

Transferring business intelligence and big data analysis from corporations to governments as a hybrid leading indicator

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Abstract. *Any economic system, be it micro, at the size of a corporation; be it macro, at the size of a state, forms groups, micro: joint-ventures; macro: state unions. These groups represent the complex work unit for the evolution towards economic advance from globalization's perspective, but to ignite the cooperation and collaboration engine there is needed a spark for economic systems, especially from the idea to implement the corporate-state governance hybrid work model.*

This complex system that is presented in this research paper is on the need to shift the proposed solution and the way it can be implemented and developed. Furthermore, it is mandatory not to forget the elements created in the information era, especially the development of the transfer process and of the quantitative flow that is composed of available information. The main idea is in using Business Intelligence strategies that help shift the entire macro-environment from the corporate sector towards the public sector (Ailenei, 2006: pp. 17-20), the governmental area of the decision making economy and as a result we have an intelligent model that offers growths unseen before and with no boundaries on implementing this solution as a new path of taking over the "new economy".

Keywords: big data, business intelligence, corporate governance, economic policy.

JEL Classification: E19, O11, O22.

1. Introduction

In the days of technologic advance and of positive evolution of human behavior assisted by primary A.I. (Artificial Intelligence) we emphasize questions that are linked to economic growth created through data analysis of existent problems.

Many issues have a non-technical nature and they could be filtered with the help of business intelligence factors. To surpass the purely technical perspective and its expression on traditional economic vision we state possible issues that could arise as follows:

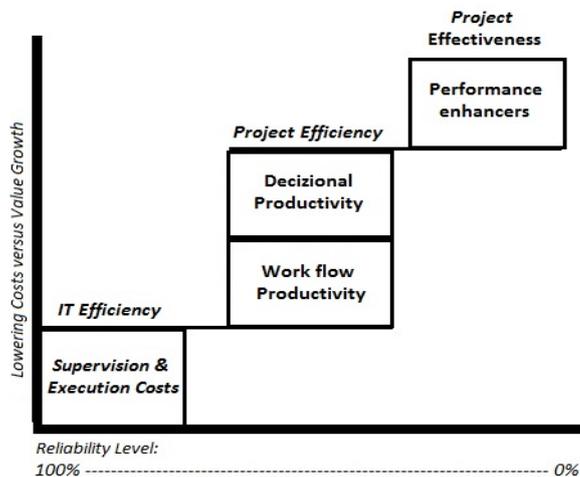
- An inexistent strategy for the long run;
- Undefined metrics for the success of a created policy applied at macroeconomic level;
- The political class and culture are defocusing the executive vision;
- Direct implementation and functional connections between properties of SAAS (software as a service) or BI (Business Intelligence) technologies are nonexistent;
- Solutions used at macroeconomic level are not connected and have low coverage at extremely high costs. This way there isn't seen direct valuing of the investment, similar to Return on Investment.

The society created in a company or in a ministry could lead to rejecting *asentimental* BI solutions and this way annulling any entrances in the macroeconomic sector guided by the government (Bodislav, 2013). If traditionalist principles are surpassed, the second part of the problem is reached, the one of derailing from track of BI services and this way lowering efficiency and rising costs. Macroeconomic policies seen as projects that are implemented with the help of BI supervising evolve to be successful through the convergence of many factors, be them persons, technical strategies and technologies.

2. The capitalization of a successful Business Intelligence strategy

The created advantages of Business Intelligence software with a bias towards strategy and executive implementation are based on offering added value to companies situated in a changing economic environment, starting from:

- Lowering execution costs for the company's operations or for the governmental component by creating a capitalization process similar with increasing efficiency;
- Decisional infrastructure for the company must be doubled by an IT infrastructure for having direct access to the entire data generated by the company or by the governmental component, this way the taken decisions must be reduced and in the end there should count only those that have the biggest chance to create high added value;
- BI software offers support for reinforcing taken decisions, increasing collaboration and the neutral flow inside the institution with effect on efficiency (in available resources consumption, inconclusive data annulment and implementing metrics depending on the importance of controlled niches).

Figure 1. Evolution of costs; resulted value and the safety level for developing and implementing a project

Source: interpretation of a rollover for B.I. implementation on reducing costs versus increasing value, all being yielded depending on the established safety level.

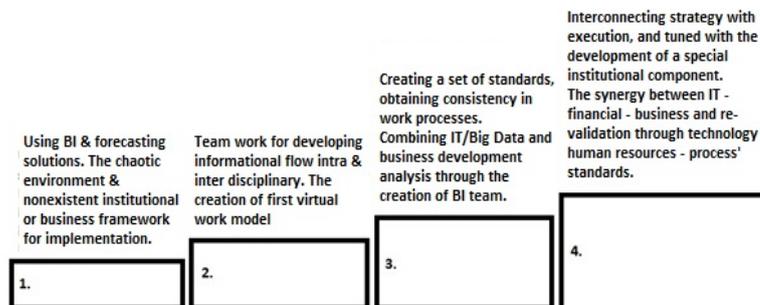
Creating BI software that runs completely molded on the needs of a company or of a governmental component could take years, political cycles or economic cycles, and the technological evolution must be considered.

The main engine of BI software is the immense volume of data that is analyzed to obtain efficient and direct solutions, which consume minimum amounts of resources, effort and time. The effort is linear during time and it is also the factor that increases the success rate for implementing BI, and it will deliver to today's and tomorrow's needs, be it for a corporation or for any form of government or governance.

BI software emphasized on variable forecasting like the IBM Cognos is based not only on the technical result, but also in implementing it in the community, this way it is more efficient in social life' connectivity, an evolved model of the one created by Hewlett Packard in Bangalore, India (Bodislav, 2013, Dunn, Yamashita, 2003: pp.1-22). Through these hierarchical connections nation-wide or corporate goals are reached, a new complex BI system being developed that also sustains excellence in its domain.

Evolution and openness of an implementation process for using BI software could be seen as a training trip, in the following figure the phenomenon will be presented including its four layers for BI work processes.

Figure 2. The synergy between financial – automated solutions, integrated horizontal businesses and vertical processes



Source: internal report on Business Intelligence excellence (Boyer et al., 2011).

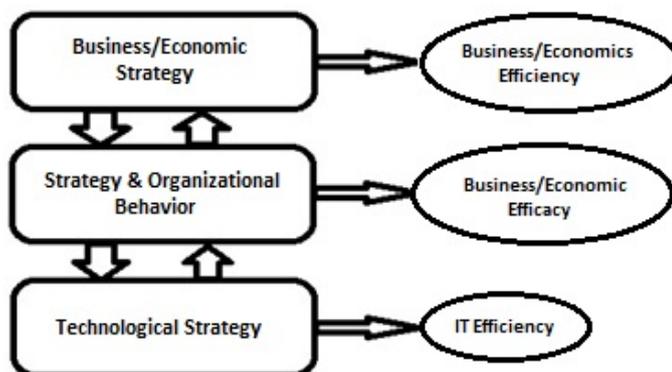
After going through the four steps we can go further to obtain BI software that is multilateral developed and reaches the following targets:

- Business strategy, vision and case alignment;
- Innovative work approach for organizational and human behavior;
- Technology and implementation strategy for hardware integration.

3. The synergy between Big Data and Business Intelligence

Furthermore each element from the institutional component is based on the relation between humans and technology that together could collaborate and create hierarchical synergy that could be described as follows:

Figure 3. The tri-dimensional business strategy shifted in the public sector



Source: internal report on Business Intelligence excellence (Boyer et al., 2011).

The Business/Economic Strategy – this component is based on the relation and position of the market leader, be it a company or a country; this way new opportunities, polishing work processes and lowering operational costs are possible (efficient decision making for capitalizing all available information). To start on an executive path, metrics and usage algorithms should be developed, to which there is added the business and IT component.

To linearize the data flow and the business's goal there should be shaped a bidirectional relation between top-down strategy and bottom-up implementation map based on:

1. Evaluating the given situation;
2. The strategic approach on decision making, implementation and execution;
3. Building corporate objectives according to needs;
4. Developing the work methodology to reduce management errors;
5. Shaping the case study according to needs and work procedure.

Organizational Behavior and Strategy – accelerated growth of an economy or of a business leads to the classic problem of path dependence of those that are part of the organization. This strategy is found especially when it comes to fine tuning some processes, and the work procedure is completely linearized and it creates technical work flow with high efficiency, but the development of a new process creates efficiency losses based on the initial work flow. To be able to lower the efficiency loss from the desire to increase efficiency there should be developed a program that eases the change:

1. Understanding the organizational and business culture and communicating the program's objectives;
2. Creating an executive support and develop equilibrium for promoting and executing the proposed project;
3. The value of the organizational structure help strengthening the ideological flow and the financing flow;
4. Rounding up the user interface with the one of the non-technical employee;
5. Presenting each work stage for the awareness of the project development.

Technological Strategy – this should be developed according to the main goals for developing the company or the economy and to respect the needs of the main investors in that business or of the people, if it involves a national economy. CRM, ERP, neuronal networks and transactional systems software could efficiently emulate in an objective manner work stages of divisions and subsidiaries of companies or ministries and of governmental agencies (Osimo, 2008). To build the capabilities for the technological strategy there is needed:

1. Strategy consolidation and standardization;
2. Improving operating costs and balancing investments;
3. Delivering more and more solutions and creating enterprise platforms;
4. Corporate or state governance is expressed by evaluating information and available technology;
5. Big Data flows offer the necessary support for anticipating market movements and strengthen the reliance of obtained information;
6. The options for implementation and development are diversified.

The main feature for business intelligence systems is that it helps to develop an automated analysis of stated objectives through the antithesis *bottom up* versus *top down* by creating road maps for operations that are efficiency re-filtered and by adding new values to the strategic goals had by the entity, be it a microeconomic or a macroeconomic one (Bodislav, 2014).

The connectivity issue between *top down* and *bottom up* evaluation is filtered by the strategy versus tactics approach and could lead to issues between top management versus middle management, this way blocking an efficient corporate governance work flow. The general blockage is generated by strategic prioritizing versus tactical prioritizing to which is added the entrance in new micro-niches used for pioneering and for building competitive advantages or a mass corporate approach for attracting a global market share, be it at country level or at industry related level.

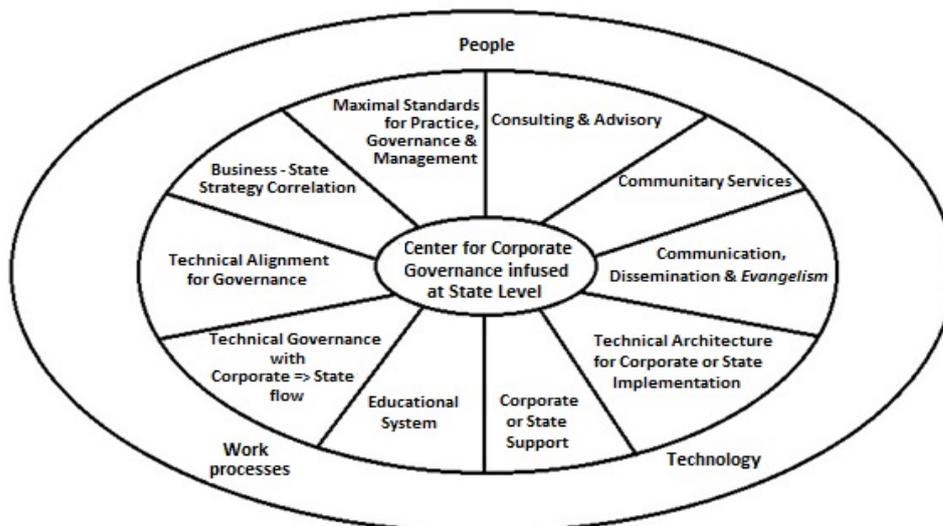
The work method that uses a *bottom up* strategy is observed in entities that are in full expansion or in transition, as a parallel we could see imposing a new gradual or shock therapy in increasing the development pace of a country like Romania, in its transition from Communist Romania to Capitalist Romania.

The crossroad between the two approaches allows the development of a unitary strategy that has the following advantages:

- The taken decision is easier to implement because of the alignment and expertise;
- The solution created at the crossroad between the merger of the two unitary solutions has as main feature building cultural capital in the entity and could be considered as a positive externality for the business intelligence process;
- The BI process could be extended and link projects that are already in execution.

Going further in shaping the idea of *automated corporate governance* there should be discussed excellence as a standard. To design the macro-picture the following graph was developed, starting from a business intelligence case study developed by IBM (Boyer et al., 2011):

Figure 4. Synergy between Technology – Human Individual and the result observed at corporate or governmental level



Source: the author's interpretation of an internal report from IBM Cognos and the author's proposal of creating The Centre for Corporate Governance infused at State Level.

4. Why shouldn't we have an automated system for applying corporate governance principles in state governance?

Because the automated corporate governance has at its foundation principles for reporting, analyzing, integrated work flow, visualization, metric yielding (scorecard), which work based on standardized processes for performance management (financial analysis, planning, budgeting, forecasting (Boyer et al., 2011), standardized processes for advanced analysis (predictive analysis, data mining) and standardized processes for information management (data profiling, data quality testing, data warehousing and data integration).

Standardizing work processes and transforming them into algorithms for smooth procedures offers the following positive features:

1. **Broad coverage** – reporting, planning, consolidation, analyzing, mining, integrated dashboard;
2. **Service oriented architecture** – technical integration of procedures and standardizing them at technical and information level;
3. **Scalability** – creating standards helps to obtain technical scalability;
4. **Access to heterogeneous data** – access to structured data and ordinary data;
5. **Global capability** – standard solutions help to complete tasks in a smooth way and in the entire system;
6. **Security and assurance obtained through created standards.**

Automated transformational processes along with technological development could change the system's evolution, but also the unity in the system's structure, which is needed to be developed as a multi-dimensional strategy for developing the system. These concepts are part of the change that was discussed during the first part of the paper, but as follows the changes that are seen will be underlined:

- **Implementation standards** – used data, created options, approached ideas and designed concepts must be validated with pre-established principles;
- **Testing** – testing and validating initial data and results compounds macro-data and this way the error rate drops, and options could be graded;
- **Reactive demands** – work processes are long to finalize or are initiated with incomplete demands, this way the success rate of a process could drop;
- **Roadmap** – oversight, leadership, transparency, planning and timing are important for followers, all being shaped by efficient communication that could lead to attracting new followers.

The alignment of business strategy with the economic one or the national one shapes the efficient execution of proposed goals and with step by step adhering for the members of the organization or for the population by absorbing the organization's behavior or the national behavior, which should be optimized depending on the existent or developed risk and everything automated by using principles of business intelligence.

The global financial crisis that erupted in 2008 and the turmoil that occurred in public finance have called into question the importance of sustainability (Moldovan, 2014, pp.

707-715). In this context, transfers of Business Intelligence and Big Data analysis from corporations to governments could be used successfully for better governance.

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