

DESIGN THINKING AS A METHOD OF IMPROVING COMMUNICATION EFFICACY

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1 BACKGROUND

Construction projects can be framed as a network commitments as defined by Linguistic Action Theory. With each project, varied requirements, designs, stakeholders, personalities, and countless other factors create new, indeterminate sets of issues whose resolution will be unique and determined by the linguistic actions of stakeholders. Because of this complexity, project definition and execution can be classified as “wicked problems”, or problems that are undefined in nature and defy a rational solution. “Design Thinking” is a method of creative problem solving that is useful in addressing wicked problems through its use of divergent brainstorming followed by convergent solution development. This paper first uses a case study to demonstrate how one team used Design Thinking to analyze and improve communication between stakeholders, and then proposes how Design Thinking can be added to the lean tool kit as a method of driving continuous improvement.

2 CURRENT CONDITION

In the fall of 2016, ten Autodesk volunteers spent two weeks in Kigali, Rwanda, as part of a partnership with a local design firm, MASS Design Group, and the fellows of the African Design Centre. Among other objectives, the team was asked to study communication between MASS Design and local Rwandan builders, framed in the question “**How can we educate our builders to understand drawings so that less time is spent on construction administration?**” The Autodesk team explored the surface question of educating the builders by applying the Lean technique of the “5 whys”. The exercise revealed the following:

- MASS Design’s drawing standards derive from American Institute of Architects (AIA) guidelines. AIA standards for navigation, detail call outs, clouded changes, symbols and language are problematic for Rwandan builders.
- MASS Design is an innovative architect, using complex design components unfamiliar to local builders, such as trusses with complicated, non-orthogonal connections, new local materials that require experimentation before full detailing, and atypical design details such as trapezoid-shaped windows.

3 WORKING HYPOTHESIS

- Design thinking will be an effective method of objectively analyzing communication and soliciting input from stakeholders.
- Design Thinking can be added to the lean tool kit as a method of driving continuous improvement.

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4 RESEARCH METHODS

Both Autodesk and MASS Design apply Design Thinking methodology as part of their corporate identity. Therefore, they chose this technique as a method of setting aside prior biases in information gathering, and developing empathy in the solution finding. Over two weeks, the teams did exercises to (1) observe, (2) understand, (3) prototype, and (4) test. The participants in this study included Autodesk volunteers, MASS Design staff, fellows from the African Design Center (ADC), and builders. The objective of the study was to create and test methods to increase the effectiveness of communication.

5 RESEARCH FINDINGS

The workshop created a space for stakeholders to come together to discuss how to increase communication efficacy. The use of Design Thinking techniques allowed for (1) democratic contribution of information and (2) empathy building between stakeholders. By including team members with a variety of roles and perspectives, a diversity of contributions is guaranteed. Empathy was built through repeated non-hierarchical interactions.



Figure 1: Designers and Builders having a Conversation about Communication

6 CONCLUSION

Given the understanding of a project as a “network of commitments” (Howell et al, 2014), projects need to develop corresponding tools to address and manage the human process. This paper has demonstrated how Design Thinking can be applied to the wicked problems that occur in project delivery. The case study demonstrates how the use of Design Thinking allowed a team to (1) democratically generate ideas to increase the efficacy of communication between stakeholders and (2) develop an empathetic solution suited to the motivations of each stakeholder. The paper also proposes other areas in project delivery to apply Design Thinking methodology. As such, Design Thinking should be added to a project’s Lean toolkit as a method of driving continuous improvement.

