



# From Functional Structure to Project Structure: A Brazilian Clinical Research Company Case

Marcos Antonio de Oliveira, Polytechnic School of the University of Sao Paulo, Production Engineering Dept, P: +55 11 3091-5263 Ext. 303, F: +55 11 3091-5399, Av. Prof. Almeida Prado, trav.2, n°128, Cid. Universitaria, 05508-900, Sao Paulo, SP, Brazil, [mao@iso9000.com.br](mailto:mao@iso9000.com.br)

Marly Monteiro de Carvalho, Polytechnic School of the University of Sao Paulo, Production Engineering Dept, P: +55 11 3091-5263 Ext. 303, F: +55 11 3091-5399, Av. Prof. Almeida Prado, trav.2, n°128, Cid. Universitaria, 05508-900, Sao Paulo, SP, Brazil, [mao@iso9000.com.br](mailto:mao@iso9000.com.br)

## 1 INTRODUCTION

Companies have undergone a process of transformation, organizing themselves to be able to make effective and agile responses to environmental demands. Furthermore, these responses constitute a set of actions or activities that reflect the company's competence in taking advantage of opportunities, and their capacity for rapid action, respecting time and cost limits and specifications, i.e., constructing project-oriented organizations (Carvalho et al, 2003).

In this context, the organizational structure design is a critical issue in order to achieve organizational responsiveness. According to Patah and Carvalho (2002), organizational structure should be dynamic and capable of rapid changes.

This paper aims to discuss the process of organizational structural changes, through a case study analysis of a Brazilian clinical research company. The paper describes and analysis the impact of change from the functional structure to a project structure, concern to advantages and disadvantages perceived by employees and managers and compare with the theoretical framework.

## 2 THEORETICAL BACKGROUND

There are several definitions of "project" available in the literature. The most widely used definition are those proposed by ISO 10006 (1997) and PMI (2004). The first one, defines project as a single process consisting of a group of coordinated and controlled activities with a beginning and end date, undertaken to achieve an objective, according to specific requirements, including time, cost and resource limitations (ISO 10006, 1997). More recently, PMI (2004) defines project as "a temporary endeavor undertaken to create a unique product, service or a result".

According to Kerzner (2001), in order to chose the most appropriate organizational structure, some factors should be considered such as: project size, duration, the organization's experience in managing projects, the philosophy of the company's upper management regarding project management, the physical location of the project, available resources and specific project aspects.

Patah and Carvalho (2002b) highlighted that, when the organizational structure is not selected in an appropriate manner, several problems can be diagnosed. These authors argue that there are some indicators that the organizational structure is not the most appropriate: projects don't manage to meet time, cost and other requirements are not achieved; experts feel underutilized; no one takes responsibility when the project tends to failure, among others.

According to Mockler, apud Cleland and King (1975), the traditional organizational structures, with their rigid divisions of responsibilities and authorities were too inflexible to meet the needs of the dynamic business environment of the 1960s. As result, a general philosophy of

"no best way" to organize caused a substitution of traditional organization models for the development of an individualized and flexible approach to take care of particular situations. At this time, appeared the currently known approaches for structures of projects management as alternative to the functional structure. Matrix management, for instance, began in the 1960's as an organizational alternative to meet the aerospace industries needs (Larson and Gobeli, 1997).

In the functional organization, the projects occur in the company structure departments.. Since it is easy, to the functional manager, to obtain human resources, the majority of the projects are completed inside of the foreseen stated period and the cost (Kerzner, 2001). As the functional structure places the project to be executed of one of the departments of the company, the responsible one for the project is the functional manager of this department.

As alternative to the rigidity of the functional or traditional organizational structure appeared the pure project structure and the matrix structure (Patah and Carvalho, 2004). According to Meredith (2000), the pure project structure has presented a fast growth in the last decades. The author argues that many are the reasons for the popularization of this type of organizational structure..

According to Kerzner (2001), the biggest advantage of the pure project structure is that an only individual, the manager of projects, keeps a complete authority on the project as a whole.

Between the extremities of the functional structure and the pure project structure there are some types of matrix organization that combine characteristics of the two (Slack et al, 1999).

## 3 THE CLINICAL RESEARCH IN BRAZIL

The clinical research in Brazil is regulated by an extensive legislation that is based on the main international documents which emanated declarations and lines of direction on research that involves human beings: the Code of Nuremberg (1947), the Declaration of the Rights of the Man (1948), the Declaration of Helsinque (1964 and its posterior versions of 1975, 1983 and 1989), the International Agreement on Civil laws and Politicians (ONU, 1966, approved for the Brazilian National Congress in 1992), the International Proposals of International Ethical Lines of direction for Biomedical Research involving Human beings (CIOMS/OMS 1982 and 1993) and Lines of direction for Ethical Revision of Studies Epidemiologists (CIOMS, 1991). It still fulfills the disposals of the Constitution of the Federative Republic of Brazil of 1988.

Clinical researches are typically projects. It does not exist one equal to another, it has objectives defined clearly and the results are extremely uncertain. The management of a project of this nature involves the several areas of the Projects Management.

#### 4 FIELD RESEARCH DESIGN

The present study aims to verify if the advantages and disadvantages presented in literature for functional and pure project structure are perceived by people. In order to do such verification, it was chosen a company which promoted a radical alteration in its structure, from functional to pure project in the end of the year 2003.

The advantages and disadvantages, presented in literature, have been grouped in Table 1, where it indicates the structure in which, in theory, the research would have to demonstrate best scores.

Two questionnaires with the same questions were elaborated and the collaborators were randomic distributed in two groups: one to answer the questionnaire for functional structure and other to answer the questionnaire for pure project structure. As criterion for qualification of the respondents, it was adopted that the collaborators would have to be in the company at least 4 years, so that the same ones had lived deeply for equal time both the structures. From the criterion above, it resulted that from the 38 collaborators (also 3 directors), 31 were qualified to answer the questionnaires. To have equal samples in the two groups, one of the collaborators was discarded of the research.

A Likert scale of 5 points was adopted for the questionnaire, varying from "disagrees it total" (1) to "agrees it total" (5). The questionnaires were applied between days 8 and 22 of August of 2005, personally for the researcher. All the selected collaborators answered the research.

#### 5 CASE STUDY ANALYSES

The analyzed organization is a service company of management of clinical research, in the market since 1992, currently with 38 collaborators of which 25 with concluded university study (doctors, druggists, statisticians, systems analysts, bachelor in letters), 5 attending an university study and 8 with average education. In its foundation, the company was structuralized in functional form. In the early 2003, the company initiated a process of reorganization with the objective to improve the loyalty of customers, culminating in the end of the same year for an alteration for pure project structure.

Table 2 shows, for each characteristic, the results of both the questionnaires with its averages and standards deviations.

Table 1. Searched characteristics

CHARACTERISTICS	DOMINANT STRUCTURE (in theory)
Flexibility in the use of resources	functional
Focus in the customer	Pure Project
Professional growth	functional
Responsibilities in the project	Pure Project
Fulfilment of stated periods, budget and scope	Pure Project
Communication between individuals	Pure Project
Commitment of the teams	Pure Project
Implementation of polices and principles of the company	functional
Uncertainties related to the future after the ending of the project	Pure Project

Table 2. Results

CHARACTERISTICS	FUNCTIONAL QUESTIONNAIRE Average/Standard Deviation	PURE PROJECT QUESTIONNAIRE Average/Standard Deviation
Flexibility in the use of resources	1,8/0,68	3,1/0,88
Focus in the customer	1,5/0,64	4,7/0,46
Professional growth	2,0/0,85	3,9/0,99
Responsibilities in the project	2,1/0,88	4,8/0,41
Fulfilment of stated periods, budget and scope	2,8/0,94	4,3/0,59
Communication between individuals	2,6/0,74	4,7/0,49
Commitment of the teams	2,2/0,94	4,4/0,51
Implementation of polices and principles of the company	2,5/1,25	3,8/0,77
Uncertainties related to the future after the ending of the project	2,7/0,72	3,9/1,06

#### 6 CONCLUSIONS

The results of the research demonstrate a great preference for the pure project structure. Same for those characteristics presented for literature as "advantages" of the functional structure, the results demonstrate that, in the searched company, the collaborators do not recognize losses due to the implanted alterations. In particular, with regard to related uncertainties the maintenance of the job after the ending of the project where they are working, the employees stay safer in the current structure. Questioned, the directors affirm that this security is consequence of best financial results and loyalty of the customers which assure the continuity of the business.

Another characteristic expected as a "loss" and that has not been figured like that is related to the organizational implementation of polices and principles, perhaps explained by the fact that the company is small and, in its philosophy of work, realizes monthly meetings with the group, in which principles and strategies for the business are strengthened.

The professional growth of the collaborators is treated as a specific project, with clear goals for one determined period and monitored through the performance of the professionals in the project in which they are placed. Thus, the company obtains important performance indicators.

#### REFERENCES

- Carvalho, M. M.; Laurindo, F. J. B.; Pessôa, M. S. P.. (2003) "Information Technology Project management to achieve efficiency in Brazilian Companies" in KAMEL, Sherif. (Org.). Managing Globally with Information Technology. New York: Hershey.
- Cleland, D. I; King, W. R. System Analysis and Project Management. McGraw Hill Book Company, 1975
- Gareis, R. Management of Networks of Projects. American Association of Cost Engineers, 1992
- ISO 10006 (1997) International Standard Organization. Quality management - Guidelines to quality in project management. s.l.p., ISO.
- Kerzner, H. Project Management - A Systems Approach to Planning, Scheduling, and Controlling. New York: John Wiley & Sons, 2001.
- Kerzner, H. (2001) Strategic Planning for Project Management - Using a project management maturity model. Nova York: John Wiley & Sons.
- Larson EW, Gobeli DH. Matrix management: contradictions and insights. California Management Review 1987;29(4):126 -38.
- Maximiano, A. C. A. Administração de Projetos: Como Transformar Idéias em Resultados. Atlas, São Paulo, 1997
- Meredith, J. R. ; Mantel Jr, S. J. Project Management a managerial Approach, John Wiley & Sons, Inc, New York, 1995.
- Patah, L. A.; Carvalho, M. M. (2004) Strategic Performance Measurement in Project Management. In: EUROMA2004 - EUROPEAN OPERATIONS MANAGEMENT ASSOCIATION. Fontainebleau. Proceedings of EurOMA2004 - Operations Management as a Change Agent. Fontainebleau: INSEAD, v. 1, p. 771-780.
- Patah, L.A.; Carvalho, M. M. (2002a) Estruturas de gerenciamento de projetos e competências em equipes de projetos. In: ENEGEP XXII, 2002, Curitiba. Porto Alegre: ABEPRO.p. 1-8.
- Patah, L.A.; Carvalho, M. M. (2002b) O Processo de Escolha de Estruturas de Gerenciamento De Projetos Em Empresas. In: Simpósio de Engenharia de Produção, 9, 2002, Bauru. SIMPEP IX. Bauru: UNESP. p. 1-11.
- Patah, L.A.; Carvalho, M. M.; Laurindo, F. J. B (2003) O PMO como tradutor das estratégias corporativas: um estudo de caso no setor de telecomunicações. Working Paper, PRO-POLI-USP.
- Project Management Institute. A Guide to the Project Management Body of Knowledge PMI (2000) Project Management Institute. A Guide to the Project Management Body of Knowledge (PMBOK). Maryland: Project Management Institute Inc.
- Resolução 196 Conselho Nacional de Saúde, Brasília, 1996.
- Resolução 251 Conselho Nacional de Saúde, Brasília, 1997.
- Slack, N.; Chambers, S.; Harland, C.; Harrison, A.; Johnston, R. Administração da Produção Ed. Compacta. São Paulo: Atlas, 1999.

0 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/proceeding-paper/functional-structure-project-structure/32828](http://www.igi-global.com/proceeding-paper/functional-structure-project-structure/32828)

## Related Content

---

### Contemporary Leadership Development in Kazakhstan

Gainiya Tazhina, Judith Parker and Arslan Ivashov (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 5626-5637).

[www.irma-international.org/chapter/contemporary-leadership-development-in-kazakhstan/184263](http://www.irma-international.org/chapter/contemporary-leadership-development-in-kazakhstan/184263)

### Demand Forecast of Railway Transportation Logistics Supply Chain Based on Machine Learning Model

Pengyu Wang, Yaqiong Zhang and Wanqing Guo (2023). *International Journal of Information Technologies and Systems Approach* (pp. 1-17).

[www.irma-international.org/article/demand-forecast-of-railway-transportation-logistics-supply-chain-based-on-machine-learning-model/323441](http://www.irma-international.org/article/demand-forecast-of-railway-transportation-logistics-supply-chain-based-on-machine-learning-model/323441)

### The Influence of Structure Heterogeneity on Resilience in Regional Innovation Networks

Chenguang Li, Jie Luo, Xinyu Wang and Guihuang Jiang (2024). *International Journal of Information Technologies and Systems Approach* (pp. 1-14).

[www.irma-international.org/article/the-influence-of-structure-heterogeneity-on-resilience-in-regional-innovation-networks/342130](http://www.irma-international.org/article/the-influence-of-structure-heterogeneity-on-resilience-in-regional-innovation-networks/342130)

### Managing Compliance with an Information Security Management Standard

Heru Susanto and Mohammad Nabil Almunawar (2015). *Encyclopedia of Information Science and Technology, Third Edition* (pp. 1452-1463).

[www.irma-international.org/chapter/managing-compliance-with-an-information-security-management-standard/112547](http://www.irma-international.org/chapter/managing-compliance-with-an-information-security-management-standard/112547)

### Destination Management Systems Implementation

João Vaz Estêvão, Maria João Carneiro and Leonor Teixeira (2015). *Encyclopedia of Information Science and Technology, Third Edition* (pp. 3636-3645).

[www.irma-international.org/chapter/destination-management-systems-implementation/112797](http://www.irma-international.org/chapter/destination-management-systems-implementation/112797)