

A Methodological Proposal for Strategic Cost Management Based on Target Cost, ABC and Product Life Cycle in a Perspective of the Product Development Process

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ABSTRACT: This study aims to contribute to the planning process on product management. To do so it presents a methodological proposal based on strategic cost management, using the methods Target Cost, ABC costing based on the product lifecycle. This proposal was structured as it follows: Phase 1: determining Target Cost; Phase 2: determining ABC defrayal to the light of the defrayal based on the product lifecycle. The research was elaborated to the light of specialized literature, from which we extracted the variables to formulate the methodology. After that, to show the feasibility and plausibility of the method we applied a hypothetical case study based on the development process of a product to the light of a training course. The results were satisfactory and validated the proposal suggested.

KEYWORDS: Methodological proposal, Target Cost, ABC costing based on product lifecycle, Product Development Process.

I. INTRODUCTION

Recently, relevant changes made the organizational frontiers more fluid and dynamic in response to the accelerated rhythm of knowledge dissemination [1]; [2]; [3], of innovation and international competition [4]; [5]. This inspires us to reconsider how to gain advantage from innovation [3]; [6]. So, innovative enterprises take advantage of their ability to appropriate of economic value generated from its knowledge and innovation [2]. Taking this into consideration, the offer of innovative products comes up as a quality standard in dispute for urgent demands. It is possible to think that the enterprises which are able to provide their products to clients with refinements of efficiency and speed will probably be in better position to create sustainable competitive advantage [7] to the light of knowledge and innovation [3];[7]. In this dichotomy, technical efficiency works as a parameter for the ability to develop innovative products, which is translated in one of the most remarkable logics for potentiating and favor competitive advantage [6]. It is presumed that one of the biggest challenges is to develop products in high complexity environments. Responses have been given to these challenges to the light of technical potentialities equally innovative like more agility, productivity and high quality from the enterprises [6].

Developing products is not a recent phenomenon but back to its first times, presents successful and failed experiences as well. Any attempt to encourage a rebuilt or interpretation refers, first of all, to an appropriate analysis of the difficulties and particularities of the development of chain products, of the interposed semantics due to the diversity of the system characteristics – denominations, structures, methodologies and organization. So, reconstruction is dressed with a mantle which takes the experience accumulated by the actors in the development process of products in the value chain to the light of learning which aims to build knowledge. Howsoever, product development is presented like a complex chain of events and decisions which can break in any of the weak links: some projects got lost due to unrealistic predictions or absence of its real role in the agenda, or other motivations which, somehow, followed logics

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

with many hiccups or mistakes in details. In this aspect, the efficiency on developing new products has become essential. Managers started to prioritize factors related to product quality, product lifecycle and process efficiency, focused on the control and reduction of costs as strategies to achieve competitive advantage [8]. And, as a response to these challenges, new methods and techniques oriented to cost cutting come up as efficient tools for organizational planning aiming to competitive advantage. In this perspective, this study aims to contribute to the planning process on product management. To do so, it presents a methodological proposal ballasted on strategic cost management, using the methods Target Cost, ABC costing based on the product lifecycle. This proposal was structured as it follows: Phase 1: determining Target Cost; Phase 2: determining ABC costing to the light of lifecycle based costing. Target Cost and ABC are methodologies which work as support tools to provide managers with precise, opportune and complete data which may provide subsidies on the planning process, as well as on controlling and decision making during the product development. ABC is a tool which provides more precise cost data, because it reduces arbitrariness of indirect cost apportionment and enables cost analysis from the perspective of process improvement. Target Cost, on the other hand, allows planning product costs considering the price defined by the market, preventing enterprises to develop products with small profit. This work is structured according to the following sections: methodology; steps and application; application to a case study and underlying analysis; and finally, conclusions and recommendations.

II. METHODOLOGY: STEPS AND APPLICATION

In this section we will present the steps to elaborate the methodological proposal. First we elaborated the procedures to the Target Cost. Then, the steps to elaborate ABC method were systematized and, after all, we elaborated the steps to defrayal based on product lifecycle. It is important to highlight that the first step of this method is planning the product development or, in other words, how much the consumer is willing to pay for the product. In this step we present the planning oriented Target Cost. The second step is related to the production phase itself, in which is applied the ABC costing system by product lifecycle. This phase is elaborated to the light of the target costing market-driven by calculating Target Cost. This process was elaborated to the light of specialized literature and confirmed by experts on the object of research. In a further moment, to show the feasibility and plausibility of the method we realized a hypothetical case study in a training course. It is believed that these tools, when considered in a complementary way, are plausible and feasible forms to manage costs in a product development process to achieve high performance in the final results. These procedures will be detailed next.

Phase 1: Target Cost Model

In this phase we present the procedures for calculating the Target Cost. According to [9], target cost is a modern vision for observing costs, which is now calculated taking into consideration the price defined by the market. From the possible sale price, the desirable profit is calculated and the result of this difference will be the maximum cost that the enterprise will have to pursuit, eliminating possible wastes and activities which do not aggregate value. To the author, the condition for remaining competitive or keeping in the market is not to overcome the maximum cost established. According to [8], target cost is the result of the subtraction of the sale price – which is indispensable for obtaining a pre-established part of the market and the intended profit by unit. The authors say that the sale price shows the product specifications which are appreciated by the clients. According to [10], “Target Cost (target cost to be achieved or intended cost) is a cost management tool to reduce the cost during a product lifecycle, which can also be used to reduce investments with design, production and distribution of the product”. According to the analogy of [8], these are the procedures detailed on the application of Target Cost:

1st STEP. Market Research: In a first moment the enterprise made a market research, having in mind the course about work safety which would be launched. In this market research the following elements were considered: quality of similar products made by competitors, i. e., courses produced by other institutions in the region; purchasing power of consumers to whom the enterprise wants to offer its product. Furthermore, the enterprise analyzed the course’s demand history, which sowed number of students registered for the course in previews periods, amongst other factors.

2nd STEP. Production Targets: Right after realizing the market research the enterprise calculated the maximum product price supported by the market. This step determined the number of vacancies for the work safety course offered by the enterprise to the market.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

3rd STEP. Determining the Intended Profit: At this point, the profit intended by the enterprise managers was calculated. The intended profit was calculated taking into consideration: percentage of return on assets (ROA); percentage of return on equity (ROE) and return on assets (ROA).

4th STEP: Calculating Target Cost: After establishing the price sale and calculating the profit the target cost for the work safety course was obtained by reducing the price sale from the intended profit. This formula was based on the following expression: $C = P - L$, where C is related to the target cost; P is related to the competitive price; and L is related to the intended profit.

5th STEP. Comparing Costs: After calculating the target cost, it was compared to the estimated cost. The estimated cost for the work safety course was determined in reference to the activity based costing. An estimate basic cost (floatation cost) was calculated in the product project. The costs taken into consideration were: Direct Costs – educational materials, staff and charges; Indirect Cost – electricity, water, phone bill, everyday materials, staff.

6th STEP. Procedures for Cost Cutting: This phase is where the Value Engineering starts to work to reduce the target cost until reaching the maximum product price. The process of cost cutting through value engineering involved many areas in the enterprise in a process among planning, engineering, marketing, production, financial, purchasing and supply professionals. The offer of the work safety course can only be made when the value of estimated cost is equal or under the target cost.

Phase 2: ABC model

In this phase we present the procedures used for calculating ABC costing. To the light of specialized literature [11]; [12]; [13], this methodological proposal for implementing ABC costing is systematized in the following steps:

1st STEP. Identifying Available Activities and Resources: In this section we identify the activities of each stage on the product development process indicating the main resources used.

2nd STEP. Determining Costs per Activity: In this stage, considering the activities identified, we determine the cost per activity in each stage of the product development process.

3rd STEP. Detailing Activities: At this point there is a detailing of the activities for supporting areas and data found raising with complete data.

4th STEP. Cost Drivers: At this moment we tried to establish the first-degree cost drivers to adapt the resources to the activities, and the second-degree cost drives to adapt the activities to the cost object. At this phase we can define the cause which generates the activities and the criteria for calculating cost drivers.

5th STEP. Cost Tracking: Here we determine the costs for each activity.

6th STEP. Costs Allocation: At this stage we determine the product cost after calculating the activity cost.

7th STEP. Cost Adjustment: Here we can determine the levels of activity development measurement. We define operational and financial data used to adjust the product development process.

III. APPLYING THE PROPOSAL – RESULTS AND UNDERLYING ANALYSIS

3.1 Procedures for Applying Target Cost on the product predevelopment

According to the analogy of [14], these are the detailed procedures for the application of Target Cost:

1st STEP. Market Research: At this first moment the enterprises conduces a market research, having in mind the work safety course which would be launched. In this market research were considered the following elements: quality of similar products made by competitors, i.e., courses produced by other institutions in the region; purchasing power of the consumer to whom the enterprise wants to offer its product. Furthermore, the enterprise analyzed the course's demand history, which sowed number of students registered for the course in previews periods, amongst other factors

2nd STEP. Production Targets: After the market research the enterprise calculated the maximum product price the market accepted to pay for the course and determined the number of vacancies for the work safety course the enterprise

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

would offer to the market. So, the enterprise established a target price per student which corresponds to R\$ 4.400,00 divided in 22 installments of R\$ 200,00. Based on the demand history, the enterprise established 30 registers as a sales goal.

3rd STEP. Determining the Intended Profit: At this stage the enterprise calculated the intended profit by the managers. The intended profit was calculated taking into consideration: percentage of return on assets (ROA); percentage of return on equity (ROE) and return on assets (ROA).

3º PASSO. Determinação do Lucro Desejado: Nesta etapa seguinte calculou-se o lucro desejado pelos gestores da empresa.

O lucro desejado foi calculado tendo por base: O Percentual de Retorno sobre o Ativo (*Return on Assets – ROA*); O Percentual de Retorno sobre o Patrimônio Líquido (*Return on Equity – ROE*).

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

$$\text{ROA} = \frac{2.042.319,23}{33.937.880,70} = 6,02\%$$

(October, 2011)

$$\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Equity}}$$

$$\text{ROE} = \frac{2.042.319,23}{21.364.483,84} = 9,56\%$$

(October, 2011)

Table 1 – Profit Margin

Components	Profit Margin
ROE	9,56%
ROA	6,02%
Average of Target Profits %	7,79%

Source: Elaborated by the author

On Table 1 we can see that the average of target profits which can be established by the enterprise is 7,79% to each class of the course.

4th STEP. Calculating Target Cost: After establishing the price sale and calculating the profit, the target cost for the work safety course was obtained by reducing the price sale from the intended profit. This formula was based on the following expression: $C = P - L$, where C is related to the target cost; P is related to the competitive price; and L is related to the intended profit.

Table 2 – Calculating Target Cost

Description	Values
Target sales price (4.400,00 * 30)	132.000,00
(-) Target profit (132.000,00* 7,79%)	10.282,8
Target Cost	121.717,2

Source: Elaborated by the author

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

On Table 2 we can see the target cost the enterprise could use to guarantee the profit margin of R\$ 10.282,80.

5th STEP. Comparing Costs: After calculating the target cost, it was compared to the estimated cost. The estimated cost for the work safety course was determined in reference to the activity based costing. An estimated basic cost (floatation cost) was calculated in the product project. The costs taken into consideration were: Direct Costs – educational materials, staff and charges; Indirect Cost – electricity, water, phone bill, everyday materials, staff.

Table 3 – Estimated Costs

Components	Values %
Direct Costs	
Educational Materials	4.950,60
Direct Labor	19.500,00
Indirect Costs	101.502,40
Total	125.953,00

Source: Elaborated by the author

On Table 3 we can see the calculation of estimated costs for the enterprise to realize the work safety course, which totalizes R\$ 125.953,00.

Table 4 – Comparison among estimated cost and target cost

Description	Values
Estimated cost	125.953,00
(-) Maximum cost supported	121.171,20
Target cost	(4.781,8)

Source: Elaborated by the author

After knowing the estimated cost it was confronted with the maximum supported cost and resulted in the target cost which, according to the Table 4, is R\$ 4.781,80.

6th STEP. Procedures for Cost Cutting: This phase is where the Value Engineering starts to work to reduce the target cost until reaching the maximum product price. The process of cost cutting through value engineering involved many areas in the enterprise in a process among planning, engineering, marketing, production, financial, purchasing and supply professionals. The offer of the work safety course can only be made when the value of estimated cost is equal or under the target cost. After analyzing the enterprise's process flow, highlighting its cost volumes, we realized that the administrative units concentrate high levels of costs with indirect labor and everyday materials. To attack this flaw it would be necessary to reduce in 10% the number of workers. By means of calculation, was considered that the total of Estimated Indirect Costs with staff correspond to R\$ 41.050,00. So, the total reduction of workers is equivalent to R\$ 4.205,00. It would be also necessary to reduce in 30% the quantity of everyday material. By means of calculation was considered that R\$ 2.256,00 of Estimated Indirect Costs was related to everyday materials. So, the total of reduction with everyday materials is equivalent to R\$ 676,80. This would guarantee the enterprise to reach the maximum cost supported and the normality of the activities related to the product development.

3.2 Procedure for the application of Activity Based Costing (ABC) on the product development

1st STEP. Identifying Available Activities and Resources: in this section we present the activities and resources. The activities referring to the stage of this macro-phase are: (i) informational project; (ii) conceptual project; (iii) detailed project; and (iv) preparation for production. The following resources were used in this phase: technical and

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

administrative team, computers, software, instructional designer and others, like water, electricity and so on. The detailing of resources is presented on the table below.

Table 5 – Costs involved on the project

Resources	Values
Staff	109.579,11
Telephone	3.022,87
Water / Electricity	9.824,33
Everyday material	3.526,68
Total	125.953,00

2nd STEP. Determining Costs per Activity: the activities considered here are: (i) informational project; (ii) conceptual project; (iii) detailed project; and (iv) preparation for production. We assumed that the costs involved to each of them were equivalent to R\$ 14.407,02; R\$ 22.712,07; R\$ 30.439,40 e 58.394,51; respectively.

3rd STEP. Detailing Activities: this step was not realized considering the great quantity of activities and tasks which are part of the PDP.

4th STEP. Costs Drivers: once identified the resources involved, and since the activities are determined, we tried to establish the first-degree cost drivers to adapt the resources to the activities, and the second-degree drivers to adapt the activities to the cost object. The first-degree drivers are presented on Table 6.

Table 6 – First-degree drivers

Resources	First-degree drivers
Indirect labor	Direct appropriation
Telephone	Direct appropriation
Water	M ²
Electricity	M ²
Everyday material	Direct appropriation

Bye means of calculating the activities cost we established that M² corresponds to 100. We also established that each activity (informational, conceptual and detailed Project, as well as preparation for production) has a separated cost center and M² equivalent to 12 m², 18 m², 24 m² and 46 m². The second-degree drivers established are presented on Table 7.

Table 7 – Second-degree Drivers

Activity	Second-degree drivers
Informational Project	Hours/activities
Conceptual Project	Hours/activities
Detailed Project	Hours/acitivities
Preparation for production	Hours/acitivities

5th STEP. Cost Tracking: the table below shows the resources being allocated to the activities through the first-degree drivers previously determined. We considered that there is an accounting structure which makes the allocation of costs by cost center.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

Table 8 – Resources allocation to the activities

Resources	Informational Project	Conceptual Project	Detailed Project	Preparation for Production
Staff	13.149,49	19.724,24	26.298,99	50.406,39
Telephone	362,74	544,12	725,49	1.390,53
Water / Electricity	1.178,93	1.768,38	2.357,84	4.519,19
Everyday material	423,20	634,80	846,40	1.622,27
Total	15.114,36	22.671,54	30.228,72	57.938,38

6th STEP. Costs Allocation: the activities costs were allocated to the cost object through the second-degree drivers previously determined.

Table 9 – Activities allocation to the cost object

Activities		Second-degree drivers	Cost object	Values
Informational project	15.114,36	200 h	Training Course	125.953,00
Conceptual project	22.671,54	220 h		
Detailed project	30.228,72	250 h		
Preparation for production	57.938,38	300 h		
Total	125.953,00	970 h		

7th STEP. Cost Adjustment:

In this phase it is essential to establish the cost adjustment in accordance to the planned costs. Under this perspective, using target cost equivalent to R\$ 121.280,35, but using the ABC methodology it was R\$ 125.750,05. So, based on this inconsistency among the two methodologies it is necessary to make some adjustments. Otherwise, the course is not worth to be launched. In this specific case, the costs were not cut and the course was launched, considering that this is a non-profit institution, aside of being subsidized by contributions of enterprises. In any situation where the costs and incomes do not achieve equilibrium it is not worth to launch the course, because someone will have to subsidize the difference. Usually, for non-profit institutions, this has been a rule.

Howsoever, the costs which compound the stages of a product lifecycle go beyond the regular calendar in which the institution measures its profits, be it a monthly, semiannual or annual. They involve the whole product lifecycle, varying from course to course. This way of seeing costs is very useful to the managers, specially on investment budget decisions or the ones about the production of quality courses at a lower total lifecycle cost. The lifecycle costing system analyzes the total expenses comparing them to the total of incomes and also allows the comparison among the diversity of courses produced by the institution, because each of them have different lifecycles and provide different returns in relation to investments.

3.3 Procedure for application of Activity Based Cost (ABC) on project post-launch

After realizing the product development phases, we started the macro-phase of post-launch. In this phase we tried to identify the customer (student) satisfaction levels about the training course. The information collected referred to teachers, regarding to explanation of theoretical and practical aspects; educational materials and their adequacy to the activities; physical structure, if there are enough machines and others. Furthermore, we tried to do a cost balance, i. e., of the investments necessary to realize the course confronting to the costs which were initially planned and also

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

proposing improvements on the process. The use of the ABC methodology was recommended in this macro-phase, following these steps:

1st STEP. Identifying Activities and Resources: in this section we present the activities and resources. So, these are the activities related to the stage of this macro-phase: (i) product and process monitoring; (ii) discontinue the product. In this phase we used the following resources: technical and administrative staff, computers, softwares and others, like water, electricity, etc. The detailing of costs is presented on the table below.

Table 10 – Costs involved on the process

Resources	Values
Staff	5.586,62
Telephone	154,12
Water / Electricity	500,86
Everyday material	179,80
Total	6.421,4

2nd STEP. Determining Costs per Activity: considering that the activities are (i) product and process monitoring; (ii) discontinue the product, the costs involved in each of these were equivalent to R\$ 3.339,13 and R\$ 3.082,27 respectively.

3rd STEP. Detailing the Activities: this stage was not realized considering the great number of activities and steps which they involve.

4th STEP. Costs Drivers: once identified the resources involved and respective activities, we tried to establish the first-degree drivers, to adapt the resources to the activities, and the second-degree drivers, to adapt the activities to the costs objects. The first-degree drivers are the ones presented on the table below:

Table 11 – First-degree drivers

Resources	First-degree drivers
Staff	Direct appropriation
Telephone	Direct appropriation
Water	M ²
Electricity	M ²
Everyday material	Direct appropriation

By means of calculation of the activities costs, we assumed that M² is 100 and that each activity has a separated costs center equivalent to 52 m² and 48 m².

The second-degree drivers are the ones presented on the table below:

Table 12 – Second-degree drivers

Activity	Second-degree drivers
Product and process monitoring	Hours / Activities
Discontinue product	Hours / Activities

5th STEP. Costs Tracking: the table below shows the resources being allocated to the activities through the first-degree drivers previously established. We consider that there is an accounting structure which allocates the costs per costs center.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

Table 13 – Resource allocation to activities

Resources	Product and process monitoring	Discontinue product
Staff	2.905,04	2.681,57
Telephone	80,14	73,97
Water/Electricity	260,45	240,42
Everyday material	93,50	86,30
Total	3.339,13	3.082,27

6th STEP. Costs Allocation: the activity costs were allocated to the cost object through the second-degree drivers previously determined.

Table 14 – Activity allocation to the cost object

Activities		Second-degree drivers	Cost object	Values
Product and process monitoring	3.339,13	319,2 h	Training Course	6.421,40
Discontinue product	3.082,27	100,8 h		
	6.421,4	420 h		

IV. CONCLUSION

This work aimed to develop a methodological proposal to structure strategic cost management based on target cost, ABC and product lifecycle in the perspective of the product development process. The proposal was applied to a hypothetical case, with some real data, whenever possible, due to the limited access, in a technical and professional educational institution which offers training courses in work safety. During the literature review we identified the conventional costing methods, namely absorption, variable and standard costing, amongst others. The ones which present inconsistencies, like arbitrary apportionment, lack of measurement criteria for indirect costs, underestimation of fix costs – which could compromise the continuity of the enterprise – difficulties on determining the indirect costs and so on. So, the information about costs produced by these systems is distorted. Then, this work presents the tools that, according to specialized literature, are considered modern (ABC and target cost) and produce more accurate cost information than the conventional methods. Through specialized literature we could identify the procedures for implementing ABC cost, which are: identifying activities and resources, determining cost per activity, detailing activities, cost drivers, cost tracking, cost allocation and cost adjustment. The steps for implementing target cost are: market research, production target, determining planned profit, calculating the target costs, comparing costs and procedures for cost cutting. Furthermore, we presented the procedures for complementary application of target cost, activity based cost and product lifecycle in the product development process. Finally, we realized an almost hypothetical case study to verify the feasibility of this proposal and its application in a work safety course offered by a technical and professional educational institution. We achieved the object of this study, once it was possible to present a contribution to a methodological proposal to the light of Target Cost, Activity Based Cost by Product Lifecycle in an integrated and chained way, to plan and manage costs on the Product Development Process.

In a first moment, to develop the proposal, we used the Target Cost to support the first PDP macro-phase, product strategic planning, once it is a costing system oriented to cost and product planning. The cost data involved on this phase was obtained by the institution's accounting office's database. In a second moment we used the ABC methodology to subsidize the measurement of costs involved on the product development and post-development phases. The data related to the costs of resources illustrated on the tables was attributed hypothetically. The first and second-degree drivers are also merely illustrative to show the application of ABC methodology. The main limitation of this research is related to cost planning and to the attribution of costs to activities and to the cost object, taking into

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

consideration the complexity of the costing methodologies adopted and the subjectivity involved in this case. Besides, there was an obstacle on relating PDP to the training course, because PDP is a very complex tool which includes many processes and tools, and demands a vast spectrum of knowledge and abilities. We recognize that one of the greatest limitations is related to the way the systems were applied – almost hypothetical case – considering a bias. The application of a totally real case is always more interesting due to the restrictions and uncertainties of the environment and of the product development project itself.

We highlight that we do not intend to substitute systems or methodologies, but promoting pragmatism by presenting evidently that the techniques and methods already existent can be better applied when used complementarily, making results more efficient as we try to reduce subjectivity. So, what we intended here was to present more improvement on the use of conventional methods and techniques to manage costs oriented to product development projects. We reaffirm the importance of considering costs by product lifecycle, as reinforced by [15]:

The costs related to service and product lifecycle are related to every expense incurred of services and products, since the idea of launching a new product, going to expenses with research, conception, project, development, prototype, line production, market tests, launching, distribution, customer services, guarantees, improvement, marketing campaign, ceasing production, maintenance parts for the period after the production ceases, and so on.

Howsoever, the analysis and monitoring of these costs are essential, since the prices must recover all the costs and the intended profit, generating a more appropriate return on investments during the pre-operational phases. The product costs which incur during its lifecycle must be accumulated with the intention of providing long-term profitability and support key decisions related to the product line, participation on the market and the price policy. Anyway, identifying and measuring these costs have assumed an important place on the managers' decision making process. With that, new conceptions come up as, for example, lifecycle management centered on pre-production activities, in order to guarantee lower possible cost to the product lifecycle. The product lifecycle, if analyzed properly, could not only alert to the problems that usually occur in each phase, but mainly could previously indicate the opportunities, stimulate marketing, plan new uses, characteristics and ways to conquer and maintain customers. To collaborate to new studies in strategic cost management, we recommend new practical applications for the methodological proposal based on real data, to make it valid and trustable. We hope to have contributed to enlarge knowledge about the application of the costing tools Target Cost and ABC, acting on the perspective of product development process, contributing to a better performance on efficient cost management on many phases and stages which sustain PDP, allowing managers to decide about resources allocation in projects as complexes as the situation presented here.

REFERENCES

- [1] ABRAHAMSON, E. 1991. Managerial fad and fashion: the diffusion and rejection of innovations. **Academy of Management Review**, 16, 586-612.
- [2] GRILICHES, Z. Patent Statistics as Economic Indicators: A Survey, **Journal of Economic Literature** 28: 1661-1707, 1990.
- [3] TEECE, D.J. Profiting from technological innovation. **Research Policy** 15 (6), 285-305, 1986.
- [4] CHESBROUGH, H., ROSENBLOOM, R.S. The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. **Industrial and Corporate Change**, 11 (3) 529-555. Six components for a business model, 2002.
- [5] DAMANPOUR, F., Organizational complexity and innovation: Developing and testing multiple contingency models. **Management Science** 42 (5), 693-713, 1996.
- [6] WHEELWRIGHT, S., CLARK, K. **Revolutionising Product Development**. Free Press, New York, 1992.
- [7] NONAKA, I.; TAKEUCHI, H. **The Knowledge-Creating Company**, Oxford University Press, New York, NY, 1995.
- [8] HANSEN, D. R.; MOWEN, Maryanne M. **Gestão de Custos**. South – Western College Publications, 2001
- [9] IUDÍCIBUS, Sérgio. **Contabilidade Gerencial**. 6 ed. São Paulo: Atlas, 2009.
- [10] PADRO, Lauro Jorge. **Guia de Custos**. 2 ed. Paraná: 2001. Disponível em: <http://lauroprado.tripod.com/ezine/ebooks.html>. Acessado em 23 de Setembro de 2010.
- [11] KAPLAN, Robert S., COOPER, Robin. **Custo e desempenho: administre seus custos para ser mais competitivo**. São Paulo: Ed. Futura. 1998.
- [12] MARTINS, Eliseu. **Contabilidade de Custos**. 9. ed. São Paulo: Atlas, 2003.
- [13] NAKAGAWA, Masayuki. **ABC: Custeio Baseado em Atividades**. 2 ed. São Paulo: Atlas, 2001.
- [14] CAMACHO, R. R. **Custeio-alvo em serviços hospitalares: um estudo sob o enfoque da gestão estratégica de custos**. 2004. 166p. Dissertação (Mestrado em Controladoria e Contabilidade) - Faculdade de Economia, Administração e Contabilidade da Universidade de São Paulo, São Paulo
- [15] BEUREN, I. M.; SCHAEFFER, V.. **Análise dos custos do ciclo de vida doproduto: uma abordagem teórica**. In: Encontro nacional de Engenharia de Produção, 17., 1997, Foz do Iguaçu. **Anais...** Foz do Iguaçu: ENEGEP, 1997. Disponível em: <http://www.abepro.org.br/biblioteca/ENEGEP1997_T7208.PDF>. Acesso em: 17 Jul. 2011.