

ABSTRACT NUMBER: 007-0587

**MODEL OF MANAGEMENT FOR DESIGN FIRMS - ANALYSIS OF THE PHASE
OF IMPLEMENTATION OF THE MODULES DURING THE “CAPACITY
PROGRAM OF DESIGN FIRMS”**

Flávia SOUZA (1); Otávio J. OLIVEIRA (2); Silvio B. MELHADO (3)

Department of Civil Engineering of EPUSP: flavia.souza@poli.usp.br (1) ; Department of

Engineering of Production of UNESP: otavio@feb.unesp.br (2) ; Department of Civil

Engineering of EPUSP silvio.melhado@poli.usp.br (3).

POMS 18th Annual Conference

Dallas, Texas, U.S.A.

ABSTRACT

The present paper has aims to show the performance of the design firms during the implementation process of the Management model developed by Oliveira (2005) for design firms. It is a work that was done through action- research with nine design firms in São Paulo City.

This work includes the description of the general characteristics of the design firms and more specifically of the nine firms participating of the program named “ Capacity Program for Design Firms” that has occurred at EPUSP (Escola Politécnica da Universidade de São Paulo), Civil Construction Engineering Department, besides describing an initial diagnosis with the firms about their management process. During the description, comments will be about the conduct of each company during the implementation of the process of each module of the program.

Key words: project companies, management, project.

1. Introduction.

The “Capacity Program for Projects Companies” was created so as to implement a pre-existing management model for design firms. This model was developed by Oliveira (2005) in his doctor degree at the Civil Construction Engineering Department, EPUSP (Escola Politécnica da Universidade de São Paulo), in a group of nine design firms operating in the real estate market of São Paulo City. These design firms are specialized in architecture, building structure, foundation, hydraulic and electric fittings .

The original proposal of the “Capacity Program for Design Companies” was for the methodology of each element that compose the model proposed by Oliveira (2005) to be presented in modules and the companies could implement the model without help from the researchers or management consultant.

Most of the design firms at São Paulo City, according to MERCOSUL resolution n° GMC 59/98 (Table 1) and the parameter of *Estatuto da Microempresa e Empresa de Pequeno Porte (Lei 9.841/99)* (Table 2), are consider micro- companies or small companies.

	<i>Micro-companies</i>		Small Companies		Medium Companies	
	Industry	Trade and services	Industry	Trade and services	Industry	Trade and services
N° of employees	1 - 10	1 - 5	11- 40	6 - 30	41 - 200	31 - 80
Billing Annual	US\$ 400 mil	US\$ 200 mil	US\$ 3,5 milhões	US\$ 1,5 milhão	US\$ 20 milhões	US\$ 7 milhões

Table 1: Micro, Small and medium sized companies : Definitions ann international statistics - resolution n° GMC 59/98 do MERCOSUL. *Source: MINISTÉRIO DO DESENVOLVIMENTO, INDÚSTRIA E COMERCIO EXTERIOR. SECRETÁRIA DO DESENVOLVIMEMNTO DA PRODUÇÃO. DEPARTAMENTO DE MICRO, PEQUENAS E MÉDIAS EMPRESAS (2005)*

	<i>Micro-companies</i>	Small Companies	Medium Companies
STATUTE MPE Annual revenue	R\$ 244.000,00	R\$ 1.200.000,00	-
SIMPLE Annual revenue	R\$ 120.000,00	R\$ 1.200.000,00	-
RAIS/ TEM N° of employees	0 - 19	20 - 99	100 - 499
SEBRAE Industry N° of employees	0 - 19	20 - 99	100 - 499
SEBRAE Trade /services N° of employees	0 - 9	10-49	50 - 99

Table 2: : Micro, Small and medium sized companies : Definitions ann international statistics - *Estatuto da Microempresa e Empresa de Pequeno Porte (Lei 9.841/99)* *Source: MINISTÉRIO DO DESENVOLVIMENTO, INDÚSTRIA E COMERCIO EXTERIOR. SECRETÁRIA DO DESENVOLVIMEMNTO DA PRODUÇÃO. DEPARTAMENTO DE MICRO, PEQUENAS E MÉDIAS EMPRESAS (2005)*

According to information from IBGE (Brazilian institute of Geography and Statistics) , in 2000Th there were approximately 4.1 millions of companies in Brasil and 98% of these companies were small and medium sized companies. With regard to workers, there were approximately 30,5 millions of employees in Brasil and out of this number, 45% worked at small and medium sized companies.

2. Capacity Program for Design Companies : description and aims.

According to the design firms that took a part in the “Capacity Program for design firms”, the initiative of creating the “Capacity Program for design firms” with focus on management to meet their expectations , because until that moment (March, 2006) there was not any capacity management program focusin on to their subjects and specifc problems in São Paulo City, just programs with generic management practice.

Olveira (2005) model , developed in fuction his research about design firms whith peculiar characteristics of nine design firms from the “Capacity Program for design firms” and the other design firms of São Paulo City. According to Oliveira(2005), the model developed aims to to be a management handbook to offer informations and practices to improve the managemnet of this kind of firms.

According to Chiavenato (2003), a model is a simple representation of some part of reality and models are fundamental to understand the systems, and a system is a group of interdependent elements and interacting elements or a group of connected units that constitute an organized element.

It is extremely important to understand the companies as open systems, a kind of system that is constantly influenced by the environment. Chiavenato explains that the concept of open system is perfectly applicable to organizations because they keep interaction dynamic with theirs customers, suppliers, competitors, governmental agencies and others external agents.

The model developed by Olveira (2005) offers functions and essential processes to the firms to develop their own procedures and. The parts of the model are: organizational structure, strategic planning, planning and control of design process, cost management, sales

management, information system, human resources management, services added to the design and performance evaluation.

The initial schedule of the program foresaw one meeting a month with one or two representatives of each design firm that took a part in the the “Capacity Program for design firms” to present the subject of the present module and discuss some doubts about the previous modules.

However, the program did not occur as scheduled before. The changes occurred due the design firms concerns and during the work, some questions arose and could be better seen to if some modules were advanced, because of this, some dates were changed and the program occurred as shown in Table 3.

1 ^o MONTH	2 ^o MONTH	3 ^o MONTH	4 ^o MONTH	5 ^o MONTH	6 ^o MONTH	7 ^o MONTH	8 ^o MONTH	9 ^o MONTH	10 ^o MONTH
Diagnosis and conceptual preparation	Strategic planning and Organizational Structure.	Strategic planning and doubt discuss	Design Process	Design Process- doubt discuss	Human Resources Management	Costs Management	Information System	Sales Management	Services Added to the design process and performance evaluation.

Table 3: Consummated Shedule of “ Capacity Program for design Firms”.

The proposal was that the design firms implemented the program without help of a management consultant, wich required their predisposition to promote organize to study the whole program and its modules, understand each module, elaborate an action plan for the activities, reflighting and discussing each module and application at the design firm, develop routines and tools and make it in operational. This could be the ideal method to be adopted for each design firm; however, each design firm adopted a dynamic logic with its own characteristics, size and availability resources.

During the program, researchers had to perform some visits to the design firms. These visits were not to promote some assistance or management consultanting, just to the design firms better and understand the characteristics of these design firms and their routines. This

information was fundamental for the concerning the methodology applied during the program, the schedules changes and the dynamic of the presentation of the modules.

3. General Characteristics of the design firms in São Paulo City and specific Characteristics of the nine design firms of “Capacity Program for design firms”.

The small design firms in São Paulo City have some characteristics that often make efficacious management difficult . These are as fallows:

- ✓ The Professional in charge or the Owner of the firm (Engineer or Architect) is the general manager of the design firms. This professional accumulates the technical responsility for the projects and for all decisions concerning the projects. This also manages the technical functions, management, financies, sales;
- ✓ These functions are often disregarded, because of the insufficient time in function of the accumulated responsibilities and because the professionals do not have specific knowledge about management, financies, sales.

Because of these characteristics, the management of design firms are centralized in that pareson to a large extent, with less or no delegation of authority for important decisions. These characteristics denote highly inflexible structures, with difficulty for evolution for the strategic and technological point of view, stagnating their growth and organizational evolution.

On the other hand, most of these companies employees are design specialists (engineers or architects). According to Boff and Abel (2005), in their research about competencies development and the importance of specialists in this process, the professional could be considered a specialist when knowledge is the main resource of the work and plays the most important role in the work. To Boff and Abel (2005), the specialist is employee who has the knowledge and the capacity to apply cognitive abilities to solve strategic problems, with better performance and quality comparing as compared to the professionals of the same area.

About the characteristics of the nine firms that took a part in the “Capacity Program for Design Firms”, all of them are micro-companies according to resolution *N° GMC 59/98 do MERCOSUL* and *Estatuto da Microempresa e Empresa de Pequeno Porte (Lei 9841/99)*.

Name of the design firm	Owner(s)	N° Employees	Kind of Project	Age of the Firm (years)	N° Employees Specialist
Agres Projetos e Construções Ltda - 01	Architect	10	Architectural	15	8
Cimatti Construção Civil Ltda -02	Architect	3	Architectural	5	3
Escritório de Arquitetura Luongo & Ass. Ltda - 03	Architect	2	Architectural	8	2
Fiuza Arquitetura e Construção S/S Ltda-04	Architect	2	Architectural and Interior Design.	3	1
Interativa Engenharia Ltda.- 05	Electric Engineering and Civil Engineering	16	Electrical and Hydraulic fittings	4	14
Junqueira e Nosralla Associados Arquitetura e Design S/C Ltda - 06	Architect	6	Architectural	27	5
Mecatron Arquitetura e Consultora Ltda- 07	Architect	3	Architectural and Production Civil Engineering Process Project	1	1
Procion Engenharia Ltda – 08	Electric Engineering and Civil Engineering	26	Electrical and Hydraulic fittings	19	22
WDS Arquitetura Ltda -09	Architect	1	Architectural	19	1

Table 4: Design Firms in the “Capacity Program for design Firms”

The group has seven design architecture firms and two Electric and Hydraulic fitting firms. Six design firms have less than ten employees, eight design firms are more than three year old and most part of their employees are specialists and the Professional in charge accumulates the technical and management functions, The average of projects simultaneously developed are three.

4. Initial diagnosis and general conduct of the design firma during the implementation the model.

The subject of the first meeting was a more detailed presentation of the model, the proposal of the program and how it could be conducted and the introduction of the team in charge . After this a presentation was made to offer a conceptual standardization about management, enterprise and organizational change.

All the design firms manifested their expectations about the program and about the improvement that the program could offer. The expectation of design firms of exchanging views in the group aiming to improve their firms and businesses was detected.

The team in charge of the “Capacity Program for Desig Firms” stated that the researchers’ work was not management consultanting. The group discussed that a succeses implementation of the program could be only attained if there was a predisposition to work for themselves. It was the design firms’ responsibility to define the implementation methodology, analyze and interpret the modules, develop the tools and make them in operational .

The team in charge made out a questionnaire about all topics of the model (organizational structure, strategic planning, planning and control of design process, costs management, sales management, information system, human resources management, services added to the design and performance evaluation). This questionnaire was important to diagnose the knowledge of design firms on each subject of the program and if there was something implemented concerning the topics in the design firms.

4.1 - Organizational Structure.

Two questions were made on the organizational structure. The first was about the existence of an organogram. Just two design firms answered that they hada defined organogram . Both organograms has pyramidal and functional structures. The second question was about the person in charge in the design firms, definition and awareness of responsibilities. Five of the

nine design firms said the person in charge were defined and there was awareness about the responsibility.

During the program, it was evidenced that the definition and awareness about the responsibilities was not in true and this aspect was worked and had special attention of the design firms during the program.

4.2 - Strategic Planning.

In the answers about strategic planning it was detected that the design firms were not working in the right way. They had not done the internal work on it and they had not formalized the essential research to adopt their strategies and goals to improve the competitiveness. Nevertheless, the design firms showed through the answers that they have knowledge about the market, their customers expectations and as far as possible, the performance of their competitors. Even though had been consummated an initial work about strategic planning, the design firms expressed dissatisfaction about the work done and some design firms believe, at that moment, that first they had to order and organize their firms through the implementation of the program.

4.3 - Design process.

Concerning the design process, it was detected through the diagnosis, though the design firms did not have their design process formalized or tools formalized. During the program, the design firms analyzed their design process, tools and verified that the design firm's confidence concerning the design process was precipitated. It was observed that the design firms were engaged in a critical analysis viewing to improve them, mainly concerning the productivity of their of design process team.

4.4 – Costs Management.

The answers concerning costs management signaled that five of the nine design firms had some tool to control finances and the responsible for it professional in charge or the owner of the design firm. It was verified during this module, that the design firm tool did not offer them reliable information and they could not prepare cash flow with this information; because of

this, the cash flow was not consulted for decision making. During this module, the design firms started a process to develop tools or buy some tool that could offer reliable information.

4.5 – Sales Management.

When they were questioned about sales management, the design firms answered that this was the professional in charge responsibility and it was verified that the informations and tools used in sales management were partly neglected. Since the beginning of the program the design firms demonstrated since the begin of the program, apprehension to work on this topic and the nine companies instituted in their strategic planning at least one goal concerning sales management.

4.6 – Information System.

Three out of four questions made on information system were about documents control and just one was about customer`s information control. The answers concerning this item were positive, and showed control concerning the information. During the program, it was verified that the information control is a constantly concern, because the information is the main resource of their work.

An interesting topic verified during the program was the deep interest in developing routines and tools to control informations on their customers and financial management.

4.7 – Human Resources.

About human resources, there were two questions with focus on motivation of the employees and the design firm attitude towards continued education. The answers are positive probably because the most of design firm`s employees are specialists; and they are small firms or micro-companies, with a small number of employees. Another interesting topic concerning humanis resources that both the owner of design firm and the employees are aware that education is fundamental for the performance of design work. The design firms developed tools to the admission process of new employees, to seek and file courses, meetings concerning design process.

4.8 – Added Services.

The questions concerning added services to the design process emphasized close follow-up of the design professional during the construction process and after it; however, it was verified that the design firms did not correctly interpret the proposal of the model concerning this topic. They did not interpret added services to the design process as a product that they could sell to their customers, they interpreted added services just as an obligation and no measures have been taken at design firms to revert in to benefits for the firms. So far nothing has been developed about added services in the strategic planning of the nine design firms of the program.

4.9 – Performance Evaluation.

The design firms, when questioned concerning performance evaluation, answered concerning design process indicator performance, customer`s satisfaction indicator performance to collect fundamental information for future projects, employees` productiveness, organizational atmosphere, strategy to attract new customers. During the program, indicators werw not developed for all topics of the program. It was verified that the main concern of the design firms was about developing employees productiveness indicators and customer`s satisfaction indicators.

5. Design Firm`s implementation methodology of management program and preliminary results.

During the program, more specifically in the third month, the design firm Procion Engenharia Ltda, left the program because of na increase in of the projects. This design firm just developed the topic concerning strategic planning.

The design firm Agres Projetos e Construções Ltda went through the routines of the program using the methodology that partially involved the collaborators partially. Most of the works. So far the company is working in the process project stage, the processes related to the commercial management, costs management and part of that has been implemented. It was

verified that the company did not establish a work routine and or a plan of action for implementating and following-up of the works.

About the Cimatti company Civil Construction Ltda, occurred there was full engagement of all the employees in the developed activities. For this design firm the work with full engagement of the simultaneous teams was easier than in others design firms of the group, because the company only has three employees in its team. The team congregated once a week during a period to discuss each one of the processes, to establish responsibilities in the development of the tasks. Although the design firm has not formalized an action plan, it had a continuous follow - up of the development of the works. The adoption of these practices provide for the company with the analysis and development of routines of all the modules of the program and these tools and routines are in operation process in the company. The the company keeps conducting carrying through the weekly meetings aiming continue discussing and verifying the operation process of the tools developed viewing improve them or even to abort them in case that they verify they are not adjusted for the design firm need.

The design firm Luongo & Associados Ltda underwent a process of fusing with another of architecture firm of the city of São Paulo and this process prevented the continuity of implementing the managemnet program and development of the activities; however, the work that was developed until the sixth month in the program used a methodology that did not involve the collaborators, only the two partners (architects).

The Fiuza Arquitetura e Construção design firm , as well as the design firm Luongo & Associados Ltda used a methodology that did not count on the participation of the employees. All the works, routines and tools had been developed by professional in charge (architect). The only module that is fully implemented in the operational process is the Human Resources management of and the referring module costs managementis partially in operation process through a tool, that according to the professional in charge , needs adjustments for its perfect functioning. Concerning work methodology, still according the professional in charge, there is still a lot of work to be carried through and perhaps it, there

was involvement of the remainder of the team in the works, the development of the other modules could be more in advanced.

For the Interativa Engenharia Ltda, to adopt the methodology with simultaneous involvement of all the team would be more difficult in function of the number of employees of the company. The work method that the company adopted counted on the participation of the two partners (engineers) and of a team with three employees (project coordenates) in the discussion of the modules and development of routines and tools. The works occurred through meetings with those involved in the implementation of the model in the company. The schedules of the meetings were not systematic, as in Cimatti, but according to the partners, they occurred at least once a month. The design firm has tools and routines in operation about the project process, human resources management, information system, evaluation of performance and strategic planning. The design firm strategic planning was revised for the second time, and the goals of the first version had been partially fulfilled.

The design firm Mecatron Arquitetura e Consultoria Ltda adopted a methodology that all the works of wich had been developed by the partners, but formely the partners debated topics with the employees and after this, the partners develope the routines and tools.

About the other design firms of the program, they did not disclose the development of the activities and methodology used.

6. Conclusion

It is still precipitated do derive conclusions of efficaceuness of the model for design firms, exactly because, as previously verified, the design firms are still in the developement process and operation of routines and tools, but concerning the methodologies used by each participant, the design firms that had organized the works and had provided the participation of the employees in the process, attained better results and is verified the efficaceouness in the developed works. Also it was evidenced that the design firms which had worked more organized and in the beginning, of the program had incorporated the self-implementation awareness proposal, led the implementation of the model.

As to the methodology used for the responsible in charge team of the program, it was verified that the proposal to separate the topics of the model into modules, caused the companies the need for continuous revision of the works carried through works and at the end of the program, when all the modules had already been discussed, greater productivity was verified in the development of the works.

Another aspect that must be mentioned in the conclusion of this work is that, in Brazil, the organizational aspect of the design firms has been sufficiently discussed in the associations that gather the professionals of the design area such as ASBEA (Brazilian Association of the Offices of Architecture), ABECE (Brazilian Association of Engineering and Structural Assistantence), ABRACIP (Brazilian Association of Engineering of Land Systems); however, the formation of a group for discussion and exclusive implementation of a management model, specially created for design firms, is the first in the São Paulo, although they exist in other states, such as Minas Gerais and Rio Grande do Sul, they approach insues management, none of them are working in the implementation of the model considered by Oliveira (2005).

7. Referencies.

PORTER, MICHAEL. **Vantagem Competitiva Criando e Sustentando um desempenho Superior.** 28 º Edição. Rio de Janeiro : Editora Campus, 2004.

CHIAVENATO, I. **Introdução a Teoria Geral da Administração.** 7º Edição. Rio de Janeiro : Elsevier, 2003.

SLACK, N., CHAMBERS, S., JOHNSTON, R. **Administração da Produção - 2º Edição** São Paulo, 2002. Editora Atlas, 743 p.

DENZIN, NORMAN K. & LINCOLN, YVONA S. **Handbook of Qualitative Research - Printed in United States of America,** 1994. Sage Publications , Inc.

LAVILLE, CHRISTIAN & DIONNE, J. **A Construção do Saber . Manual de metodologia da pesquisa em ciências humanas - 1º edição /** Belo Horizonte, 1999. Editora UFMG .

THIOLLENT, M. **Metodologia da Pesquisa – Ação .** 13 º edição / São Paulo, 2004 . Cortez Editora.

GALBRAITH, J.R. **Organizando para competir no futuro.** 1 º edição / São Paulo, 1995 . Makron Books.

GONÇALVES, A, KOPROWISKI, S.O. **Pequena Empresa no Brasil.** 1 º edição / São Paulo, 1995 . Edusp – Editora da Universidade de São Paulo.

OLIVEIRA, D. P.R, **Sistemas, Organização e Métodos.** 10 º edição / São Paulo, 1998 . Editora Atlas.

FLEURY, M.T.L, OLIVEIRA JR., M.M. **Gestão Estratégica do Conhecimento** 1 º edição / São Paulo, 2001 . Editora Atlas.

RUAS, R., ANTONELLO, C.S., BOFF, L.H. **Os novos horizontes da gestão. Aprendizagem Organizacional e Competências** 1 º edição / São Paulo, 2005 . Artmed Editora S.A.

OLIVEIRA, O .J. **Modelo de Gestão para Pequenas Empresas de Projetos de Edifícios – E.P.USP** São Paulo, 2005.

MAXIMINIANO, A. C.A. **Introdução à Administração .** 6º Edição .São Paulo, Editora Atlas, 2004.

BATEMAN, T.S., SNELL, S.A. **Administração , Construindo Vantagem Competitiva .** 1º Edição São Paulo. Editora Atlas, 1998.

MARQUES, G.A.C. **O projeto na Engenharia Civil. São Paulo, 1979. E.P.USP São Paulo,** 1979.

RYD., N. **The design brief as carrier of client information during the construction process.** Design Studies, Volume 25. Issue 3. May 2004. Pages 231-249

FRANCO, M.A.S. **Pedagogia da Pesquisa- Ação . Educação e pesquisa,** São Paulo, v.31,n.3, p. 483 – 502 , set ./ dez 2005 .

MILLER ,B., GREENWOOD, D., EIKELAND, O . **Strategies for addressing ethical concerns in action research** . Action Research, Sage Publicatiosn , London, v.4 (1), p. 129 – 131 / 2006 .

EIKELAND, O . **Condensing ethic and action research** . Action Research, Sage Publicatiosn , London, v.4 (1) , p. 37 – 47 / 2006 .

GREENWOOD, D. ,MILLER ,B., **A re- examination of the relationship between action research and humana subjects review process** . Action Research, Sage Publicatiosn , London, v.4(1) , p. 117 –128 / 2006 .

TRIPP,D. **Pesquisa- Ação : Uma introdução metodológica** . Educação e pesquisa, São Paulo, v.31,n.3, p. 443 – 466 , set ./ dez 2005 .

DICKSON, P., SCHNEIR,W., LAWRENC, P. HYTRY, R.. **Managing Design in smallhigh-growth companies. Journal of product Innovation Mangement.** Volume 12. Issue 5. November 1995. Pages 406-414

This document was created with Win2PDF available at <http://www.win2pdf.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.