

SOCIAL HOUSING IN CHILE: OPPORTUNITIES TO APPLY VALUE CONCEPT IN EARLY STAGE OF PROJECTS

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At present, finding actions oriented to adding value in early stages of projects which can consider profitability as a main factor in the process, is rather easy. However, the concept of value is rarely incorporated into most projects whose objective is to satisfy real needs of low income people. To improve past results, the Chilean Government has included concepts such as deficit, quality, and social insertion in its social housing policies. This paper describes and suggests some actions aimed at improving current processes using the opportunity to add value and captures real user's needs in early stage of the project. In order to find out how the current process can be improved applying the concept of value, the "Vista Hermosa" case study project will be analyzed to determine in which way the Government and the building companies involved in the process are incorporating said concept into the design phase. Data collected has been obtained by means of reviewing literature that analyzes value concept through Lean Thinking and Value Management. Results show that the New Chilean Housing Policy allows the use of value concept in the early stage of these projects. At present no formal processes are in place to systematize and support the job and deliver value in current projects; therefore, these activities have been associated to entities such as UTpCH with a social responsibility that plays an important role in their activities. This research aims at studying the current process and discovering the opportunities given by the Chilean Government in order to add value to such process for delivering satisfactory solutions.

Keywords: Lean thinking philosophy, quality, social housing, social insertion, value management.

INTRODUCTION

In January 2007 the Chilean Government announced the "Política Habitacional de Mejoramiento de la Calidad e Integración Social"—the New Chilean Housing Policy-NChHP in order to improve the sector performance this policy includes three parameters of deficit, quality and social insertion for all new social housing projects. The NChHP not only intends to reduce the number of people living in precarious conditions but also is concerned about the dignity of those people. "Vista Hermosa"—a project built in the Metropolitan Region of Santiago and inaugurated on December, 2007—has become a symbol of the new way because its resources and characteristics are based on the NChHP. The design stage of this project took into

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account important factors such as adequate space (ft²) and access to public transportation, schools, and hospitals.

The integration of deficit, quality, and social insertion into the new Chilean policies gives an opportunity to apply the concept of value in the early stages of projects. Quality and characteristics achieved by recent projects make Chile a model for other Latin American countries. According to the Chilean Housing and Urbanism Minister: “We said that we were going to build better quality houses and assured we were not interested in either solution, but in one which provided dignity and a sense of neighbourhood . This is an example: neighbours participated directly in the layout and construction. They didn’t receive a house... They decided where they wanted to live.” (Poblete 2007).

Value can be considered as an innovative concept whose definition includes mainly two parameters: cost and soft measure such as worth, functionality or satisfaction (depending on the expected project out comes) (Celik and Neap 1999). In the matter of the need to define value, there are different disciplines such as Lean Thinking and Value Management, which aim to incorporate value in the process of developing a successful final product and satisfying user's real needs. According to literature reviewed, the difference between the two disciplines depends on "value" definition and on the right moment for it to be used in the process. For the last reason, integrating Value Management and Lean Thinking at the early stages of social housing projects in Chile is proposed as the solution to achieving better results in projects where cost, quality and social responsibility are drivers.

This paper looks at:

- Whether value opportunities can be discovered at the early stages of a project through integrating Lean Thinking and Value Management, and
- Whether the current social housing situation in Chile can be improved by exploiting the value opportunities identified.

VALUE ACCORDING TO LEAN THINKING AND VALUE MANAGEMENT PHILOSOPHIES

Including value at the early stages of a project can be considered an innovative but complex method for achieving successful results. There are many definitions of value but they mainly consider the satisfaction of the real needs of customers as a principal objective. In this way, according to Woodruff and Gardial (1996) value can be considered as the final result of the exchange of negative and positive consequences as perceived by customers. In order to include value in current processes and deliver better solutions, many fields have focused on the customer perspective and on discovering what the customers’ consider important activities to deliver value. Establishing new strategies and systematizing processes are considered to be actions that will add value.

In order to further investigate the concept of value and how it is delivered in the current processes of Architecture, Engineering and Construction (AEC) the perspectives of Lean Thinking and Value Management have been examined. Both theories embrace value into their processes and in both value is defined through the satisfaction of real needs but there is no real integration between the two theories. Despite the similarities, some differences in the definition of value and in the opportunity to be included into the process exist. Whereas Value Management in construction considers the use of value in early stages of projects (Connaughton, and

Green 1996; Woodhead and Downs 2001 and Male et al 1998), Lean Thinking in construction focuses on process tools to identify and minimise uncertainty and hence improve workflow in production (Emmit, Sander and Christoffersen , 2004: 2).

Value under Lean Thinking and Value Management perspective

Historically, most definitions of the value concept have converged the three main parameters —cost, time, and quality— by means of theories such as Lean Thinking and Value Management this concept has been included within the processes implemented to satisfy customers' real needs. Some authors highlight that value has been only discussed from an economic perspective, where cost and benefit control monetary return and success of the project (Male 2002). Nevertheless, there are other authors who have analysed the value concept from the perspective of quality and functional use (Othman 2004; Cariaga, El-Diraby and Osman 2007).

Lean Thinking can easily be dismissed as limited to waste reduction “The focus of the approach is on cost reduction by eliminating non-value added activities” (Abdulmalek and Rajgopal, 2007:223), in reality it goes far beyond this aiming at continuous improvement across the whole building process. According to Womack and Jones (2003), the Lean Thinking philosophy is dependent on understanding value and considers “Value Specification” as a critical starting point of product development starting it can only be defined by the customer. They go on to include “Identification of the Value Stream” as the second principle of lean production which dictates the consideration of activities across the supply chain when seeking to understand how value is delivered. These authors also argue that this philosophy “must start with a conscious attempt to precisely define value in terms of specific products with specific capabilities offered at specific price through a dialogue with specific customers” (Womack and Jones, 2003:19).

On the other hand, when value is examined from a Value Management point of view, “money” becomes a key word. This technique establishes multiple steps in the early stages in order to achieve value for money in building projects. In contrast to Lean Thinking, Value Management is currently only associated with the early stages of projects, focusing on the analysis of functions to achieve the value defined by the customer without diminishing cost and quality. According to Connaughton and Green (1996), these steps relate to designing a project where activities such as verification of the need by data, discussion and clarification of objectives, consideration of alternatives, etc., are considered before making a final decision. Therefore, Value Management considers many activities to achieve success in the early stages of projects. According these last authors, it is fairly easy to find benefits such as improved communication and teamworking; understanding exchange among key participants; better quality definition of project; increased innovation and less unnecessary costs (Connaughton and Green, 1996: 6).

According to the literature, Value Management aims at optimising the points of view of different participants —from stakeholders to final users— into the process in order to achieve the final goal with minimum resources. “The concept of Value relies on the relationship between the satisfaction of many differing needs and the resources used in doing so” (The Institute of Value Management UK 2008). Moreover, the satisfaction of real needs is considered an important element of building projects and Value Management can be defined as “a structured approach to defining what value means to a client in meeting a perceived need by establishing a clear consensus about the project objectives and how they can be achieved” (Connaughton and Green, 1996: 7).

Opportunity to be included: Lean Thinking and Value Management

According to literature on these philosophies, there are some differences in the point at which value is considered within the life cycle of a project. Whereas Value Management emphasizes the definition of value from an early stage of the project (briefing), Lean Thinking aims at including value inside processes so reducing waste in construction stage. Based on Emmitt *et al.* (2004), the last philosophy fails to consider value in early design stage and detailed phases where the opportunity influence the final results are greatest. Remember the origins of Lean Thinking are vested in the production system of Toyota based on the reduction of unnecessary activities that do not add value to end customers (Melton, 2005:662).

By focussing on increasing value and productivity through waste reduction in the construction process, Lean Thinking misses the opportunity to add value in early stages of projects. Even though the vision of value in the early stage of projects can be considered similar to that of Value Management, the development of this concept in Lean Thinking in construction is still minimal in comparison. For this reason, literature related to value in Lean Thinking is limited even in international forums such as The International Group for Lean Construction (www.IGLC.net). Some authors are concerned about the method of applying Lean Thinking in construction and limited exploitation of the relationship between value and client as “without understanding the customer, the concept of value is undefined, and without a tangible concept of value, waste is even more intangible” (Bertelsen and Emmitt, 2004:74).

At present, Value Management activities in early stages of projects are more mature and, hence, it is possible to find many sources in literature that discuss this concept of value. Activities such as interactive workshops are included in early stages of projects in which the participation of stakeholders give the opportunity to add value into project's life cycle. The Value Management approach includes many opportunities for clients to add value from the concept stage until detailed design stage (Connaughton and Green, 1996: 13).

In order to investigate the potential for integrating lean thinking and value management philosophies in the definition of value, the social housing policies of Chile have been chosen as a case study vehicle. These policies have recently been renewed to place a greater emphasis on the achievement of value and this is being achieved with the input of the end users.

CHILEAN SITUATION

According to the Chilean Housing and Town Planning Ministry (MINVU), at 2006 housing deficit is estimated on 412,000. At present, however, there is a big debate around this number as the Chilean research centre “Libetad y Desarrollo” estimates housing deficit in more than 1,000,000 (www.blogs.elmercurio.com).

The new Chilean housing policy

In order to improve the standard of living of low income families in Chile, governmental and private organizations work to meet housing requirements and to build adequate cities and neighbourhoods for the accommodation and development of the population. In this way, the current Government aims to improve results from previous years when policies focused mainly on reducing deficit. The new policy provides an opportunity to deliver better solutions and incorporate new tools and techniques into housing processes by including the end users (families) into the design, building and improvement of their houses and neighbourhoods.

The NChHP generates projects located in places where families have access to public transportation, healthcare and education. Hence, three main parameters are considered in this housing policy, which are:

1. Reduction of the Deficit - focusing on people who live in poverty conditions
2. Guarantee of Quality- improving the standard and the design and construction processes
3. Promotion of Social Integration - procuring solutions located in neighbourhoods and cities

Another important aspect is the availability of financial assistance. Currently, projects can apply for additional resources such as an Equipment Subsidy to finance equipment and improve the environment (facilities such as parks, common areas, public squares, illumination, etc.) and a Location Subsidy which facilitates the construction of new projects in places integrated within the society.

At present, Deficit, Quality and Social Integration are integrated into the project life cycle through the involvement of the families with the relevant government departments and private companies. Nevertheless, not all private companies incorporate the families in the formal processes of the projects, there are mainly undertaken by organisations that have a social role such as ONGs or charity foundations.

“Vista Hermosa,” The case study project

Located in the district of “Lo Espejo”, the “Vista Hermosa” project to house 300 families began in 2000. The area was part of the biggest shantytown in the Metropolitan Region of Santiago of Chile.

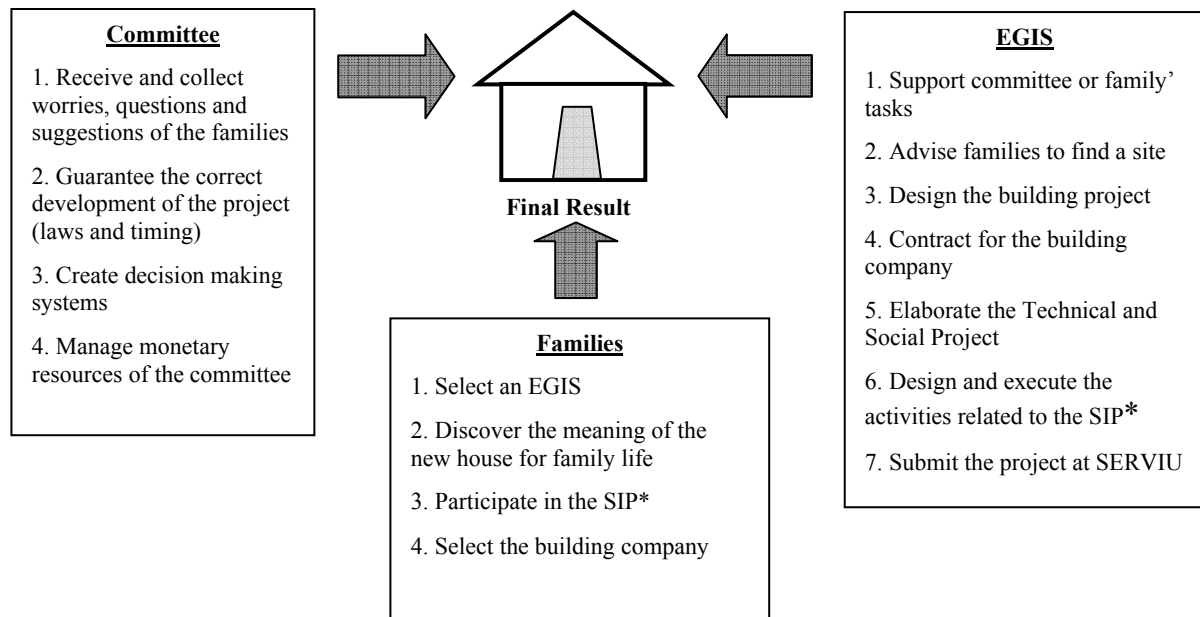
In December 2007, the first 30 families took possession of their houses. The design incorporates innovative characteristics such an area of 672 sq.ft, including 3 bedrooms, living room, kitchen, bathroom and additional space that can be used as a laundry. The final investment includes state resources (14,643 USD, Dec 07), Location subsidy (1,029 USD, Dec 07), Equipment subsidy (475 USD, Dec 07), family savings (990 USD, Dec 07), Extension subsidy (3,562 USD, Dec 07) and donations (1,979 USD, Dec 07). The project was built by one of the most prestigious building companies in Chile, motivated by its social responsibility plan.

Important work in the development of this project has been carried out by the ONG “Un Techo para Chile” (UTpCH), whose objective is to eradicate all shantytowns in Chile, before the year 2010. The Department of Definitive Housing of UTpCH supports families in the process of obtaining their houses. In this way, this ONG supports all the activities related to the management and coordination of the process (from the layout to construction to works supervision).

Current process

Focusing on the optimization of human and funding resources and the agility of the current process, the Chilean Government has delegated responsibilities and now include private companies in the process. Currently, the Government develops and supervises policies focussed on improving the final result. An important role in this process is carried out by Social Housing Management Organisations (Entidades de Gestión Inmobiliaria Social-EGIS) whose principal task consists of directing people in technical and social aspects of building a house. According to the annual budget, the Chilean government pays for these activities.

At present, there are at least 370 companies working in this category and it is possible to find a variety of organizations among them, such as private companies, City Councils, ONGs or charity foundations such as UTpCH. EGIS are therefore considered the most relevant institutions in the early stage of projects, and are defined as a “company that advises families in technical and social aspects, for buying or building their houses” (División Técnica de Estudios y Fomento Habitacional y de la División de Política Habitacional del MINVU 2007). Consequently, EGIS must be involved in the definition and specification of value. Similarly, families grouped by committees are considered another important party to the project, and must also execute their responsibilities fully in order to obtain satisfactory final results (see Figure 1).



*SIP Social Insertion Plan

Figure 1: Responsibilities associated to the current process

In the current process, other important activities are carried out by bodies such as the government organization Departamento de Fondo Concursable del SERVIU Metropolitano (DFC) and Town Councils. The principal responsibilities of the DFC are guiding and advising the EGIS during the process and reviewing and allocating monetary resources for the construction of these projects. Town Councils have responsibility for providing the necessary information for projects to be successful; their principal tasks are granting families the social status according to formal processes and allowing the building of the projects. Among their tasks are providing the authorization and final reception of the project built.

Responsibilities associated with the current process

Examining the responsibilities of the differing organizations and families involved, it is possible to identify key steps to deliver value into the process. It is also apparent that the number and importance of the activities carried out by families in the early stage of the project are crucial to meeting real needs and therefore achieving value. It is not clear however whether the Government provides families enough support in this process. It is questionable for example, whether families have enough knowledge and tools to get solutions that satisfy their needs. The selection of the EGIS can be considered the most important decision to be made in the early stage of the project, as

this organization will be the main support for family. Therefore, the family need to evaluate carefully the final selection. The Chilean Government provides a list of all EGIS that satisfy necessary requirements but there is no method for certifying their work. According to Juraszek (2007,a) one of the consequences of registry failing is the delay in the revision of the designed projects by governmental departments.

In order to achieve social integration of low income people, the Chilean Government has incorporated the active participation of families through the “Plan de Habilitación Social” (SIP, Social Qualification Plan) in early stage of the project. This Plan carried out by EGIS allows families to participate actively in the development of their projects. Firstly, SIP certificates approval of the project by the families, and secondly, once the project has been selected, EGIS guides the project execution so that it includes the final user.

Social Integration allows family participation through the definition of a project’s characteristics and the creation of social networks. However, there is a perception that the effort to complete all the activities in the Plan outweigh its benefit. According to the surveys carried out by Juraszek (2007,b) SIP is recognised as having a good purpose, but neither building companies nor families see it as an activity which adds value to the project. Families don’t want more activities that delay the process, they need to achieve the final result.

In the same study, opinions suggest including a diagnostic plan in order to identify the real needs of people. The success of SIP depends upon its adoption by organisations such as UTpCH whose motivation goes far beyond the profitability of projects. UTpCH aims at incorporating in the final solution not only a physical space, but also important elements such as better location and technical standards, entertainment areas (public squares), social insertion and the integration of honorary members who can provide resources to improve quality of projects.

OPPORTUNITIES TO ADD VALUE IN THE CURRENT PROCESS THROUGH LEAN THINKING AND VALUE MANAGEMENT

In order to identify opportunities to add value to the current process, the study emphasizes the job carried out by EGIS and the Families in the early stage of projects. In this way, an EGIS gives main opportunities to add value to the process. The “Vista Hermosa Project” includes many activities intended to add value, but the systematization and formalization of the current processes provide an important improvement opportunity. Lean Thinking would enhance this area by providing the opportunity to generate flows once value has been correctly established. Successful Value Management depends on serious studies and the use of necessary resources in the early stage. Certainly, the success achieved in “Vista Hermosa” project can be associated to serious and interactive studies carried out in early stage of the project.

Including representative stakeholders is another important tool to discover and add value to the project life cycle. The incorporation of interactive workshops for main stakeholders is an Value Management activity which could provide opportunities to be explored by companies working in Social projects in Chile. According to Best and de Valence (1999), the success of the project is related to decisions made in the pre-design phase of the project, conferring great responsibility to common practices done by default. Additionally, they emphasize the relevance of analysis oriented to use the best method to determine and satisfy client’s needs. “Techniques such as cost-benefits

analysis, feasibility studies, and multicriteria analysis can aid those involved in reaching a balance decision to build or to pursue other options” (Best and de Valence, 1999: p.5).

In order to define the project characteristics with families and achieve satisfactory results, the “Vista Hermosa” project included activities such as workshops, surveys and interviews carried out by Elemental (Architectural team) and UTpCH. The workshops carried out by Elemental included phases in which alternative projects were shown to families in order to discuss and choose the most convenient solution for them.

Another opportunity is related to the SIP. According to Federico (2006), in projects built before the New Chilean Housing Policy there is an insufficient knowledge of the main issues and the results show that only 2 of the 8 individuals interviewed have a basic idea of what SIP is. The same study emphasizes the role of the Committee, which is the link between the EGIS and families in the process for satisfying people's needs. In many cases, this role is undertaken by individuals that have neither training nor educational background. The task is allocated to social workers who take the responsibility for defining the real needs of the families and hence influence the potential to add value.

Lean Thinking and Value Management are theories which can support activities of the Government and private companies around SIP, discovering the real needs of the final user and adding value to the process.

CONCLUSIONS AND RECOMENDATIONS

This paper has examined the New Housing Policy of the Chilean Government and identified that although a step in the right direction there are a number of opportunities where value could be added in the current process. The success of “Vista Hermosa” project is associated to the role played by the Government and the active participation of organizations not only pursuing project profitability. In this way, UTpCH demonstrates the importance to actions such as SIP.

In the current process it is possible to find projects in which key activities have been carried out by people without any educational background. As a result, value is missing in final solutions. Families do not have enough knowledge or tools to discover their genuine needs. Motivated to change this situation, the Chilean Government, private companies and other organizations such as ONGs have been working to achieve solutions in which families are sufficiently supported, but systematization of process and active participation of stakeholders involved in the projects are activities that can be supported by Lean Thinking and Value Management. At present, there are no opportunities that include all the stakeholders of the process, if they were the current situation would be improved making the process more agile in the early stages of projects.

Other actions suggested in order to improve current processes include the incorporation of interactive tools, providing enough support to families and changing the poor social perception. Final user satisfaction and certification of the job carried out by EGIS must be considered important elements to add value to social projects. Again Lean Thinking and Value Management can support these activities. Based on the literature review and the case study “Vista Hermosa” project, it is possible to make the following recommendations in order to continue improving the results obtained and add value to processes in early stage of projects (Table 1).

Table 1: Recommendations for Social Housing Projects

Item	Recommendations
Serious and interactive studies	Provide guidelines and elaborate formal manuals and procedures oriented to include family's participation in the process. Systematization of activities in relation to workshops, surveys and interviews in early stage of projects, in order to collect final users' needs. Generate links between current and future users, as a tool to increase motivation. Incorporate satisfaction surveys, in order to evaluate the job carried out by EGIS and other organizations in the process. Include opinion of different stakeholders in the early stage of projects, to optimise final results.
Adequate Support to families and Committees	Provide sufficient information and guidelines to families, in order to obtain successful results. Include formal tools and procedures in the early stage of projects as families don't have enough knowledge for collecting real needs of final users.

Further research work will be undertaken within the Social Housing sector in Chile to develop and test the proposition above in order to add value and demonstrate the impact of integrating Lean Thinking and Value Management at the early stages of a project.

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