Cost of prototyping in architecture

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About me

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Presentation outline

• Intro
• Problem
• Proposing direction
Introduction

• We don’t just build a building
• We need a design document of the building that we are going to build
Introduction: Architecture design process

• Information (requirement) gathering when designing architectural building
• Prototypes are used to communicate with client (user) before implementation stage
Introduction:
Cost of building

• We think mainly tangible costs: Land (site), materials

• What about time-cost?
  • It generally translates to labour in industry

• What about design cost?
Introduction:
Design cost

• In architectural design, there are several steps to designing a building
• Different steps need different stakeholders
• In those, one needs user (client) to learn the requirement about building
Introduction:
Information gathering from user

• Specialists use prototyping (physical, digital) to communicate with client
  • Physical: costly (money, time)
  • Digital (2D, 3D): clients usually do not understand, may not represent the design well
Introduction:
e.g. designing a house

- Need one room? Two rooms?
- Two stories?
- Yard? Basement?
Problem

• User doesn’t know what EXACTLY want, how s/he want
• IKIWISI (I’ll know it when I see it)

• Need to iterate many prototypes for clients
  • Costly (time, money) for both architects, clients
Question

• should we skip the prototyping phase?
Future cost: S/W engineering

• Extensive design phase to minimize future cost
  • Future cost: debugging, modifications

• Conduct user study to get insight how user feel about the product (UX design)
Future cost:
Architecture

• Maybe remodel, renovation required after implementation
• Low satisfaction to user
Prototyping is good

• Doing iterative prototyping is better if
  • Unsure user requirements
  • At all
Prototyping limitations

• Prototyping introduce upfront cost a lot

• How much do we save by doing prototyping in architecture?
  • Time, money

• How to balance between upfront design cost and future cost?
  • Time, money
What to explore

• We need to find out how much cost each component
• Time cost for architecture:
  • Time to complete implementation (building) vs. prototyping
• Money cost for architecture:
  • Remodeling/renovation cost vs. prototyping cost
Yet another consideration ..

• Can we minimize prototyping cost (money and time)?
  • Maybe
To go further

• Architecture building modular design
  • For prototype
  • For implementation