EVALUATION OF BUSINESS INTELLIGENCE PROJECT SUCCES IN TINTAS ROBBIALAC, SA: AN EXPLORATORY CASE STUDY

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Dissertation presented as partial requirement for obtaining the Master’s degree in Information Management
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by

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Dissertation presented as partial requirement for obtaining the Master’s degree in Information Management, with a specialization in Marketing Intelligence

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ABSTRACT

The evaluation of Business Intelligence (BI) project success is an important process in companies, regardless the industry. However, many studies found in literature only focus on certain aspects of project success, such as critical success factors, and only a few are focused on the process of evaluation of BI project success. In order to help fulfill this gap, this study presents an exploratory case study of Tintas Robbialac, SA, a reference company of the paint industry. The company approach to the evaluation of project success is presented and discussed.

KEYWORDS

Business Intelligence; Project Success; Case Study; BI Project; Process; Evaluation
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## LIST OF ABBREVIATIONS AND ACRONYMS

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<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>BI</td>
<td>Business Intelligence</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
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<td>IS</td>
<td>Information Systems</td>
</tr>
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1. INTRODUCTION

Recently organizations began to have more consideration for Business Intelligence (BI), once it helps them to get competitive advantages in the market (Dobrev & Hart, 2015; Ivan, 2014; Schlegelmilch & Albanese, 2014; Thamir & Poulis, 2015). Previous studies show the importance of BI in decision-making in the company (Istrat et al. 2015).

Chief Executive Officers (CEO) progressively appeal to BI departments and their staff to help them in the company strategy definition since they increase profitability, productivity and the company positioning in the market. In a company with a BI department the access to data analysis and project results is more efficient and accurate than in a company without it (Foster et al. 2015). This department has access to all the information of the company.

According to Thamir & Poulis (2015), BI provides managers and their teams with new tools to enhance the processing of data and thus decision-making becomes more efficient. This shows the relevance and the importance of this theme in the business world. Considering the relevance of the theme, BI projects’ success should be managed and measured.

Todorović et al. (2015) presented a model to study the way the analysis of the success project enhances the development of the project. Results of research confirmed that the analysis of project success has a very positive impact on knowledge acquisition. Furthermore, Varajão (2016) proposes “success management” as a new knowledge area of project management.

This work explores the theme of success evaluation in BI Projects, following Varajão and Trigo (2016) case study structure, aiming to fulfill a gap in the BI literature.

In this way, four Research Questions (RQs) are defined:

RQ1 - When should the evaluation of a BI project be done?
RQ2 - Who should participate in the evaluation of a BI project?
RQ3 - How should the evaluation of a BI project be done?
RQ4 - Which criteria are used and/or should be used for evaluating a BI project?

Aiming to get answers to these research questions, this research presents the case study of the company Tintas Robbialac, SA.

This work is organized as follows. The next section summarizes the literature on BI, BI Projects, and evaluation of project success. The research method is described in section three. Followed by results and the discussion sections, in sections four and five. Finally, the conclusion is presented in section six.
2. THEORETICAL BACKGROUND

According to Westfall (2012, pp.64-65), an Information System (IS) can be defined as a “set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization”. BI is an important area of information systems due to the potential to solve and analyze problems of the company (Fourati-Jamoussi & Niamba, 2016). These concepts are well present in the literature (Besteiro et al. 2015; Carvalho et al. 2015; Gable et al. 2008; Petter et al. 2012; Todorović et al. 2015).

2.1. BUSINESS INTELLIGENCE

We can find different definitions for BI in the research literature. According to Thamir & Poulis (2015, pp.34), “BI is an umbrella that includes architecture, tools, applications, data bases and methodologies; (...) to improve performance and to establish competitive advantages”. Tavallaei et al. (2015) also mentioned that BI allows making strategic decision-making. Grenci (2015) adds that involves various levels of analysis and decision support (since predictive analysis to standard reporting).

According to Khan & Quadri (2012, pp.21), “the objective of BI is to improve the timeliness and quality of information, and enable managers to be able to better understand the position of their firm as in comparison to competitors”. Thamir & Poulis (2015) adds that the manipulation and appropriate analyses of these data by business managers is also the main objective of BI. In other words, BI transforms the data into useful information, and helps business users in decision-making with real-time data (Obeidat et al. 2015).

There are many studies that discuss the importance of the BI in organizations, such as:

1. Rusaneanu (2013) approaches the benefits and the performance of BI software; Tomasura (2015) also presents a similar point regarding the importance of BI models in a company;
2. Chaudhuri et al. (2011) and Nyblom et al. (2012) approach the importance of Business Intelligence Systems in decision support; Schlesinger & Rahman (2015) also studies the importance of BI tools as decision support;
3. Ivan (2014) presents the importance of competitive advantage to company when there is BI software or BI tools, as well as, the importance to obtain data in real time and this way, to help in decision making; Schlegelmilch & Albanese (2014) presented the similar points to Ivan (2014);
4. Morio (2014) approaches the importance of BI to obtain data in real time and to transform data into useful information.

Evans (2015) approaches the importance of BI in modern analytics and the relation among IS, BI, statistics and quantitative methods.
2.2. BUSINESS INTELLIGENCE PROJECTS

According to Rechenthin (2013), a project is a temporary effort to create one product or one result. Besteiro et al. (2015) adds that projects consist of a complex set of processes that can prevent several of them from reaching the objectives.

A BI project can be defined as the ability of the project team to design, solve problems, understand ideas, learn, and to succeed (Rechenthin, 2013). In other words, BI project can be defined as a set of activities or plans that after being concluded can help in decision-making. The BI project can also help to solve different gaps in company.

Project Management (PM) “is a discipline that applies knowledge and tools in the elaboration of activities associated (projects) to reach an objective or a range of pre-defined objectives, like costs or deadlines” (Pelegrini et al. 2015, pp.281). Varajão (2016, pp.1096) adds “PM is essential for development of successful projects, being transversal and having applications in many industries”, stating that PM increases efficiency, effectiveness, and project success rate.

2.3. EVALUATION OF PROJECT SUCCESS

Many authors consider success as a synonymous of efficiency (project management performance) and effectiveness (Ika, 2009; Serra & Kunc, 2014).

In the literature, Project Success is defined in different ways. According to Khang & Moe (2008, pp.73), it is defined through three dimensions: “the efficiency of the implementation process, the perceived quality of the project and the client’s satisfaction”. In 2004, Collins & Baccarini, concluded that the “project success criteria consists of two components: product success and project management success”. Later, Besteiro (2015) presented a similar reference to Collins & Baccarini, stating that for the success of the project it is important to have in account project success factors and success criteria. Gemünden (2015, pp.5) had also defined project success, but in a different way, defining it “as meeting wider business and enterprise goals as defined by key stakeholders”. Varajão (2016, pp.1096) presented also a project success definition, similar to the definition of Collins & Baccarini (2004). He states that “there are two distinct components of project success: project management success; and the success of deliverables of the project”.

According to Ika (2009), project success criteria refers a group of principles used to determine project success. Besteiro et al. (2015) and Varajão (2016) adds that this concept is related to metrics that allow to determine the success or failure of the project.

Analyzing the literature, the conclusion is that the major studies are related about criteria success factors (Besteiro et al. 2015; Ika, 2009; Varajão, 2016); project management success (Ika, 2009; Khang & Moe, 2008; Todorović et al., 2015; Varajão, 2016); information systems success (Petter et al. 2012); Business Intelligence Systems (Amara et al. 2012; Chaudhuri et al., 2011; Dobrev & Hart, 2015; Elbashir et al. 2013; Grublješič & Jaklič, 2015a, 2015b; Ivan, 2014; Nyblom et al., 2012; Popović et al. 2012; Schlegelmilch & Albanese, 2014). However, questions about “who”, “when” and “how” the evaluation of project should be done, are not answered yet Varajão (2016), particularly in what concerns to BI projects. Thereby, the goal of this research is to provide some answers to the research questions defined in section 1 through an exploratory case study.
3. METHOD

With the purpose of describing the evaluation of BI projects success, an exploratory case study was carried out at the company Tintas Robbialac, SA. This research aims to comply with the criteria of relevance, applicability and specificity, as proposed by Cheng & McKinley (1983) in their work about integrating organization research and practice (Loebbecke & Thomas, 2016; Varajão & Trigo, 2016).

Tintas Robbialac, SA is a paint industry company, which is integrated on an international group with branches in nine countries (one in America, in Africa, and in Asia and six in Europe). Customers are mainly from construction companies and independent distribution. Founded in 1931, develops its activity in four business areas: decorative paints; thermal insulation; protection and maintenance; and vehicle refinishing. Tintas Robbialac, SA is divided in different channels and areas on the commercial department, this way all clients need are addressed. In the case of BI projects, they are developed in a BI department (an organizational area integrated in commercial department). This department interacts with main areas in company: Marketing; Production (logistics); Financial; and Commercial. Tintas Robbialac, SA was selected for this case study because it is pointed as a good reference of BI projects practices in its business sector and in the last few years BI has gained a great relevance within the business group.

The data compilation on Tintas Robbialac, SA was conducted through eleven interviews that took place in June and July of 2016. During the interviews the participants were asked about their background information and to give an overview of the BI department and BI projects. After this, the interviews focused on the process of evaluation of the BI projects. The interviews were held informally face-to-face, being in average 30 minutes long. The participants were from different departments and different organizational hierarchy levels, to obtain different views about this issue. By anonymity issues, the names of participants are mentioned using the format “INTX” (the X identifies the number of the interview).

The adopted informal style allowed participants to answer the questions without restrictions. The data obtained from the interviews were complemented with information provided by the organization.
4. RESULTS

This section describes the evaluation of BI projects in the organization, focusing on how the evaluation is done, who participates, how the success is measured and the criteria used. These aspects are directly related to the questions underlying the research.

4.1. BUSINESS INTELLIGENCE AT TINTAS ROBBIALAC, SA

In Tintas Robbialac, SA the BI department is assigned to Commercial department. BI interacts with different areas: Marketing through marketing campaigns and new product releases; Production (logistics), to monthly and campaigns forecast; and Financial, through sales and customers forecast. To compile all this data, it is necessary to have tools and software that allow report studies or analyses on time. The used software is Microsoft Dynamics CRM (database of customers) and QlikView (database of sales).

Regarding to Commercial department, BI has goals per customer, salesman, area and channel, divided by type of paints, brands and classification of clients, through different commercial metrics (value, volume, margin, etc.). The achievement of these goals is monitored and controlled daily and monthly, allowing the correction of some deviations on time.

Also on the Marketing department, the goal of BI is monitoring marketing campaigns and propose commercial promotions. All projects developed by BI team, as for example commercial promotions, are followed along the month, and teams receive the follow-up of these projects. In order to have all this information in database, all these campaigns are introduced in CRM. This way, BI can do analysis reports about campaigns results.

Figure 1 shows the interactions of the BI department with the other areas of the organization.

![Figure 1: Interaction of the BI department with the other business areas](image-url)
4.2. EVALUATION OF BI PROJECTS AT TINTAS ROBBIALAC, SA

The next sections address the questions: 1) “When the evaluation of BI projects is done and who participates? 2) How the success is measured and which are the used criteria?

4.2.1. When the evaluation of BI projects is done and who participates?

Regarding the research questions described in section 1, this section aims to get answers for RQ1 and RQ2.

In Tintas Robbialac SA, the evaluation of BI projects is a continuous process because “the company has continuous changes - new products, new customers” (INT2). Furthermore, the projects are always in a learning cycle and continuous improvement, that is why it requires a continuous process - “We always try to find new methods, and that’s why we are always evaluating” (INT4). In other words, “this process allows to improve the projects increasingly” (INT8). Although this process is characterized as continuous, the participants mentioned that they are more focus on monthly and quarterly closings. However, depending on the requirements introduced, the process is evaluated more times or not.

The current process allows to implement corrective measures – “each time is done one evaluation to the project, are then implemented measures to correct deviations (if are found)” (INT4). These actions during the process require more frequent evaluations of project, so are not defined at planning time when the evaluation should be done.

Stakeholders participate in the evaluation process depending on the type of projects. There are projects that require the participation of Executive Committee and others that do not need this participation. In most of the cases, all people involved in the project participate - “All people that receive the information and all people involved in projects should participate in the evaluation” (INT11).

Figure 2 presents the process of evaluation of the success of BI projects.

![Figure 2 - Evaluation Process of BI Projects](image-url)
4.2.2. How the success is measured and which are the used criteria?

With regard to research questions described in beginning of the study, this section answers questions RQ3 and RQ4.

The success can be measured through three levels: report output level (enables the consult of information); cooperation level with other areas; and support level to short time. In addition, “the success of work is inherent to company results” (INT2). The success can be measured through net sales results, growth in numerical distribution (increase of customers) and margin generated (performance and customers profitability). Also, it is measured by BI support in decision-making (optimization and standardization of information). “In summary, the success is measured by feedback, performance, adhesion and skills of people that work in these projects and who receive these data” (INT8).

In relation to previous point, some criteria are used: adhesion by use level from the different teams; qualitative and quantitative results; support at customers visitation level (Visitation Plan); control tools; daily follow-up of the projects launched; time, assertiveness, efficiency of the actions, performance, skills, motivation, quality and feedback; numerical distribution, sales and margin.

Although there is a great interaction of the people involved in projects and the BI team receive feedback from the BI users, just 45% of the participants in the interviews find the method used for evaluation the most appropriate (“because each person receives information with focus necessary to daily routine” (INT11)). The remaining participants indicate that there are not formal criteria defined: in the beginning of the project the objectives are defined and the evaluation is done only according to these objectives. Everything else is informal, and this can hinder the success. Some answers indicate that there should be more regular status meetings.
5. DISCUSSION

With the purpose of contributing to a better understanding of the evaluation of BI project success, an exploratory case study was carried out in the company Tintas Robbialac, SA. The analysis of the obtained results allows to highlight some important points.

5.1. THE IMPORTANCE OF AN ORGANIZATION HAVING AN ORGANIZATIONAL AREA DEDICATED TO BUSINESS INTELLIGENCE

All the participants in the interviews stated that it was very important for a company to have an organizational area dedicated to BI. The exception was one participant that answered that importance depends on the dimension of the company. BI department allows to have more efficient and efficacy analysis of the business and the data is structured to support the decision-making. In this way there is more agility and quality in data processing – “the tactical actions carried out to implement the company strategy, are improved having a BI department to measure pros and cons, and to evaluate all business metrics” (INT3). In a middle and long term, the organization has a better vision of all information about business. Before Tintas Robbialac, SA having a BI department, it was difficult to have access to data, because there were no tools or software that allowed to have the information and the data on time - “By that time the actions were not data-driven; nowadays all actions are based on data analysis” (INT1).

5.2. THE IMPORTANCE OF THE BI SOFTWARE QUALITY USED BY TINTAS ROBBIALAC, SA FOR THE SUCCESS OF PROJECTS

All participants in this case study answered that the quality of software and tools used by Robbialac’s BI team is fundamental because: these software and tools are according to the dimension of the company and to the reality of the country; it allows to analyze the needs of organization; and to do a continuous evaluation/analysis of all business metrics; “it has quick, specific and detailed information” (INT7). In case of Tintas Robbialac, SA there is a database (CRM) with data in real time. In other words, “these tools are very important and indispensable to a good business performance” (INT1).

5.3. THE IMPACT OF THE SUCCESS OF THE BI PROJECTS

The success of BI projects has impact both at the individual as well as organizational level.

It has impact at individual level, because it motivates people involved in the project (the project team and who receives the information), it expresses trust in data and it helps in a decision-making. In other words, “the success in the project is challenging and rewarding; the fact of having recognition at individual level, allows to feel that persons are integrated in this project” (INT4).

Regarding the organizational level, the BI area is transversal to the entire company, so all the projects developed by this team can have a profound impact at organizational level. These projects help to understand the different channels and the relation among them, as well as, allow to better understand the business and then support the decision-making. In other words “the success of BI projects allows to achieve the business goals” (INT5).
6. CONCLUSIONS

The analysis of the obtained results allows to highlight some important points:

- It is fundamental the existence of an organizational area dedicated to BI in a company, as well as the use of high quality software and tools;

- The quality of BI software is a relevant factor. All stakeholders referred that BI software is fundamental because it allows analyze the business metrics in real time and it allows to have data on time;

- Some important criteria to be used to evaluate the success of a BI project are: sales results, increase of customers, margin generated (performance and customers profitability), optimization and standardization of information, performance of people that work with the data resulting from projects;

- The success of a BI project should be evaluated continuously, in order to be possible to correct some deviation on time;

- The success should be evaluated at different levels: report output; cooperation with other areas; and support;

- All the people involved in the project should be directly or indirectly involved in the evaluation;

- There is an positive impact both at individual and organizational levels when a BI project is a success;

- There is the need to formally define the process for evaluating the success of BI projects and all related aspects (such as the evaluation criteria).

Some of the main conclusions of our study are aligned with the conclusions of the study of Varajão and Trigo (2016):

- They concluded that the evaluation should be done at different stages of the project, i.e., the evaluation should be done several times during the project and post-project; when this conclusion is compared with the case study of this research, we can state that in Tintas Robbialac, SA happens the same;

- Similarly to Tintas Robbialac, SA they affirm that the various stakeholders should be involved in the evaluation process of project success;

- In relation to the criteria used for the evaluation process, they conclude that it is very important and that it should be adapted for each project; in Tintas Robbialac, SA the criteria are defined for each project, however not always in a formal way;

- Also, they conclude that “the information for the evaluation of the project can be obtained in several ways and must be combined to enrich the perception of success”; the same is done in Tintas Robbialac, SA.
7. LIMITATIONS

The main limitation of this research is that it is a single case study, i.e., the data was gathered through interviews at a single company.
8. BIBLIOGRAPHY


