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COMPETITIVENESS AND MATURITY IN PROJECT MANAGEMENT: THE BRAZILIAN EXPERIENCE 2005-2011

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Abstract: This paper is about the Brazilian experience in measuring and benchmarking maturity in project management/PM. It summarizes the research on this topic that has been in progress in Brazil since 2005, conducted by the authors and 110 volunteers using the Prado PM Maturity Model on the site at www.maturityresearch.com, and proposes establishing a similar PM maturity research program in the United States and Canada. First, we describe the competitive nature of the global marketplace and the importance of improving project management in that context, with statistics that show Brazil’s current economic situation within the global economy. Second, the Prado-PM Maturity Model (created in 2002 with a structure of 5 levels and 6 dimensions), is described. This model has been adopted by hundreds of Brazilian business, industry and governmental organizations for evaluating their PM maturity and for establishing growth and improvement plans for their PM capabilities. Third, the paper presents some important conclusions based on the 2005 to 2010 research results for three important project categories and business segments including the important conclusion that increasing project management maturity is directly correlated with increased project success. These research results include benchmarking of organizations and industry segments, variations in PM maturity values in Brazilian organizations for 10 project categories. The final major conclusion is that it is important for an organization to develop and grow in project management so they can obtain an important competitive advantage. Finally, we outline a proposal to initiate a similar PM maturity research project in the United States and Canada.

1. Competitiveness in the Global Economy

The primary indicator of a country’s economic growth is by comparing its gross domestic product/GDP from year to year. (In Brazil this is commonly referred to as the gross national product/GNP.) This growth is dependent on opportunities in the global economic scenario, the country’s economic strategies, and the global competitiveness of its business, industrial, and governmental organizations. Brazil has had a favorable economic environment in recent years, thanks primarily to its national economic policies that have promoted consumption by the middle class, and both its household consumption and its commodities exports are high. However, its competitiveness in the
global marketplace is rather low. Figure 1 shows the comparative growth rates for China, India and Brazil for the past 11 years, and Figure 2 shows Brazil’s relative global position in GDP/GNP in 2011.

![Graph comparing GDP/GNP growth rates for China, India, and Brazil from 2000 to 2011.](image1)

**Figure 1. Comparative GDP/GNP for China, India and Brazil [1].**

![Bar chart showing 2011 world GDP/GNP rankings.](image2)

**Figure 2. 2011 World GDP/GNP [2]**

It is also important to say that in the year 2000 Brazil was ranked in 9th position and it is expected to be ranked 5th by 2016. Maybe the most important internal consequence of the economic growth of Brazil was the evolution of social classes. Figure 3 shows that, since 2005, a huge social transfer is happening from the poor classes (D and E) to
medium class (C) and upper classes (A and B). Medium class growth in this period was about 46 million people! This fact has enormous consequences in the consumption of every economic segment in Brazil: from cars to food, education, health, tourism and homes.

Figure 3. Evolution of Social Classes in Brazil [3]

If in the internal arena the situation is fine, the same situation does not occur when we compare the external competition with Brazil. The international relative position of Brazil’s GNP since 1980 is about the same, around 3.5% of the world total. Figure 4 is a comparison of the GNP evolution of China and Brazil since 1980.

Figure 4. Share of World GNP [4].

Certainly the main reason for this lack of GNP growth is the competitiveness of the country. Even though Brazil is now ranked 6th in the size of its economy, it lags far
behind many countries in competitiveness (ranking 44th in 59 countries) as shown in Figure 5.

Figure 5. Competitiveness: Overall Ranking of 59 Countries [5]

Figure 6 shows that Brazil was ranked 28th competitively in the world in business management practices.

Figure 6. Brazil’s Rank for Specific Competitiveness Factors [5]

In response to this knowledge a number of improvement initiatives were launched by federal and state governmental agencies and within business and industry as well. These initiatives included the PM Maturity Research Program described in this paper.

2. The Brazilian PM Maturity Research Program: 2010 Results

This program was initiated by the authors in 2005 and by 2010 it involved 110 volunteers and 345 participating organizations, including companies, governmental agencies (both directly managed and indirectly managed), and non-governmental organizations/NGOs. Three major reports are available for download free on-line (www.maturityresearch.com):
• General Report: 290 pages, 67 authors (includes analysis of all types of organizations, all categories of projects and all business areas)

• I. T. Report: 105 pages, 10 authors (dedicated only to I.T. category of projects)

• Construction Industry Report: 100 pages, 14 authors (dedicated only to Engineering & Construction categories of projects).

Two versions of each report are available: the complete report in MS Word format, and a summary report in MS PowerPoint format. The full Complete Report is only available in Portuguese, however. In addition to these reports, extensive benchmarking information is available on-line to enable anyone to compare (without cost) the PM maturity of their organizational departments with similar departments of other organizations. The matrices show cross figures for minimum, average and maximum maturity for:

• 4 organization types: private companies, directly and indirectly administered government organizations, and NGOs.

• 24 business areas

• 10 project categories.

The benchmarking tables only show data for groups that have more than 5 participants. Figures 7 through 12 show some of the 2010 PM maturity results.

Figure 7. Percentage of Brazilian Organizations by Maturity Level in 2010 [6].

The global average for all project categories was 2.61.
Figure 8. 2010 Adherence by Brazilian Organizations to the Six Maturity Dimensions of the Prado PM Maturity Model [6].

Figure 9. Average PM Maturity for All Project Categories by Organization Type [6].
Figure 10. Maturity Levels by Project Category: Average for Levels all Participating Brazilian Organizations [6].

Figure 11. Average PM Maturity for All Project Categories by Business Areas in Brazil [6].
3. Significant Facts from the Research Since 2005

A few highlights from the results of this research program are:

- Two top performing groups of organizations noted in 2010 were:
  
  o 12 consulting firms with an average maturity of 3.3 for the *Organizational Change and Improvement of Operations* project category.
  
  o 12 construction companies with an average maturity of 3.2 for the *Facilities Construction and Assembly* project category.

- The health industry improved from 2.45 to 2.83 from 2008 to 2010.

- The metals and steel industry declined from 3.34 in 2006 to 2.73 in 2010.

- Smaller and larger organizations have increased their PM maturity significantly since 2005; mid-sized organizations have not made the same progress.

As shown in Figure 13 the length of time that good PM practices have been in use has a direct and positive influence on the PM maturity of all organizations.
Maturity in Project Management is Directly Related to Project Success and Failure:

Three project categories – Information Technology/IT, Engineering Design, and Construction – were studied to determine the causes of project success and failure, and to relate these to the PM maturity levels of the participating organizations. Figures 14 through 19 summarize these findings in 2010. From this information we draw the following conclusions:

- Achieving success in 100% of projects is too rare.

- Success rates in engineering and construction projects are not so different from IT projects, in spite of what many people believe.

- Scope is the villain:
  - We have known this “for centuries”
  - It is a challenge
  - But we keep making the same mistakes.

- The lack of good, mature project management practices appears behind many factors of failure in projects.
Figure 14. Project Success, Partial Success, and Failure Rate for Two Types of Software Projects in Brazil [6].

Figure 15. Causes of Failure in IT New Product Development Projects in Brazil [6].
Figure 16. Causes of Failure in Projects to Install Software from Third Party Supplier in Brazil [6].

Figure 17. Project Success and Failure Rates for Construction and Engineering Design Projects in Brazil [6].
Figure 18. Causes of Failure in Engineering Design Projects in Brazil [6].

Figure 19. Causes of Failure in Construction Projects in Brazil [6].
4. Description of the Prado-PM Maturity Model

The principal criteria used in the design of the model are:

- Use the same levels (1 to 5) of the model SW-CMM developed by Carnegie-Mellon University for software development.
- Have simplicity (questionnaire with only 40 questions) and universality (application to all types of organizations and the entire list of project categories).
- Relate the maturity of the organization to its ability to execute projects successfully.
- Enable direct indications of where PM practices need improvement in order to grow the organization’s PM maturity and project success rate.

The five levels and six dimensions of PM maturity in the Prado PMM Model are shown in Figure 20.

![Table of levels and dimensions](image)

**Figure 20. Levels and Dimensions of the Prado PP Maturity Model [7].**

The five levels are characterized as follows:

1. **Initial**
   - Little knowledge of the subject
   - Lack of methodology and/or management models
   - Use of intuition in management of projects.

2. **Known – Isolated Initiatives**
   - Start creating a new culture to build skills.

3. **Standardized**
   - Implementation of a standardized platform for project management:
     - Organizational Structure (Governance)
     - Methodology
     - Computerization
     - Strategic Alignment
   - Skills (behavioral competence) development.
4. Managed
   - Improvement of the platform: the standards work
   - Anomalies identified and eliminated
   - Effective human relationships
   - Consolidation of alignment with the organization's business.

5. Optimized
   - Results in high efficiency (optimization of terms, scope, quality and costs)
   - High efficiency of management processes
   - Wisdom
   - Low stress
   - Low noise
   - Something natural.

The Project Categorization Model Used in this Research

Because there is usually a wide variation within one organization in its PM maturity for different types or categories of projects, the most useful measure of PM maturity relates to each specific project category. To accomplish this PM maturity measurement on a globally consistent basis the Brazilian PM research project has adopted the widely accepted project categorization model developed by Archibald [8] with these 10 basic project categories:

1. Aerospace/Defense
2. Business & Organizational Change
3. Communication Systems
4. Events
5. Facilities
6. Information Systems
7. International Development
8. Media & Entertainment
9. Product/Service Development
10. Research & Development.

There are several sub-categories within each of these; for the Brazilian research, for example, within the Facilities category the PM maturity is measured for “engineering design” and “construction and assembly” projects. The benchmarking results at the project category level are averaged for a given organization when one organization has assessed its maturity for more than one project category. More detailed discussion of the purposes and methods of project categorization can be seen in reference 8.
5. Why Is It Important to Evolve in Project Management?

Good, effective project management governance, practices, and processes contribute significantly to:

- Economic development and launching of new products and services with minimum time to market.
- Improved national infrastructure (transportation, communication, other) and more efficient production and distribution facilities through more efficient facilities design and construction processes.
- Increasing the profits of an enterprise.
- Improving productivity of an enterprise.
- Efficient and continually improving computer systems.
- Proper selection of the right projects to achieve an enterprise’s strategic objectives.
- And many other process improvements within the enterprise.

What is Project Success?

A successful project is one that hits the target. This usually means that it has reached the objective and produced the expected results and benefits and that key stakeholders were fully satisfied. Moreover, it is expected that the project has been completed within the requirements for schedule, cost, scope and quality, with small differences that can be accepted.

The reality in the world of projects is that these results occur to a greater or lesser degree in all projects:

- Products or results are inadequate.
- Delays in completing the project are encountered.
- The ultimate costs of the project exceed the planned budget.
- Importance product features are not delivered.

According to the author Ram Charan [9]:

- “Less than 10% of adopted strategies are effectively implemented.”
- “In most cases of failure, we estimate 70%, in fact, of the problem was not bad strategy. It was bad implementation.” (We note that projects are the vehicles of strategic implementation.)

He goes on the fault the
- “wrong choice of leaders,”
• “no removal of some incompetent leaders,”
• “failure to control operations” (and projects),
• “lack of commitment to delivery.”

As shown in Figure 21, improving an organization’s PM maturity increases its ability to deliver new products and services on time.

![Figure 21. The Importance of Improving the Organization’s PM Maturity [7].](image)

Our research substantiates the conclusion that no matter the category of projects executed in your industry, if the current maturity is above level 4 the level of success will likely be above 80%. The situation in Brazil shows that the average PM maturity is between level 1.5 and 2.5, and the project success rate is between 40% to 60%, as indicated in Figure 22.

![Figure 22. Average Project Success Level versus PM Maturity Level in Brazil-2010 [6].](image)
Positive evolution and continued improvement in project management in all the dimensions measured by the Prado PM Maturity Model will allow an organization to achieve a high level of project success and enable them to join a very select group of organizations. This path is open to all organizations and will lead to increased competitiveness that will help to ensure prosperity and survival in today’s highly competitive global marketplace at both the company and country levels. This evolution typically requires about 7 years of improvement effort for large organizations, according to the internationally recognized PM authority Dr. Harold Kerzner.

6. Proposed Project Management Maturity Research Project in the United States and Canada

We propose that a well-organized research project, following the basic approach of the Brazilian PM research discussed in this paper, be organized and launched in the United States and Canada in 2012.

Purpose and Scope of the Proposed USA/Canada PM Maturity Research Project:
To develop a comprehensive, supportable data base of PM maturity levels in these countries for the 4 types of organizations within the 24 business areas and 10 project categories that characterize the available Brazilian PM maturity data base. This will enable organizations in these two countries to factually benchmark themselves against similar organizations for similar project categories to determine their competitiveness and provide them with the information needed to grow and improve their PM capabilities in a realistic manner.

Platform for Conducting this Proposed PM Research Project: We propose using the research site at www.maturityresearch.com and the Prado PM Maturity Research Model included in that site as the principal platform for this research project. This site and this model are available without cost and have been proven by seven years of application in Brazil, Italy, Portugal, and Spain. The owner and sponsor of this site, Dr. Darcí Prado, will provide personal support and guidance on-line to the USA/Canada research team for the use and improvement of this site as required.

Confidentiality is Assured: This research site strictly controls the confidentiality for each and every participating organization regarding the PM maturity measurements of the organization. The results are available only on an aggregated basis.

Data Handling and Standard Reports: The research site contains proven processes for handling the research data and producing a number of standard reports. Special reports for specific research purposes can readily be obtained as well.

The USA/Canada PM Research Project Team: A team of volunteers is required to plan, organize, initiate, and conduct this research program. Universities with advanced educational programs related to project management are obvious sources for recruiting leaders and team members for this project. Chapters of PMI, asapm, and other
professional associations interested in project management are also potential sources of volunteers. Graduate program professors and students should find this program to be a fertile source for thesis and dissertation topics. PM consultants and training companies will also find this research project to be of great interest to them. Both authors of this paper will be pleased to join the proposed volunteer USA/Canada research team.

The USA/Canada PM Maturity Research Project Charter and Master Plan: We will follow good PM practices in initiating and carrying out this research project. First, a Project Sponsor Team will be formed with the assignment to develop and obtain needed approvals of the Project Charter and Master Plan. Following that phase, the full Project Team will be formed to create the detailed plans and related actions leading to launching the research effort itself across the USA and Canada.

Formation of the USA/Canada PM Maturity Research Project Sponsor Team: During this present 6th Annual UT Dallas Project Management Symposium we propose forming the nucleus of the Project Sponsor Team and holding the first formation meeting of that Team. In all likelihood we will invite others from other locations across the USA and Canada to join this Project Sponsor Team. The objective of the first team meeting will be to establish a target date for preparation and approval of the Project Charter, and to develop plans to promote this project across these two countries and recruit volunteers to join the full Project Team.
References


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