Information Systems Analysis & Modeling

Lecture 3: Project Management – Phase 1 (problem identification)

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Blue Sky Mutual Funds: A New Development Approach

There are some things I like about this new approach, but other things worry me.

This idea of 'growing' the system through several iterations makes a lot of sense to me. It is always hard for my people to know exactly what they need a new information system to do and what will work best for the company. So, if they can get their hands on the system early, they can begin acceptance testing and try it out to see whether it addresses their needs in the best way.

Let me see if I understand the big picture, though. Your development team and my investment advisors will decide on a few core processes that the system needs to support and then your team will design and build a system to support those core processes. You will do that in a mini-project that will last about six weeks. Then, you will continue adding more functionality through several other mini-projects until the system is complete and functioning well. Is that right?

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Yes, that's the basic idea, your users need to understand that the first few versions of the system won't be complete and may not be completely robust either. But these early versions will give them something to work with and try out. We also need good feedback from their acceptance testing so the system will be thoroughly tested by the time we are through.

My people will like not having to think from the very beginning about everything they need the system to do. They'll like being able to try things out. As I said earlier, I like this approach. However, the part I don't like about this approach is that it will be more difficult for you to give me a firm time schedule and project cost. That worries me. In the past, those have been two of the major tools we used to monitor a project's progress. Are you saying that now we won't have a schedule at all?And you want an open budget?

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It's not as bad as it first sounds, this approach is an 'adaptive' approach, by which I mean that because the system is growing, the project is more open-ended. The project manager will still create a schedule and estimate the project costs, but she won't even try to identify and lock in all the required functionality for several of the iterations. Because the system's scope is going to continually be refined over the first few iterations, there is the risk of '**scope creep**.' That is one of the biggest risks with adaptive approaches. You and I should meet with the project manager fairly frequently to ensure that **the scope is controlled** and the project doesn't get out of control."

Okay, you have convinced me to try this new approach. However, let's treat this project as a pilot and see how it works. If it's successful, we will consider using this iterative approach on our other projects.

Scope creep

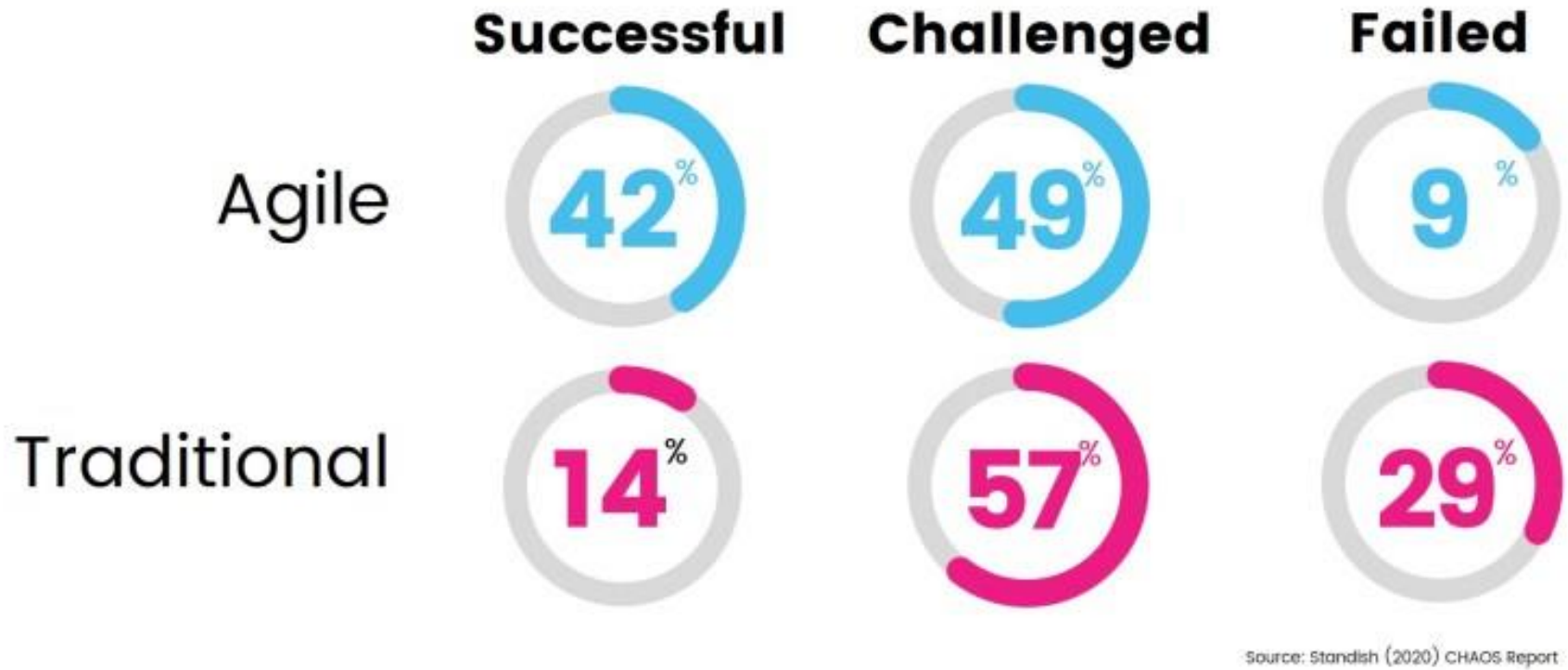
- The most common reason for schedule and cost overruns occurs after the project is underway.
- The project manager should allow only absolutely necessary requirements to be added after the project begins.

System development success

- System development success is often measured using three criteria: **finishing on time**, **finishing within budget**, and effectively **meeting the need** as expressed by the original problem definition.

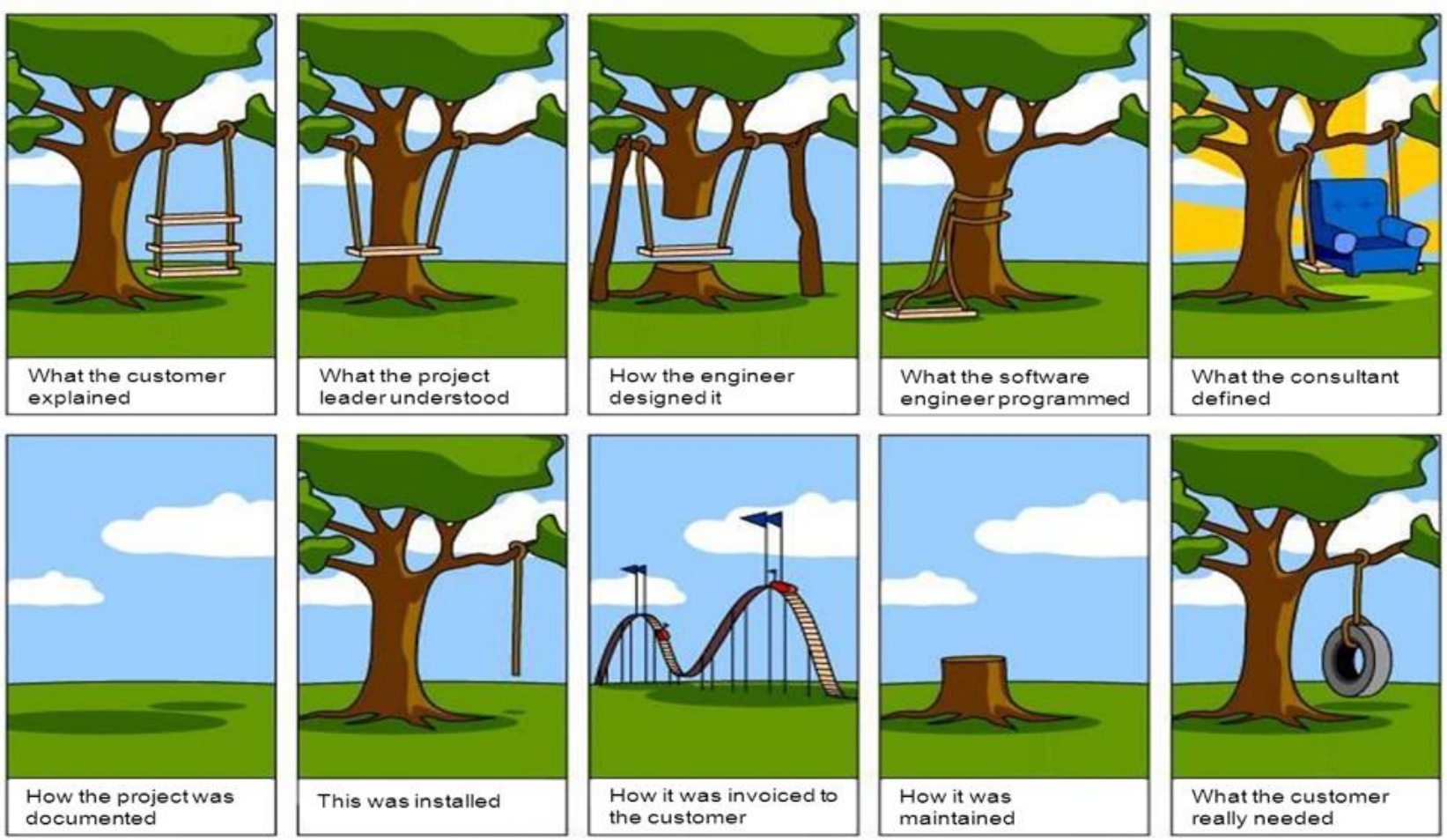
1. *Successful projects*: completed on time and within budget while meeting the users' requirements for functionality
2. *Challenged projects*: have some combination of being late, overbudget, or reduction of scope
3. *Failed projects*: are canceled or result in the system never being used

The success of Agile Vs Traditional projects



Project Management

- The science of project management is in making ***trade-offs*** among the size of the system, the time to complete the project, and the cost of the project.



The first core process of SDLC: Identify the problem

- Main activities to perform:
  - ✓Scoping the problem and the solution
    - ➢ Scoping the problem: How do you stop looking for bigger problems to solve?
    - ➢ Scoping the solution: How do you stop yourself from computerizing everything?
  - ✓Product/system vision
    - ➢ Vision statement
    - ➢ The elevator pitch
  - ✓The feasibility study
    - ➢ PIECES
    - ➢ Types of feasibility
    - ➢ Quantifying benefits and costs

Decide the scope of the problem:

- **Bookstore example:**
  - "Textbooks are often not ordered in time for the start of classes"
- But that's just a symptom. (So you ask the manager "why?")
  - "Because we don't receive the booklists from instructors early enough"
- Is that just a symptom of some other problem? (…so ask the instructors "why?")
  - "Because the instructors aren't allocated to courses early enough"
- Is that just a symptom of some other problem? (…so ask the office "why?")
  - "Because we never know who's available to teach until the last minute"
- Is that just a symptom of some other problem? (…so ask the dept chair "why?")
  - "Because there's always uncertainty about who gets hired, sabbaticals, etc."
- Is that just a symptom of some other problem? (…so ask the dept chair "why?")
  - "Because instructors we want to hire don't accept our offers early enough"
- Is that just a symptom of some other problem? (…so ask the new recruits "why?")
  - "Because some other universities seem to wait for ages before making offers"
- Is that just a symptom of some other problem? (…so ask Vanier college, etc, "why?")
  - "Because it takes our department a long time to reach consensus on hiring"
- Is that just a… …oh wait… …maybe we can develop a decision support system for dept of hiring at Vanier college, and that will help us get our textbooks for the start of class

How to scope the problem

- **Difficulty:**
  - Every problem can be seen as symptom of some other (larger) problem
  - You can keep on tracing root causes forever if you're not careful
- **Approach**: (…ask yourself these questions…)
  - Is there a reasonable expectation that this problem can be solved? (…independently of the larger problem?)
  - Is there a reasonable expectation that solving this problem will help? (…without also solving the larger problem?)
  - Is this a problem that the stakeholders want to be solved? (do the "local experts" think this problem is the one that matters?)
  - Is this a problem that someone will pay you to solve? (Hint: a feasibility study should quantify the return on investment)

Decide the scope of the solution

- Say you decided that delay in processing booklists from instructors is the right level of problem to tackle.
  - "So, let's computerize the submission of textbook forms from instructors"
- But while we're at it:
  - "it would help if we also computerized the submission of orders to the publishers"
- …and of course:
  - "we ought to computerize the management of book inventories too, so we can quickly check stock levels before ordering new books"
- …and in that case:
  - "we might as well computerize the archives of past years booklists so that we can predict demand better"
- …and therefore:
  - "it would also make sense to provide a computerized used book exchange, because that has a big effect on demand for new books"
- …and then of course there's … oh, wait, this is going to cost millions!
  - Bookstore manager: "tell me again how this automated used book exchange will help me order books faster?"

How to scope the solution

- **Difficulty:**
  - We could keep on throwing more technology at the problem forever
  - It's hard to decide when to stop adding extra "bells and whistles"
- **Approach (…select among alternatives carefully…):**
  - Is there a reasonable expectation that this alternative can be implemented? (…independently of all the other options?)
  - Is there a reasonable expectation that implementing this alternative will (help to) solve the original problem? (…without also having to address other aspects of the problem?)
  - Is this a solution that the stakeholders can live with? (do the "local experts" think they would use all these functions?)
  - Is this a solution that someone will pay you to build? (Hint: a feasibility study should quantify the return on investment for each alternative)

Case study and assignment

- Case study 2: A Hotel Checkout System
- Assignment 1: Computer Books by Mail

Product vision

- **Product Vision:** A product vision describes the future state of a product that a company or team desires to achieve. You can also define that future state as **a goal**.

  - **Product Vision Statement:** Also known as the elevator pitch, the vision statement is a short description of key product attributes.
  - **Product Vision Box*:*** An actual physical box that provides a visual summary of the product and can be used to market it.

Examples of product vision

Princess Margaret Hospital
To conquer cancer in our lifetime.

LinkedIn
Create economic opportunity for every member of the global workforce.

Go Daddy
Radically shift the global economy toward small business ventures

Amazon
Be the earth's most customer-centric company.

John F. Kennedy
"I believe that this nation should commit itself to achieving a goal, before this decade is out, of landing a man on the moon and returning him safely to earth."

GE
Become #1 or #2 in every market we serve and revolutionize this company to have the speed and agility of a small enterprise.

Smithsonian
Shape the future by preserving our heritage, discovering new knowledge, and sharing our resources with the world.

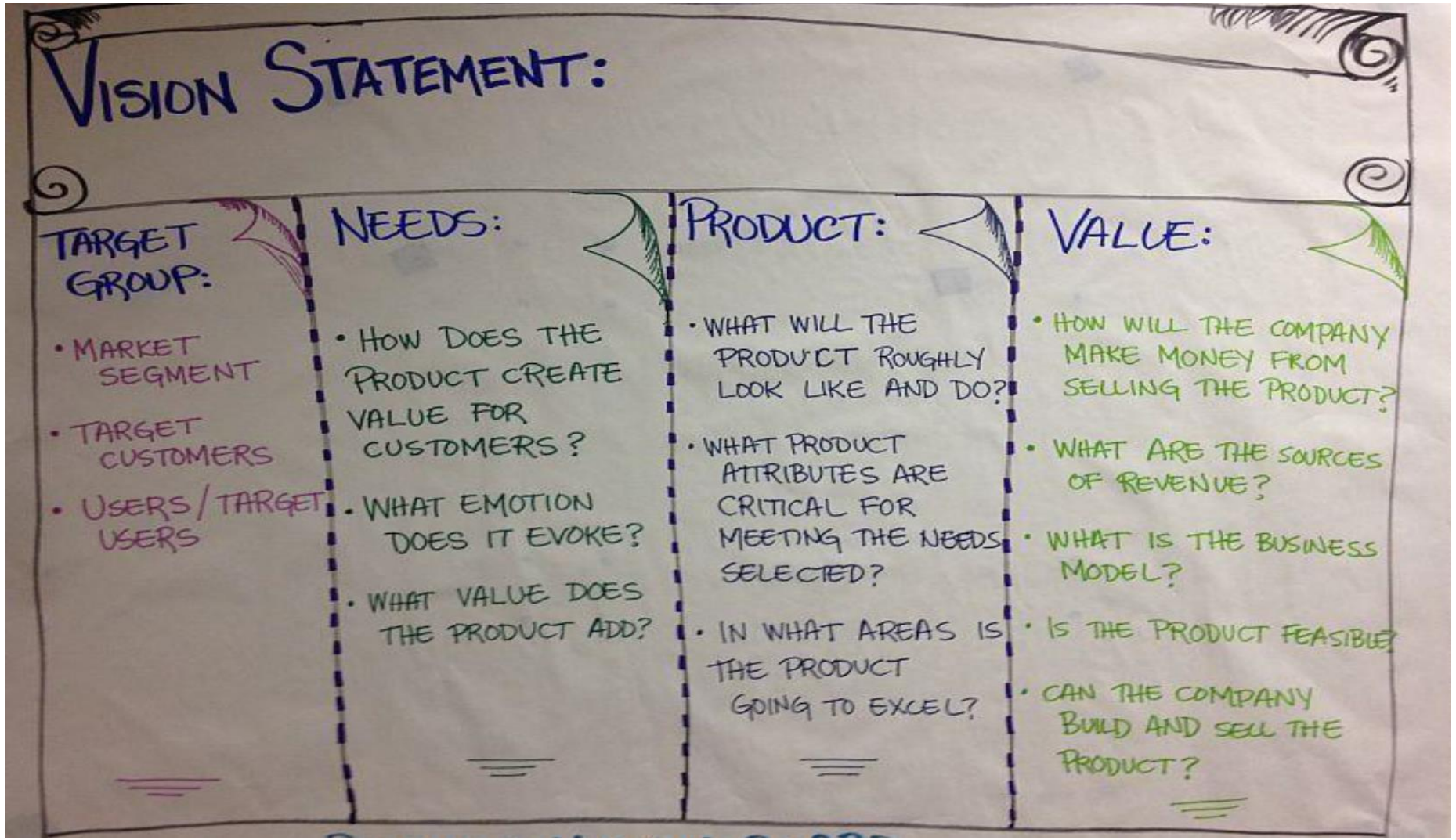
Intel
If it is smart and connected, it is best with Intel.

Cisco
To change the way we work, live, play, and learn.

TED
The power of ideas to change attitudes, lives and, ultimately, the world.

WWF
To reconcile the needs of human beings and the needs of others that share the Earth.

The Product Vision Board



PAY IT FORWARD PROGRAM VISION

OUR VISION IS TO SPREAD AWARENESS OF AGILE AND SCRUM AT AN AFFORDABLE PRICE SO THAT ANYONE CAN BENEFIT FROM THIS NEW WAY OF WORKING AND EMPOWER OTHERS TO WORK IN A TRANSPARENT, HONEST, SIMPLE, AND EFFECTIVE WAY.

TARGET GROUP:

- ORGANIZATIONAL CHANGE AGENT
- SCRUM NOVICE
- SCRUM PRACTITIONER

NEEDS:

- PROVIDES AFFORDABLE ACCESS TO SCRUM TRAINING & EDUCATION
- ENABLES TEAMS TO WORK MORE SIMPLY & EFFECTIVELY
- GIVES PEOPLE AN UNDERSTANDING OF SCRUM TERMS & CONCEPTS

PRODUCT:

- INTERACT & BUILD COMMUNITY
- DISCUSSION FORUMS
- EXPAND KNOWLEDGE & USE OF SCRUM BEYOND IT COMMUNITY
- CREATES A SPACE FOR INNOVATION & CREATIVITY

VALUE:

- GIVE BACK TO THE COMMUNITY
- BRANDING
- LEADS
- BUILD RELATIONSHIPS
- REFERRALS
- PAY-PER-SEAT

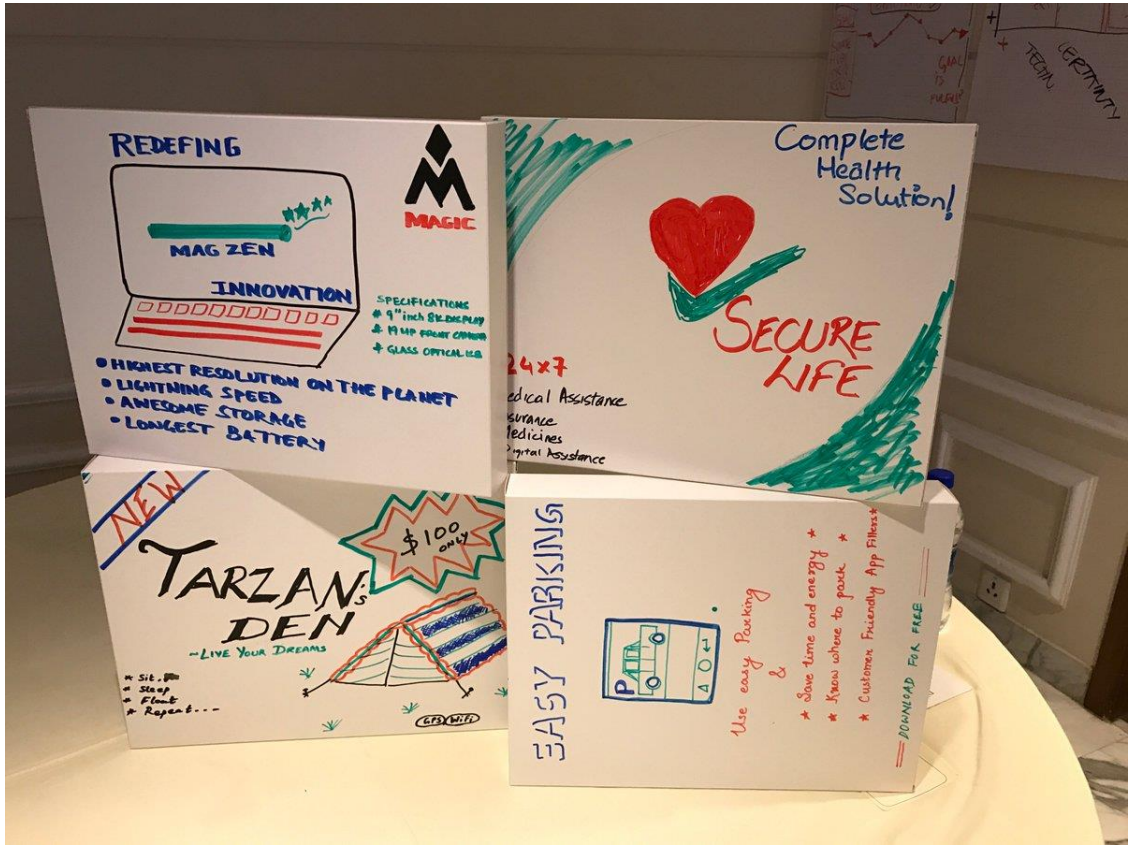
Creating a vision statement

Elevator Pitch sentence structure:

FOR (target customer), WHO HAS (customer need), (product name) IS A (market category) THAT (one key benefit). UNLIKE (competition), THE PRODUCT (unique differentiator).

Product vision box

- It forces the team to construct their own understanding of the product in a very direct and visual manner.
- It lets you prioritize functionalities and requirements, and reach a consensus on the most important benefits and features offered.



An effective way to define the problem is to develop a **System Vision Document:**

- a document to help define the scope of a new system and contains business needs and system capabilities

Consolidated Sales and Marketing System
System Vision Document

Problem Description

Sales and marketing on the Web has changed drastically since the CSS was built. Customers are more sophisticated, and they are used to catalog and sales systems that are easy to use and provide many services, such as one-click ordering, deferred-purchase tracking, simplified searches, and comparison shopping. In addition, research has shown that sales increase dramatically when social media marketing tools are combined with basic sales functionality. Hence, the new CSMS is needed not only to respond to today's competition but also to launch RMO into today's world of social media and mobile computing. The longer RMO delays in starting this project, the more opportunities it misses.

System Capabilities

This document identifies the required system capabilities at a high level. Later documents will specify the detailed requirements. These capabilities are required:

- Provide a shopping cart capability.
  - Support customer sales with high automation (one-click, etc.).
  - Recommend related product purchases and comparison shopping.
  - Allow customer ratings and recommendations.
  - Include "friend" network capability.
- Include comprehensive order fulfillment.
  - Support multiple and split-order shipping and tracking.
  - Support back-ordering and tracking.
  - Allow customer comments and feedback.
- Provide customer account and billing capability.
  - Provide individualized customer accounting.
  - Support electronic billing and many electronic payment methods.
  - Accumulate customer "points" and allow transfer and sharing.
- Include marketing functions for promotions and specials.
  - Provide flexible promotions and sales.
  - Accumulate and track "points" from suppliers directly to customers.
  - Interface with social marketing media for advertising and social marketing activities.
  - Support mobile devices for social marketing and sales.

Business Benefits

The primary business benefit of these capabilities will be to increase sales by connecting with customers and improving the customer experience. The specific benefits include:

- Increasing the size of customer purchases
- Increasing the frequency of customer purchases
- Increasing customer satisfaction
- Increasing product recommendations from customers to friends
- Attracting new customers through recommendations and social marketing
- Building customer loyalty with recommendations and service
- Increasing speed of product availability
- Eliminating shipping delays and outages