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EVALUATING BUSINESS INTELLIGENCE INITIATIVES WITH RESPECT TO BI GOVERNANCE

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Abstract. *The BI governance concept is introduced and with respect to the established framework for approaching Business Intelligence strategies, a demarche for evaluating BI initiatives will be proposed. Monte Carlo simulation method will be used to fundament the decision to move forward with a Business Intelligence project.*

Keywords: BI governance, feasibility study, Monte Carlo method

JEL classification: C02, G34, M15

1. Introduction

Business Intelligence (BI) governance concept was introduced to define „the process to be followed in order to prioritize BI requests along different criteria such: Project ROI, organizational budget, expertise of the team, people availability, infrastructure capacity and organizational politics” [2]. Based on the in [10] introduced BI value chain, BI governance can be defined as the assembly of procedures, rules and policies to sustain this value chain in order to support decisions made by managers. D. Larsen and D. Matney (2007) defined BI governance as a „framework that helps identify, deliver, and maintain the BI strategy“. BI activities are monitored; performance measured, and according to the BI objectives directions of action are provided (Figure 1).

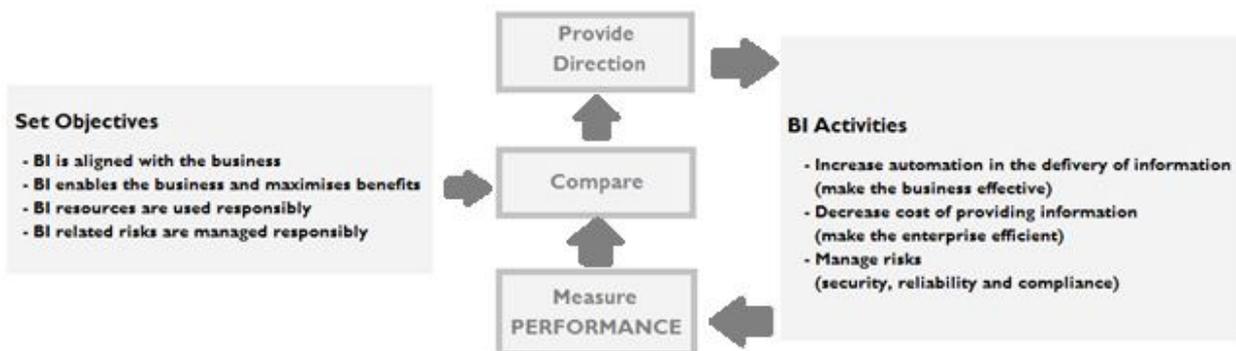


Figure 1. BI governance framework

(source: „Board Briefing on Governance“ by the IT Governance Institute (www.isaca.org))

According to B. Leonard (2007), decisions are made by the BI governance committee, this board being responsible for aligning corporate strategic initiatives and processes with BI

applications, investment, and usage. The decision areas cover BI application portfolio and investment, BI implementation project status, and BI adoption and value realization. According to the BI governance framework, for any BI project initiative is responsible the project team, including beyond the project manager, at least one business analysts, and representatives in charge with business and technical support (Figure 2).

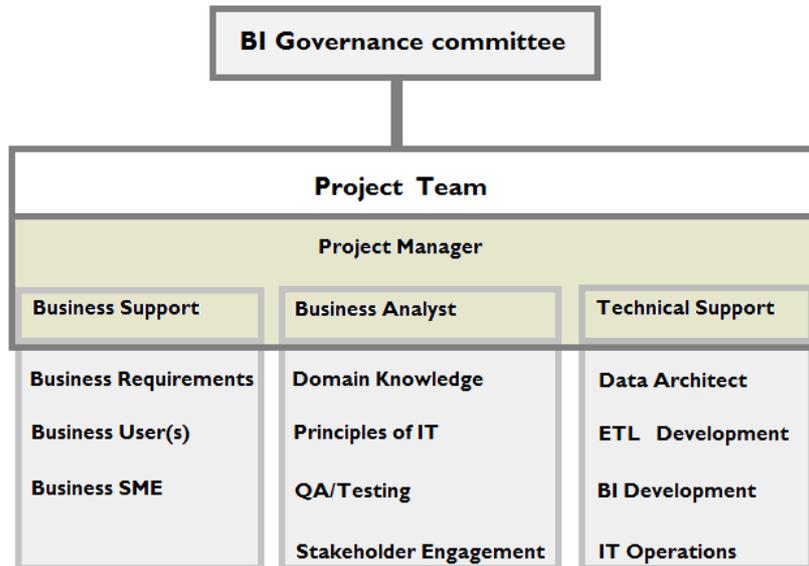


Figure 2. Approaching BI projects (adapted from source: „Governance – A Business Intelligence Best Practice” by Leonard, B. (www.baseline-consulting.com))

BI governance establishes a framework for the BI lifecycle by ensuring consistent project delivery [8]. Based on the constant end-users support, ongoing improvements are possible [3]. Beyond policies, rules and standards, according to B. Leonard (2007), BI governance represents „a dynamic and interconnected teaming model based on common goals and collaboration“.

2. Evaluating a Business Intelligence initiative

With respect to BI governance, concrete guidelines, rules and recommendations are to be followed to fundament the decision on how BI projects should move forward [6], [11].

Business Intelligence projects are complex initiatives, measuring success and understanding value being challenging tasks. A business-driven approach of a BI project implementation starts with a feasibility study. The decision-making process for large projects is very complicated, and will not be subject of this paper. Having in mind a middle-sized BI project, a feasibility study based on the Monte Carlo simulation method will be conducted. According to [9], project management and BI governance best practices recommend the most suitable probabilistic, statistical and simulation tools for the project analysis.

A project can be considered financially viable if an economic return to the investors „at least equal to that available from other similarly risky investments“ is predictable, and additionally an „attractive interest rate of return“ has [1]. Therefore, for justifying a Business Intelligence initiative the following indicators have been taken into consideration:

- the Return on Investment (ROI) is a profitability ratio that evaluates the benefits of a project; it indicates how much will be obtained at the end of the project for each invested monetary unit; and

- the Internal Rate of Return (IRR) calculates the inherent discount rate or investment yield rate produced by the project.

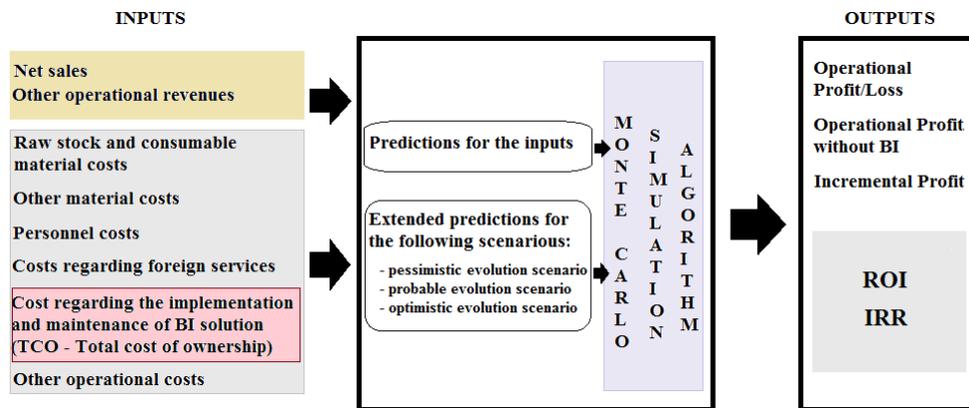


Figure 3. Establishing ROI & IRR for Business Intelligence initiatives

(source: *Evaluating a Business Intelligence Solution. Feasibility Analysis based on Monte Carlo Method – Working paper, Muntean, M., Muntean, C., 2012*)

Based on the proposed general approach (Figure 3) and taking into consideration the recommendations of the experts from Oco [5], TCO will be calculated as part of a concret feasibility analysis regarding a BI project proposal for a mid-sized Limited Liability Company (LLC).

2.1 Establishing predictions for the inputs

Based on historical data and/or expert judgment, a distribution function for the annual sales growth rate will be introduced. Predictions for Year1, for example, had in mind a Pert distribution with a certain base percentage and a provisioned Min...Max range for possible extreme situations. Based on these assumptions, the probable evolution scenario together with the pessimistic and the optimistic one will be deployed. In a similar way, adequate distribution functions for the next years have been chosen. The predicted sales growth rate has suffered some adjustments regarding the considered Base, Min and Max assumption; the Pert distribution remains in actuality.

The adoption of a SaaS BI initiative is supposed to increase the sales considerable and to diminish the personnel costs due to the increased operational efficiency. Personnel costs savings are presumed to be enclosed in a range from a minimum of 5% to a maximum of 14% and a base value of 10%, a triangular distribution function being associated.

All previously established outputs in Figure 3 are calculated. A mean ROI value of 5, 71 and a mean IRR of 95% has been obtained after 10.000 iterations executed during the Monte Carlo simulation process.

2.2 Analysing and interpreting the results

The two main outputs ROI (Figure 4) and IRR (Figure 5) will be analyzed based on a histogram, respectively a graph with cumulative descending distribution. Interactions are possible moving the sliders over the diagrams in order to identify the probability to obtain a certain output value (ROI or IRR). In considered case, according to Figure 4, the probability to obtain a ROI smaller than 1.5 is 1.6%, fairly sufficient for the company to go ahead with the project investment.

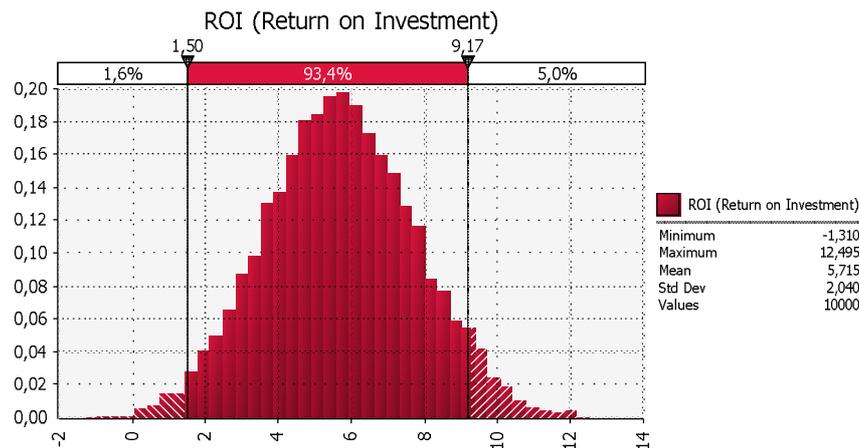


Figure 4. SaaS BI initiative. Results histogram for ROI

The graph in Figure 5 indicates a mean value for the IRR of 93.84% and a 2.3% probability to obtain an IRR smaller than 20%; 20% for IRR is generally accepted to be fairly sufficient for a new project investment in a Romanian company [7]. The probability to get losses is lower than 1%, but not zero. This result is a direct consequence of the fact that the minimum sales rate was presumed to be below 100% for the second, third and fourth year. Nevertheless, if the minimum sales growth rate can be increased to 100%, the risk of the project vanishes for good at all.

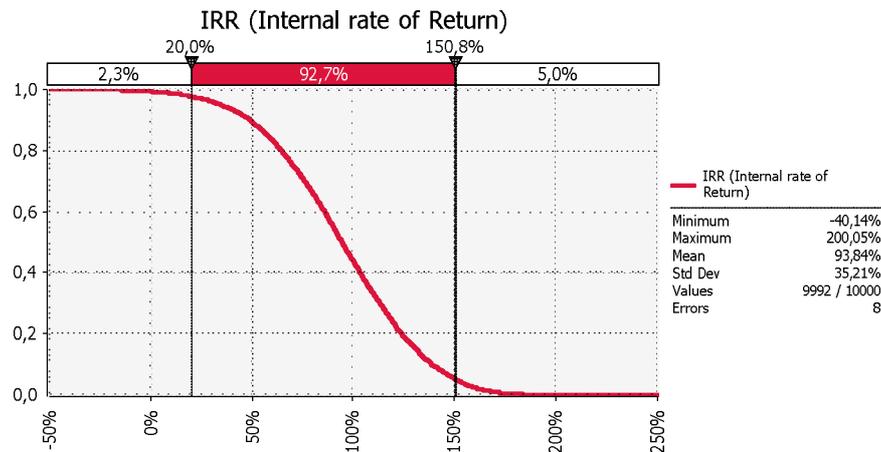


Figure 5. SaaS BI initiative. Result graph for IRR

The mean values for ROI and IRR being profitable, the recommendation of a SaaS BI initiative as an advisable solution will be reinforced.

3. Conclusions

According to the introduced BI governance framework, the main objectives are settled to enable the business and to maximize the benefits. BI initiatives are analyzed carefully; any associated risks are managed responsibly. Best practices in BI governance based on guidelines, rules and recommendations for monitoring the value of BI initiatives and projects have conducted to a higher return.

The ROI study should be an integral part of the strategy and planning phase of a BI initiative and involves the BI governance committee, the senior management team as well as the operational business units. Beyond the proposed approach for establishing ROI & IRR for BI

initiatives, a concrete study case for a medium sized company was conducted. Using Monte Carlo simulation techniques, and based on the specified input values and their predictions over the considered time period, pessimistic, probable and optimistic scenarios are deployed. Future researches have in mind an extended theoretical unitary approach of further financial indicators in order to improve the proposal's capabilities.

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References

- [1] F.L. Bennett, F.L, The Management of Construction: A Project Life Cycle Approach, 1st ed. Burlington: Butterworth-Heinemann, 2003
- [2] N. Guterrez, Business Intelligence (BI) Governance. Going beyond project selection and prioritization to materialize the enterprise strategy, Building Tomorrow's Enterprise, Infosys Whitepaper, 2006, <http://www.infosys.com/industries/consumer-packaged-goods/white-papers/Documents/bi-governance.pdf>
- [3] B. Leonard, Governance. A Business Intelligence Best Practice, BaseLine Consulting White Paper, 2007, <http://www.tdan.com/view-articles/4686>
- [4] D. Larson, D. Matney, The Four Components of BI Governance, 2007, <http://www.bibestpractices.com/view/4681>
- [5] ***, Calculating ROI for BI Solutions in Small and Mid-Sized Businesses, Oco Inc. (www.oco-inc.com) White Paper, 2007, <http://whitepapers.technologyevaluation.com/pdf/8499/calculating-roi-for-business-intelligence-solutions-in-small-and-midsized-businesses.pdf>
- [6] J. Fernandez-Gonzales, Business Intelligence Governance, Closing the IT/Business Gap, The European Journal of Informatics Professionals, vol. IX, issue 1, 2008, <http://www.cepis.org/upgrade/files/2008-1-gonzalez.pdf>
- [7] D.D. Popescu, Enterprise Analysis, Ed. ASE, Bucuresti, 2009
- [8] P. Pant, Business Intelligence: How to build successful BI strategy, Deloitte Development White Paper, 2009, <http://www.deloitte.com/assets/Dcom-SouthAfrica/Local%20Assets/Documents/Business%20intelligence%20that%20aligns%20with%20enterprise%20goals.pdf>
- [9] J. G. Gonzalez, How to Apply a Monte Carlo Simulation to a Feasibility Study, 2009
- [10] M. Muntean, L. Cabău, Business Intelligence Approach in a Business Performance Context, Austrian Computer Society, Band 280, 2011
- [11] C. Brândaș, Study on the Support Systems for Corporate Governance, Revista de Informatică Economică, vol. 15, no. 4, 2011
- [12] M. Muntean, C. Muntean, Evaluating a Business Intelligence Solution. Feasibility Analysis based on Monte Carlo Method, Working paper, 2012