

KEEN Card : Creating Value Means Going Beyond Problem Solving

Instructor Notes : Introduction to Creating Value Materials

By: Bill Kline, Rose-Hulman

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Introduction

These materials have been developed to support design classes including capstone design and a standalone design and creating value class. They support the concept that design involves both following a process and collecting the right information along the way.

Background and Influences

The stakeholder/feature/designs views used here originate from the field of Model Based Systems Engineering (MBSE). Reference papers are provided. Systems engineers have studied the questions of what is the minimum amount of information needed to adequately represent an engineered system and how are the elements of behavior, design, and value properly represented.

The work of Anthony Ulwick of Strategyn includes the ideas of 'jobs to be done', the job map, and outcome driven innovation (ODI). This work is also complementary to this systems view and creating value. There are multiple views of JTBD on social media, and I prefer the Ulwick views.

Two Step Approach

As noted in the 2018 ASEE paper, there are three issues to consider for an organization to create and deliver a product or service that provides value in a sustainable manner.

1. Product or service offering – the focus of materials in this card.
2. Organizational ability to develop and take to market new offering.
3. Organizational ability to develop a value proposition and sustainable business model.

In all cases, the two step approach is highlights of first examining stakeholders and features followed by comparing to competing options through features and designs. In our use of the materials, this two step approach has proven to be very useful in capturing the setting and context of the problem or challenge. The first step often helps identify overlooked stakeholders and encourages discussion on what are appropriate features and feature metrics. Several of the cases provided also include interesting examples of unsuccessful products and others where social and cultural influences play a significant role in defining important features.

The second step highlights value as a choice and that stakeholders are always evaluation our product or solution versus other available options using the features developed in the first step. The choices for

comparables often depends on the circumstances or context but often encourages the realization that our solution may or may not be chosen over other options.

Hypothesis vs Deep Research

These materials have been used with students developing a design for a new product or system –or analyzing a case study. In both cases, it is often possible to quickly form hypotheses and make assumptions to quickly complete both the first and second views. This can provide a quick and rough idea of the viability of the system being studied.

In our experience, students like analyzing product cases studies. Often these cases can be analyzed by reading the brief case materials, making assumptions, doing brief additional research, completing the two views, and concluding something about the viability of the system being studied. The case materials often highlight the critical stakeholders, features, and comparable systems so a quick analysis often reveals interesting insights.

The instructor can guide the discussion with questions about identifying relevant stakeholders, what might be their priorities, what are key performance features, and what might be competing options.

Cautions should be provided that the written case materials may provide incomplete analyses and our assumptions may be misguided so additional deeper research is necessary to verify this quick analysis. In addition, designing a new product or system always requires additional research and interviewing to develop a more complete and accurate view of stakeholders, features, and competing options.

Exploring Issues 2 and 3

In addition to exploring issue 1 above with the materials provided here, interesting discussion often arises by considering issues 2 and 3.

For the shopping cart example, a question exploring issue 2 might be – would the Acme Shopping Cart Co. that makes traditional metal basket shopping carts have the organizational capability to develop, manufacture, sell, and service the new proposed cart?

One view could be that the IDEO cart is a technology enabled shopping cart that essentially has a computer on each cart and a wireless data network in each store. It could be quite a stretch for a traditional metal basket cart manufacturer to take on the production and service issues associated with the electronics, software, and communication issues associated with the new cart.

A follow up questions could be – How could the Acme company acquire the expertise to successfully add this new cart to its product line? Discussion could explore partnering with others, acquiring other companies, hiring new talent, or starting a new company.

For the shopping cart example, a question exploring issue 3 might be – can the Acme Shopping Cart Co. that makes traditional metal basket shopping carts develop a successful and sustainable business model to offer the new proposed cart? The discussion above suggests that there may be many development

and production issues as well as a range of cost, pricing, target customer, and marketing challenges. The business model canvas is a good tool for exploring issue 3 questions.