companies specialized in IT consultancy and management services and management solutions to optimize business processes, using a **Natural Analytics** approach. A business user of this platform can easily link between information and others, being intuitively guided to the answers and discovering at the same time completely new unexpected links between data.

A user can talk live, in an interactive way with other users about analyzed data and about the decisions they make instead of being automatically guided to the predefined decision making channels. Therefore, users easily get a consensus, because they are working together, reveal information, mark and share them with each other. Finally, **Natural Analytics** gives people the opportunity to show the links between data that underlie their conclusions and to interactively explore contradictory points of view when making decisions.

Anyone can be a data analyst. For example, in Peru, fishermen use analysis systems to determine the best location for selling their fish capture to obtain maximum profit. Similarly, in Sweden, the police use data analysis methods to be more effective in combating crime. In one case, using such platform, Malmö police managed to catch a serial killer. None of these people is formally a specialist in data analysis, but they compensate their natural instincts with intuitive technology for improving the way they make decisions.

Worldwide, there is a great chance to find «insights» which are based on our innate ability to analyze the world around us. However, many times, the technology that should support the business stops us from using these skills because it presents the information in a technical manner that discourages our natural way of decoding the world around us.

Companies must have systems for exploiting natural processes of employees thinking and the way they made associations, compares and anticipates information. Until when this will happen, many of us will remain lost in a huge amount of data.

### 2.1. Business Intelligence Investments

Expenditure on business intelligence (BI) software and services will reach $143.3 billion by 2016, two-thirds of this amount being invested in services. In 2012, the BI was worth to $ 79 billion, according to a conducted research [2], though this amount is expected to increase on average by 16% over the next four years.

Two-thirds of the expenditures incurred for BI will be related to the services, so that, for every dollar invested in BI software, $ 2 will be spent on services designed to maximize its performance.

The fastest growing sector will be registered for BI analysis tools, respectively an increase of 18.8% on software expenses and an increase of 20.9% for charging the service.

As the volume and the variety of data increases, it is needed to increase the level of investment in technology and services necessary to understand and successfully exploit this value. The research [2] also found that the BI expenses are equally
important in difficult times, as well as in periods of business prosperity. Services represented two-thirds of the global BI market in 2012 and will continue to remain as such until 2016. The report [2] revealed that global market of these services will increase from the estimated amount of $ 54.5 billion in 2012 to $ 96.9 billion dollars in 2016. BI and Business Analytics (BA) continues to be the on the top of the priority investments, though, Gartner surveys applied on users shows that only 30% of potential users in an organization adopts tools for analysis. This seems to change in the organizations that invest in making the analysis "invisible", much more oriented towards consumerization and accessible to users who are not familiar with the analysis.

A large organization takes millions of decisions every day. The challenge lies in the fact that companies have much more data than people have time and the amount of data generated every minute is continuously increasing. In front of increasingly accelerated business processes and the multitude of distractions, real time operational systems of "intelligence" are moving from "nice to have" to "must to have for survival".

As the most exhaustive analysis will be capitalized by business users, customers and consumers, the greater will be the real-time impact regarding business activities, competitiveness, innovation and productivity. Gartner identified three key trends (mobility, social and big data) for analysis that professionals in Business Intelligence [3] should take into consideration alongside the recommendations on how to approach.

3. BI &BA AND BIG DATA PROCESSES

While over 75% of the most performant organizations mention the increase or innovation as the most important value brought by "business analytics", nearly two-thirds say that there are some political or tough executive obstacles that represents a first barrier to achieve a real value from investments. In the fifth global examination concerning the adoption and use of analytics processes, was revealed that a growing number of respondents (over two thirds) apply analytics business processes in order to support the revenue-generating strategies to the detriment of costs. In addition, the study [4] has identified that nearly 40% of companies have noticed a quick return on investment (Return of Investments - ROI) in the first six months from the adoption of analytics systems. IBM performed this analysis [4] with the help of about 1,000 business and IT executives from 70 countries. Research topics included executive activities, business processes, data management practices, human resource management, competency measures, software utilization and hardware implementation. This survey was conducted using a global team of business strategists, consultants, scientists and statisticians.

Likewise, the study [4] revealed that there are three key factors that support the introduction of analytic business process in a company - support, confidence and skills - as well as significant deficiencies in each area. By addressing these deficiencies, the leaders in analytics have the opportunity to increase the executive support to improve the confidence within the organization and to foster rigorous knowledge and skills.

In order to take the advantage of the perspectives generated by data, organisations must identify different
successful leaders in order to use the full potential of the analytics processes. Emergent roles such as CDO (Chief Data Officer) and CAO (Chief Analytics Officer) helps companies building the strategies based on the "enterprise" data to obtain competitive advantage. It is necessary to align the strategy, standards, technology and organizational structure to profit from the full potential of analytics business process.

Currently, only a small part of IT leaders strongly support the use of "big data" and analytics processes to accelerate the taking of decisions and institutional change. The study [4] shows that a quarter (24%) of all CEOs (Chief Executive Officers) and COO (Chief Operational Officers) acts as the main advocates for the use of analytics perspective. This represents an increase of 10 percent compared with 2012; the necessary leadership not being performed in order to produce change. Besides the CEO and COO, other executive managers as well as CIO (Chief Information Officer) and CMO (Chief Marketing Officer) have the power to decide on the introduction and the utilization of Big Data and Analytics processes in the company.

Executive support and involvement in supporting Big Data and Analytics are essential to generate important insights. In organizations with low executive support, analytics implementations are limited by the lack of funds, resources and perseverance. As the organizations are willing to grow, there is always a demand for the existence of supporters in the company to help in project implementation.

This attract the attention to the fact that the executive proponents have an essential role in the achieving of an culture based on the "enterprise" data. In the future, more companies will be able to address a CDO or CAO to help them to analyze and benefit from the generated results and to build a corporate culture based on analytics for supporting the business success.

3.1. Lack of trust

Most of today's organizations prioritize investments and decisions regarding data at the business unit level. One of the most significant barriers to generate value is the lack of trust in organizations. While approximately 60% of top professionals enjoy high levels of trust between employees in their organization, the confidence level decreases significantly (47%) when a process lacks of information when is carried between business units and IT departments in general [5].

A fragmented approach may result in a lack of trust between different groups of people who can access interpret and use data in different ways. This lack of confidence comes from a basic confidence of who has the competence to analyze and process data. Lack of trust among analysts and data managers can have a significant impact on the willingness to share data, based on the perspectives and collaboration to generate value.

The study [4] revealed that a lack of trust between people, results in a lack of confidence regarding the accuracy of the data. When this happens, the total business costs are higher. For example a major global banking institution has doubled its efforts to collect data from two different sources because the bank managers do not trust the work done by another team located in a different geographic area, which made them to put in doubt the data authenticity. Nationwide Insurance in Columbus, Ohio is an example of a company which uses intensive communication and education to reduce the lack of trust.

Through the intensive communication there were built trustfully relationship and
it was accelerated the acceptance of Big Data and Analytics objectives [5, 6]. There were broken the barriers of mistrust through an intense focus on education and personal interaction so that everyone can understand and interpret data in the same way. It is essential to have confidence - both with regard to data and persons - thus that the organization can act more quickly based on the perspectives provided by data.

3.2. Lack of skills evolution

Another factor that creates a barrier to success generated through the Big Data and Analytics is represented by skills. The gap between global demand for talent with regard to the Big Data and analytics processes, and providing talent at a global scale is one of the major obstacles in implementing analytics processes within the organizations.

One third of the respondents mentioned lack of analysis and data interpretation to generate business processes skills of as a top challenge in terms of value creation using analytics processes [6].

The biggest gap is the ability to combine analytics skills with business knowledge for extracting significant insights from the data. Analysts who understand both business and the importance of mathematics assessment of tasks are the most wanted on the market. More than one third of respondents (36%) cite this as the main factor in the lack of skills in their organization, followed by analytical skills (24%) data management skills (21%) and businesses skills (19%).

4. CONCLUSIONS

Business Intelligence solutions market is still at a low level in Romania compared to other markets, but technological evolution and economic situation increases the company's interest in such solutions. How different is Romania compared to other markets when discussing Business Intelligence?

Constantly watching the events that happen in the global market for Business Intelligence and comparing them with the experiences of the Romanian market, we identified a number of differences but not so large as it might seem. Romania has a short history in terms of business culture but this represents both a disadvantage and an opportunity. Therefore, we have a local underdeveloped market for Business Intelligence solutions but with interesting perspectives. [7].

Low development of Business Intelligence solutions are, however, a great opportunity for companies because they can skip some steps to access the latest technology at affordable prices, increasing in this way the competitiveness. At the same time, many companies from Romania have a great chance of not being trapped in enormous investments for Business Intelligence solutions difficult to be depreciated [8].

Here are the top three trends identified for the local Business Intelligence market:

1. Data discovery & analysis. Business people wish flexible solutions that provide them with the opportunity to easily discover relevant information from the analyzed data without constraints. Dashboards, interactive graphs and tables, easy searching tools are specially designed for the exploration and discovery, the target user being primarily the business user and not IT specialist.

We will see business users increasingly present in the choice of BI solutions, leading testing and procurement processes but also the pace at which these solutions are being implemented later. However, the role of IT is still important, for providing the infrastructure and necessary support for the Business Intelligence solutions development.
This trend of changing from the traditional BI solutions to BI solutions \"self-service, data discovery\", identified by Gartner two years ago, became now reality at the global level and is observed locally in the interaction with Romanian companies. Future investment of the companies will focus on reporting solutions realized by the IT toward the solutions driven by the user (business analyst). Reporting solutions developed by IT will not disappear, but the future implementation of BI solutions will be dominant in the area of \"data discovery\" solutions.

2. **Mobile and collaborative BI**. The number of tablets and smart phones increase significantly from year to year, and their use in business applications is also increasing. Many Business Intelligence solutions providers have developed in the recent years the area of mobility, so now interactive dashboards and analysis can be easily accessed through tablets or smartphones.

Although there is a concern regarding the security and confidentiality of information, IT departments possess necessary technical solutions to address this issue. Likewise, BI vendors have responded to business users need to consult on various discovered information and to make decisions together, so that the collaborative working facilities are now available.

In conclusion, we see a consolidation of Business Intelligence solutions implementations which take into account from the beginning the availability of analyzes on tablets and smartphones but also the facilities of collaborative work to increase productivity and the quality of decisions.

3. **Big Data**. Occurred about two years ago, the term \"Big Data\" enjoys the great interest worldwide, and this trend began to manifest in Romania. Although there are still debate over the definition of \"Big Data\" and is not yet sure how positively will impact the business performance of a company, one thing is certain: \"Big Data\" still will stay to the attention of companies [7, 8].

The increasing volume of data, the variety of data collected but also the processing speed is the main dimensions of Big Data. However, we believe that another important factor in this equation is the business value of information. In other words it is not enough to collect and process large volumes of data, but also they need to find a practical use in the business that will bring value added.

In Romania there are still quite few situations which require Big Data, company needs being easily solved by existing Business Intelligence solutions. We believe that only companies in energy, telecom, banks and government institutions may start to study the opportunity of Big Data solutions but strategies and more concrete plans for implementation may appear in the following years.

Experience has shown that although companies own reporting and analysis systems, they are either quite rudimentary and relies on manual work (Excel file processing) or are obsolete using outdated technology or cover only a part of current business people needs and therefore have a very little impact on company performance.

We recommend companies from Romania to build a 2-3 years strategy related to the Business Intelligence solutions, where the value for the business to be properly identified and tested along with the potential suppliers before making a major investment in a Business Intelligence solution [5, 7].

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5. REFERENCES