

The Value of Exploratory Design

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Abstract

Most people believe you can't see into the future, and that view is *partially* correct. You can't see "*the*" future, but predicting *potential* futures is actually pretty easy. So easy, in fact, that it is an almost unforgiveable management sin not to do so. This short paper introduces the concept of Exploratory Design, and explains why the benefits can be so significant.

Introduction

Design based on evolving a current product, or similarly following a moving competitive market, can be thought of as *tactical*, in the sense that most of the underlying variables are well understood and that response time is a critical measure of success. Another way of thinking of such effort is that it is "past-referenced", since the existing product is the foundation for evaluating proposed changes.

At the other extreme, purely *strategic* innovation is always "future-referenced", and best linked not to any arbitrary projection of patterns from today into the future, but rather a theoretical definition of a fully market responsive product.

The goal is not to design the perfect product, now or ever, but instead to create that view for the purpose of having a reference standard that is free of current thinking or societal bias. *Further, this view of perfection needs to be independent of the means by which it is accomplished.*

Why Functional Analysis is Essential

Markets typically don't care *how* something is accomplished, they care about *what* it does for them. "How?" is the nearly exclusive domain of designers and engineers charged with translating a vision into reality. (When was the last time you worried about frequency dependent signal absorption, dynamic load balancing and interference robust call hand off models instead of just making a cell phone call?)

Perhaps the biggest reason for thinking in functional terms instead of implementation method is that functions tend to be valid and competitive over much longer time periods than technology does. It is also easier to say what should be done than to solve the detailed design of how to do it- this makes it far less demanding and expensive to explore futures in terms of functions rather than solutions.

The Promise

If you can see where the market would *like* to end up, which is another way to think of the hypothetical "perfect" solution, it becomes possible to assess where you and your competition stand today. Missing features and capabilities leap off the page, and the hidden weaknesses of accepted practice become vividly apparent.

It also becomes possible to lay out a logical progression that bridges from today towards that future. This is the obvious logical foundation of sound product and technology roadmapping efforts, and an extraordinarily valuable way to predict and prepare for what competitors may do.

Skillfully managed as part of a larger business plan, it becomes possible to time your own product obsolescence and thus bleed a trailing competitor of profitability, steal market share from them, and largely neutralize their development capability.

The Challenge

Too often the view of the future is compromised by current limitations and precedents. Without even realizing the damage that occurs, what should be a clear path to the future is then reduced to a dangerously unstable projection from the past.

Obviously there is value in selectively applying elements of established technology where they continue to be effective, but this should be a visible management decision instead of something that simply creeps into the baseline plan.

The clearest view of the future is usually obtained not by asking the current "experts", but by tapping those with no vested interest to defend. This is a key reason that engineering organizations often struggle to create a clear view of the future- they are often so close to the manner of past solutions that it is inconceivable to them that something completely different may now be the best choice.

Conclusion

While it may not be common to think of design ROI in terms of overall business strategy rather than product launch, the potential impact to long term survival and market dominance is hard to ignore.

The sobering reality is that anything you can foresee is also sitting there waiting for a competitor- the only real question is when it becomes reality and who will profit!

BIOGRAPHY



Mr. Iliff has over 30 years experience working on developmental projects ranging in size from a few thousand to well over a billion dollars, and has participated in all phases of project execution from proposal to close out. He has held Proposal Manager, Project Manager, Systems Engineering Manager, Engineering Manager, and other related titles in multiple industries, and is now the Director of Strategic Innovation and Senior Systems Engineer for Bjorksten | bit 7 in Madison, Wisconsin. He earned his B.S. in Engineering / Industrial Design from Michigan State University, holds an M.S. in Systems Management, Research and Development from the University of Southern California, and received Honorary Fellow appointment at the University of Wisconsin Antarctic Astronomy and Astrophysics Research Institute when he served as the Systems Engineering Manager for the ICECUBE project. Mr. Iliff is a charter member of the International Council On Systems Engineering (INCOSE), founder / prior Chairman of the INCOSE Commercial Practices Working Group, and a member of the Project Management Institute (PMI).

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