FRONT-END DESIGN AND VALUE GENERATION: A HOUSING PROJECT ANALYSIS

Joas Serugga
Bernardo M. Etges
Ellen R. Bernardi
Mike Kagioglou
Patricia Tzortzopoulos
INTRODUCTION

Designs are a representation of solutions to design problems;

Value judgements on the part of the end-user is dependent on the evolving contextual influences;

These influences include the environment, political landscape, legal and regulatory regime, socio-cultural influences, economy, technological and biological factors among others.

A design team will be influenced by any of these factors at one time or another.
INTRODUCTION

Front End Design includes all the phases developed to:
- understand;
- transform;
- keep and;
- delivery value for clients.

All those phases foresee the conceptual design phase;

*All those phases serve to focus the design team to a value-generation-strategy.*
FRONT-END-DESIGN

OUTLINE EXECUTION PLAN
THE SCOPE FOR A PROJECT
JUSTIFICATION FOR PROJECT
HIGH LEVEL PURPOSE
OUTLINE DESIGN

FRONT-END DESIGN PROCESSES

STAKEHOLDER PLAN
PROJECT RISK MANAGEMENT
FUNDING REGIME
OUTLINE BENEFITS/COSTS
FRONT-END-DESIGN

FED
Austin, 2001
Lawson, 2003
Williams, 1999

VALUE
Koskela, 2001
FED > VALUE CREATION

USER REQUIREMENTS

DESIGN REQUIREMENTS

RANKING DECISION MAKING
METHODOLOGY

• A case study approach is adopted to support intricate investigation of the dynamics of FED in contributing to value creation and delivery

• Housing context in Porto Alegre, Brazil.

• open interviews with designers and mains contractors in two Companies involved in the FED development of a Housing Project.
METHODOLOGY

DESIGN COMPANY

ARCHITECTURE & ENGINEERING PRACTICE & REAL ESTATE CROWDFUNDING

data collection by open interview (project leader), documentation analysis and one of the authors directly related to the case study.

MAIN CONTRACTOR

REAL ESTATE DEVELOPMENT & CONSTRUCTION RESPONSIBLE

data collection by open interview (CEO), documentation analysis and site visiting.
COLLABORATION
- Workshop with designer, neighbors, potential clients;
- Understanding the desires, wishes and values for the final users for the building;

CONCEPT
- Co-living, emotional link with past developments within the community (representing original and motivating concept);
- The approach for a design concept was not achieved at that project;
MAIN CONTRACTOR

VALUE TO CLIENT

- Understanding that the client (end-user) buys and what they want;

- e.g. Aesthetics and architecture concept as representing real value;

- e.g. building must be connected to the city.
“WE NEED A NEW CONCEPT OF PRODUCT!”
CONCEPT + USER REQUIREMENTS

SITE CONSTRAINTS + USER REQUIREMENTS

NEW PRODUCT DEVELOPMENT

(Developed by authors)
OUTLINE DESIGN
JUSTIFICATION FOR PROJECT

BUSINESS
- Good opportunity of business considering the conditions of the site;

DESIGN
- “Let’s do something different”;
PROJECT RISK MANAGEMENT

DESIGN
- Investors and clients previously mapped to previous projects in the same context;
- The possibility of enlarging the market for specific consumers (investors in design);

SITE
- Previously mapped terrain conditions in the same context (neighbor Project);
- Previous experience in construction and real estate developers (participants with 30 years of operation in the market);
STAKEHOLDER PLAN

- Main contractor and its employers;
- Design company and its employers;
- City council;
- Users of the building;
- City/neighborhood.
# STAKEHOLDER PLAN

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Role</th>
<th>Goals</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design practice</td>
<td>01</td>
<td>Partner / Manager</td>
<td>Change the world one building at a time. Willing to reduce the communication noise between design teams in order to achieve a better design result.</td>
<td>35+ years old, graduation in architecture. Mediator and responsible for all contracts; willing to take risks.</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Partner / Architecture Project leader</td>
<td>Change the world one building at a time. Willing to reduce the communication noise between design teams in order to achieve a better design result.</td>
<td>25+ years old, graduation in architecture and post-graduation in project management. Little experience in construction site. Communicative. Willing to take risks.</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>Partner / MEP Project Leader / Electrical Engineer</td>
<td>Improve your working conditions and support architecture team on decision making process.</td>
<td>30+ years old, graduation in electricity engineering and post-graduation in project management. Little experience in construction site. Willing to take risks.</td>
</tr>
<tr>
<td></td>
<td>04</td>
<td>Partner / Architecture Specialist</td>
<td>Change the world one building at a time. Focused on architecture quality.</td>
<td>30+ years old, graduation in architecture. Focused on construction site. Willing to take risks.</td>
</tr>
<tr>
<td></td>
<td>05</td>
<td>Partner / Architecture Specialist / General sales Manager*</td>
<td>Change the world one building at a time. Focused on business development.</td>
<td>35+ years old, graduation in architecture. Focused on operations in another company (URBE.ME). Not afraid of taking risks.</td>
</tr>
</tbody>
</table>
## STAKEHOLDER PLAN

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Role</th>
<th>Goals</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main contractor</strong></td>
<td>01w</td>
<td>Partner / CEO</td>
<td>Change the world. Increase sales with an innovative design; to make things differently than before; brand repositioning considering quality of architecture and user experience.</td>
<td>30+ years old; enthusiast of architecture; business graduation; sales manager on past jobs. Not afraid of taking risks.</td>
</tr>
<tr>
<td></td>
<td>02w</td>
<td>Partner / General Manager</td>
<td>Increase sales and maintain the currently quality. Open to changes and open to collaboration, but afraid of losing the conquered market by being too innovative.</td>
<td>60+ years old; graduation in civil engineering and experience in construction site, management, acquisitions and risk. More conservative posture because faced market turbulence in past jobs.</td>
</tr>
<tr>
<td></td>
<td>03w</td>
<td>Partner / General Manager of all construction sites</td>
<td>Improve your working conditions. Conscious that if increasing the project quality and technical specifications the company could see better results on the construction site.</td>
<td>60+ years old, graduation in civil engineering and experience in construction site, management, risk. Willing to take risks. Faced many project specification incoherencies during the past years that caused waste of money.</td>
</tr>
<tr>
<td></td>
<td>04w</td>
<td>Project Manager</td>
<td>Improve your working conditions. Willing to reduce the communication noise between design teams in order to achieve a better design result.</td>
<td>35+ years old, graduation in civil engineering and experience in construction site and management. Mediator; willing to take risks but is not the one with the final word.</td>
</tr>
<tr>
<td></td>
<td>05w</td>
<td>Quality Manager</td>
<td>Improve your working conditions. Willing to reduce communication noise between design teams in order to achieve a better design result.</td>
<td>35+ years old, graduation in civil engineering and experience in construction site and management. Mediator; willing to take risks but is not the one with the final word.</td>
</tr>
</tbody>
</table>
- Own capital;
- Site negotiation;
- Group of investors;
- Possibility of future crowdfunding of the project;
OUTLINE BENEFITS

- Reduced site risk management;
- Reduced concept risk of acceptance of market;
- Increase design quality in a safer context;
HIGH LEVEL PURPOSE

- Integration among multiple disciplines in design using BIM;
- Increase design quality;
- Seamless flow of processes during the execution phase;
- 30 years experience on construction and real estate development company;
## ESCOPO DOS SERVIÇOS

<table>
<thead>
<tr>
<th>Projeto</th>
<th>Procedimentos e Documentação</th>
<th>ETAPAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projeto de arquitetura de interiores - AI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projeto de palapim - PMO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O Projeto das áreas externas apresenta a definição de</td>
<td></td>
<td></td>
</tr>
<tr>
<td>calçadas e áreas aprimoradas, espécies vegetais e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>procedimentos de plantio, pavimentação, reto-fios,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>revestimentos, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A seleção das espécies será pautada pela adaptação</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ao ambiente local. Serã apresentados plantas híbridas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>de terraço e dos demais pavimentos onde houver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>terrenos com ou sem ajardinamento, além de</td>
<td></td>
<td></td>
</tr>
<tr>
<td>especificação das espécies e quantitativos.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Definição geométrica das áreas aprimoradas e calçadas atendendo | | |
### os condicionantes legais | | |
### Definição das espécies vegetais (vegetações de forrageios, | | |
### arbustivos, arbóreos, etc.) | | |
### Definição do mobiliário urbano (banco, lêzeiras, biscoitos, | | |
### luminárias, etc.) | | |
### Definição de todos os elementos do projeto e da materialidade | | |
### Plantas híbridas | | |
### Indicação e execução de forrageios, de espécies arbustivas e | | |
### arbóreas | | |
### Indicação do tipo e pegaçação das pavimentações | | |
### Detalhamento do mobiliário urbano (banco, lêzeiras, biscoitos, | | |
### luminárias, etc.) | | |
### Detalhes construtivos necessários | | |
### Memorial descriptivo / Especificações técnicas | | |
### Lista de materiais com quantitativos | | |
### Imagens / perspectivas renderizadas para entendimento do projeto | | |
### (uso não comercial) | | |
### Imagens / perspectivas renderizadas para uso comercial | | |

### Projeto de sinalização - SIN | | |
| O projeto de sinalização deve aplicar à edificação em | | |
| projeto as indicações e especificações de um manual | | |
| Identificação dos fluxos de usuários no interior do edifício e dos | | |
| ambientes funcionais, de apoio e de instalações prediais e | | |
DISCUSSION

- Most dimensions of the FED Process were applied in the analyzed project;
- It was possible to understand value generation through each phase.
MAIN CONTRACTOR

FINAL CLIENT

DESIGN COMPANY

CROWDFUNDING

Real Estate Developer

Main Contractor

Construction responsible

Architecture and Engineering & Real Estate Crowdfunding (Requirements database)
FED PHASE

THE SCOPE FOR A PROJECT

JUSTIFICATION FOR PROJECT

HIGH LEVEL PURPOSE

VALUE FOR CLIENT

Clear Project Scope delivered more quality and reliable design;

Something new, innovative in accordance with client value understanding;

High quality of design and very integrated design delivery;
DISCUSSION

FED PHASE

OUTLINE DESIGN

STAKEHOLDER PLAN

PROJECT RISK MANAGEMENT

OUTLINE BENEFITS/COSTS

VALUE FOR CLIENT

Collaboration and trust were established before and maintained during the design process;

Main contractor see the Design company as a partner for continuing future project plans;

Minimized by the previous knowledge from the final clients requirements (workshops);

Market visibility, alignment of teams possible future projects.
DISCUSSION

FED PHASE

PROJECT RISK MANAGEMENT
OUTLINE BENEFITS/COSTS
HIGH LEVEL PURPOSE

VALUE FOR PROJECT TEAM

Opportunity to collaborate with construction team during the earliest design phase;

Opportunity to receive feedback from final users about the design just after the project release;

+1 project in progress; perceived client's satisfaction and loyalty.
CONCLUSIONS

FED played an important role considering the approach of value development and design process.

Main Contractor foresee real value generation for final client considering the design phases developed.

Missed opportunities - relating to the extensive data collated by Company 02, through their crowdfunding venture no objective effort made to understand and integrate such up to date
THANK YOU

Joas Serugga
Bernardo M. Etges
Ellen R. Bernardi
Mike Kagioglou
Patricia Tzortzopoulou