

## Leveraging Business Value: How ROI Changes User Experience

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# Executive Summary

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**M**any in our field have long believed that a good user experience delivers business value. We have often seen how aligning product specifications with business objectives and user needs delivers a real competitive advantage, but — outside of retail e-commerce — we have rarely seen that value being measured and managed. Based on these beliefs and observations, we began a research project in May 2003 to answer the specific questions “How do companies currently use valuation methods, like return on investment (ROI), to measure the value of user experience?” and “What are the benefits of doing so?”

We began with an expectation commonly held in the design field, that “measuring the ROI of user experience” would entail applying a general equation, and we expected that our research would reveal the elusive formula. We assumed that armed with this silver bullet, Web development teams would be able to prove their value and thereby garner more credibility and resources within their companies. Even more naively, some of our colleagues encouraged us to seek an answer to the question “What is the ROI of user experience,” hoping for a specific value, like 500 percent or \$234.

While our research showed that valuation methods can help managers justify resource increases, it’s impossible to measure ROI for user experience with a simple equation that can be applied across a wide swath of companies and projects. Nor is there a specific number that represents the general value of user experience.

**Although there is no silver bullet**, what we found was much more interesting. The impact of ROI extends well beyond its obvious benefits in making resource-allocation decisions. Our research revealed that using ROI and other valuation methods helps to evolve design competency within organizations. The valuation methods provide tools for developing and measuring a design strategy as a component of a larger business strategy: The ability to “value” user experience design makes it a visible and credible business lever on par with marketing, research and development, and channel strategy. As a result, applying ROI-measuring techniques to user experience investment decisions has a positive impact on how Web teams are structured and perceived within an organization.

This explains many of the anecdotal problems that we have encountered at several conference sessions and panel discussions. We have seen successful Web strategies languish for reasons that were difficult to pinpoint. In almost every case, those firms made no attempt to forecast the future value of user experience design. It was viewed as an expense to minimize rather than an investment that ought to deliver a return. As a result, user experience design was “undervalued,” and successful implementation was doomed by a lack of commitment and support. The

**“Valuing” user experience makes it a credible business lever on par with marketing, R&D, and channel strategy.**

five cases featured in this research study show how companies that take even rudimentary steps toward measuring the long-term value of user experience avoid such political pitfalls. They also tend to have Web development processes and organizational structures that better optimize the value of design.

**By analyzing data** from the user experience projects of five subject firms and examining the explicit and implicit methodology used to value those projects, we have learned how and why firms measure the value of user experience. In this report, we present conceptual frameworks for connecting user behavior to business value and for understanding how to calculate the value of user experience on a project-by-project basis. We believe that design and business managers will find these constructs helpful in focusing their Web metrics and financial analytics to tease out the true value of user experience design.

To address the longer-term structural implications of valuing design, we have also built a theoretical model to describe the developmental stages that firms go through as they become more adept at measuring ROI. Finally, we present a diagnostic tool to help teams understand the valuation elements of their own design process. We hope that these tools help design and business managers structure their internal discussions to better optimize design investments.

**We began this exploratory research** not knowing what we would find, and discovered that ROI is a shift in organizational culture as much as it is a mathematical calculation. The field of user experience is at a turning point — firms that are better able to capture the value of user experience will be the ones that invest in the most ground-breaking projects and minimize waste on short-term fixes and abandoned projects. This will require a long-term commitment to valuing user experience design as a strategically important investment.

We have three hopes for this report: First, that it will provide a context and language to start the design community down the right path for understanding ROI and why it is important. Second, that the business and finance community will begin to expect and help design teams to develop solid business cases for their projects. Finally, that this report provides a solid foundation for future research in both the academic and business communities.

## General Characteristics of Firms That Measure Design Value

**Evangelism** Design teams and business units share the success of design projects and communicate their value throughout the firm.

**C-level awareness** Senior management can articulate the value of the Web as a competitive advantage and has established an accountability structure to deliver on its promise.

**Transparent project selection process** A structured process is consistently used to collect, screen, and choose the best project ideas. Everyone understands the process, knows how to go about submitting a project for consideration, and the criteria by which the go/no-go decision will be made.

**Design team independence** Organizational structure and transparency of process gives designers “a seat at the table” as an expert peer of business unit managers, marketing managers, project sponsors, engineers, and other stakeholders. Independence grows in parallel with accountability for measurable results.

**Smart investments** Firms that measure design value don't necessarily invest more money; they invest in more-valuable projects. Because design and business teams are involved in the project scoping and selection process, fewer “bad” projects fall on their plate. Waste is reduced because projects stall less often.

# Context for the Research

# Introduction

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**G**ood design is simple, beautiful, easy to use. It creates a sense of purpose and of place. It anticipates and responds to user needs. But aside from these subjective characteristics, how can we know whether a design is “good”? Moreover, how can a business know whether a design was worth the investment of time and money?

Without strong product and user interface design, Apple would likely have disappeared long ago. Similarly, without its simplicity of function, Google might have been viewed as just another search engine. These companies approach design differently: Contrast the iPod’s powerful elegance with Google’s starkly utilitarian interface. Nonetheless, both companies have demonstrated a consistent emphasis on design while their competitors have not.

In companies that “get it,” designers, managers, and executives intuitively understand that good design can be a powerful competitive advantage. If good design indeed provides a real benefit, though, it should be possible to calculate its ROI. All you would need are appropriate, measurable values to plug into the equation. But our experience has shown that few companies are attempting such calculations. Why is that?

We believe that it’s because we’re accustomed to thinking that design is subjective. The challenge in valuing user experience is in moving away from opinion and toward observation. User experience design is not merely aesthetic. Rather, its aim is to guide and facilitate users’ behavior, which can be observed and measured.

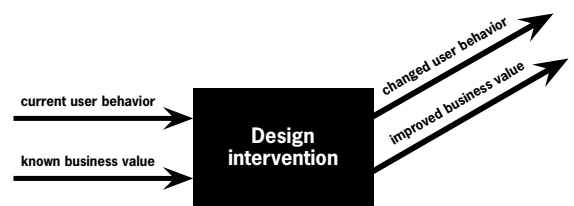
To make good business decisions, we need to measure the outcome — and the impact — of design projects: Did the design change user behavior? How valuable is behavior change to the business? Was it worth the investment?

## Putting design into a “black box”

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To avoid the pitfall of overanalyzing subjective questions, we do not attempt to evaluate the quality of specific design solutions in this research study. This report will not discuss Web design and architecture methods. A wealth of literature already describes how personas, task analysis, ethnography, and other tools help designers make better decisions.

This was an exploratory project to understand how ROI is currently being used by design and business managers. We focused the research on the inputs and outputs of projects: the business goals that inform the design, and the behavioral and financial changes that were achieved as a result. For the purpose of this report, therefore, design happens inside a “black box.”



**Our basic research question concentrates on the inputs and outputs to the design solution. For the purpose of this analysis, good design happens inside a “black box.”**

This allowed us to compare a range of projects in diverse industries, so that our findings could be broadly generalized for Web managers. In a future study, it may be valuable to look at the ROI of various techniques, or of specific design solutions.

# How ROI Relates to User Experience

The standard business term ROI refers to a financial analysis ratio that measures the net benefits of a project against its total costs. It is most commonly used to predict the value of individual projects within a portfolio of possible capital expenditures. To calculate the ROI for each project, the forecasted cash flows (net of expenses) are discounted over the useful life of each project. This provides an apples-to-apples financial benchmark for comparing the projects. ROI can also be used to evaluate the success of investments after they are made.

There are many types of ROI-like calculations that finance departments use for this purpose: break-even analysis, net present value (NPV), discounted cash flow (DCF), and economic value-added (EVA). All of these methods are used in the same way — to evaluate the risks, costs, and returns of possible investments.

## ROI calculations are not perfect

There are many uncontrollable variables involved in calculating ROI. For instance, estimating returns, market conditions, and development costs all involve a lot of guesswork. So if an ROI analysis is inexact at best, why do financial managers bother?

First, the ROI figure provides a rational way to compare projects and choose those that are best for the business. In addition, ROI builds a framework for setting performance expectations, understanding whether projects were successful, and holding managers accountable for results. Possibly the most important benefit of using ROI regularly is that the estimates and guesses get better with practice.

Project valuation methodologies, like ROI, have for years been important tools for managerial accountants and finance executives in evaluating capital expenditures. Because of the long, productive lives of capital assets, ROI analysis provides a rational basis for estimating long-term value. Companies that place high strategic value on capital investments have very sophisticated systems for valuing such assets. They understand that the quality of their assets is a primary competitive advantage, and they find that consistent use of ROI calculations is an important tool for good managerial decision making.

## ROI methodology and user experience

Despite their long-term value, Web development investments (other than hardware) cannot be considered capital expenditures under current accounting rules. However, this doesn't mean that ROI methodology shouldn't be applied. In many

### What Is ROI?

ROI is a method of forecasting the expected long-term value of a capital expenditure. For instance, when a retailer is deciding where to open a new store, financial planners evaluate the cost and forecast revenues for several possible locations. Because the expenses and revenues will be different for each — based on property condition, labor cost, taxes, market demand, proximity of competitors, and many other variables — developing an estimated ROI for each possible location allows managers to understand their relative risks and rewards. Of course, subjective factors are considered alongside the ROI calculation, including experience in similar areas and the strategic value of entering a particular market. However, ROI provides a bottom-line figure for comparing expected financial results independent of these other considerations.



industries, Web sites have already become as vital a competitive advantage as productive, though intangible, assets.

We believe that the business value of user experience will continue to grow as the field evolves. Or, conversely, that the field of user experience will only evolve to the extent that it becomes (and proves) valuable to business. Given this point of view, the application of ROI valuation principles to user experience development is a logical next step in making better Web investment decisions.

## **Adapting the ROI concept to user experience**

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So why is the concept of applying ROI to user experience still so new to so many companies? As we described above, traditional accounting rules do not allow design investments to be treated as capital expenditures — a likely reason why there has been little pressure from finance executives. Also, in the aftermath of the over-investment during the Internet craze, many firms have been making only incremental improvements to their Web sites in recent years. At the project level, user experience investments are usually too small to justify the time and expense necessary to gather the data for this sort of calculation. However, as companies have begun to realize that their Web sites are delivering value to the business, and as Web development projects have become more significant when viewed in aggregate, senior management is more frequently demanding a rational means of analyzing a portfolio of possible Web investments.

The value of user experience is especially compelling when comparing a user experience project to another investment with similar business goals. For instance, in making the decision about whether to buy new customer relationship management (CRM) software, the relative value of simply improving the user interface of the existing system is an important consideration. With some types of enterprise software, often the technology and functionality already exist within the firm — the challenge is in making the system work for employees. User experience investments are often a viable alternative to investing in a new system, and ROI allows companies to compare the relative value of each.

Responding to the evolving internal business environment, the design community itself has been looking more closely at exploring user experience ROI. As such, some hopeful researchers have attempted to prove that ROI is a proscriptive means of garnering increased Web development resources — for instance, that spending 10 percent on usability has a 500 percent ROI. While this type of statistic may feel good, it is rarely taken seriously by financial decision makers. Generalizations such as this fail to take into account the project, business model, industry, and other factors that are important to the financial accounting people who are

**ROI is most meaningful in the context of actual projects in a specific company.**

used to making decisions based on ROI. Bottom line, ROI is an internal tool for comparing investments, not a proscriptive guideline — generalizations are meaningless and unconvincing.

As such, managers seek to use ROI as a structured process for comparing possible investments to expected returns. Only after firms have successfully learned to value user experience at the project level can they begin to analyze historical performance and build the case for additional investment and resources. Very simply, ROI has two primary applications:

**1. Prioritization:** ROI allows managers to make informed choices about which projects to pursue based on apples-to-apples comparison of the financial value of possible projects.

**2. Accountability:** Having undergone the exercise of establishing value metrics in calculating the ROI, managers and departments can then be held accountable for the success or failure of the chosen projects.

This research, therefore, sought specifically to understand how companies today are working around the accounting limitations of “traditional” ROI to understand the value of their user experience investments — what metrics they are using, how they are connecting those metrics to financial return, and how that insight is being generated for management decision making.

## Metrics involved in user experience ROI calculations

Identifying metrics that link design interventions to business goals is one key to determining the value of a user experience project. Throughout this report, we will refer to a range of metrics types:

**Web metrics (site-use data):** We use the term “Web metrics” to describe the most basic type of site analytics. These metrics are typically stated in terms of a raw number over a period of time. They include traffic, unique and repeat visits, transactions per user, duration of session, total tasks completed, and so on. These provide the foundation for understanding user behavior.

**Behavior metrics (indicators of user behavior):** When Web metrics are analyzed over multiple periods to isolate trends or changes in user behavior, they become a more meaningful indicator of user experience.

### Benefits of ROI Analysis

ROI analysis allows companies to compare many possible investments on the same set of criteria and determine if projected returns justify the investment (e.g., is this expenditure worthwhile?). ROI is:

- A means to determine if the level of investment is adequate given the returns being predicted. “Should more resources be allocated?”
- A structure to analyze the value of investments independent of personalities, hunches, and intuition. “Is this a good investment or are we drinking our own Kool Aid?”
- A baseline or “hurdle rate” against which to evaluate future investments, given the success of past investments. “What has been our average ROI or cost of capital in the past?”
- A reason to further hone budgeting and forecasting methodology that can prove beneficial in other types of financial analysis.

These metrics are most often stated as rates. Such metrics include task completion rates, conversion statistics, throughput, attrition, and so on.

**Value metrics (indicators of financial gain):** Value metrics quantify the value of a specific user behavior and are most often represented in terms of revenue dollars or lifetime customer value. Such metrics include \$/registration, \$/from product page, \$/sales leads.

**Productivity metrics (indicators of cost-savings):** Even if productivity is not the primary driver of the project, user experience interventions can have productivity benefits. For instance, encouraging an online sale may be the primary driver of a design intervention. However, the ROI calculation should also include any cost savings that can realistically be forecasted, such as reduced call-center traffic. An important function of ROI is that it attempts to aggregate all cost reductions and revenue gains in the return on investment.

Through internal server-log-analysis software such as WebTrends, most firms already have some means of understanding how customers use their site. In addition, many firms in the study were using Web analytics to assess user behaviors, such as conversion, attrition, and error. We will reference all the above types of metrics throughout the remainder of this report.

# Research Findings

# Is It Possible to Measure the ROI of User Experience?

The most basic question we expected to answer with this research was whether it is possible to measure the ROI of user experience investments. In screening more than 20 possible subject firms for the study, we were surprised to hear senior managers at some of the largest, most successful companies on the Web say that it is not possible, or not worthwhile, to calculate a true ROI — at least not in the way a CFO would feel comfortable comparing totally unrelated investments.

However, when we asked more specific questions about the value of user experience, we found that a number of companies are successfully employing valuation techniques, even if they aren't calling it ROI. Among these companies, we found increased employee satisfaction, more focused project planning, better interdepartmental collaboration, and more involvement of designers at early stages of the project.

## Identifying the links

The key to calculating a user experience ROI is in making the connection between user behavior and business goals. When aligned with a business objective and a financial outcome, the design intervention can be targeted to influence a desired user behavior. In our study, the quality of the valuation calculation was directly comparable to the firms' ability to make connections between business problems, user behavior metrics, and financial metrics.

### Making a Case for User Experience Investment

"Identifying and measuring user behavior metrics and connecting them to business value allowed me to make a case for investment in user experience Web projects.

"Other departments requesting IT investments (such as enhancement to CRM tools for the sales department or extranet improvements for channel management) could develop clear business cases that identified the relevant metrics and forecasted returns. Unless I could make such explicit connections between user experience and business value, executives always considered Web projects a lower priority. I needed to provide analysis so that they could compare projects across departments and make budget allocation decisions."

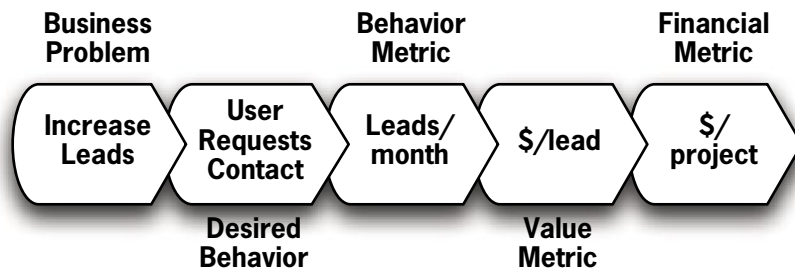
—Suzanne Van Cleve  
Former Director  
PeopleSoft.com



The key to measuring value is connecting user behaviors to financial returns.

For instance, at a fictitious enterprise software company, the business problem could be to increase leads. In that case, the desired behavior could be for users to click the Contact Me Now button that appears on some pages. The sales team knows that every lead is worth \$100 to the company. The user experience team believes that an interactive product demo for each of the three target industries would create 100 new leads per month. After 12 months, the new demos would have a value of \$120,000 to the company. If the demos cost \$100,000 to develop and

launch, then the contribution after 12 months is \$20,000. The connections look like this:



In this example, the business problem, increasing leads, is easily connected to financial returns. It becomes challenging, though, when finance departments can't provide value metrics.

As in this example, making valid connections between user behavior and financial results requires communication and collaboration with other stakeholders outside of the core Web development team.

Finance and accounting departments can provide methods for placing a dollar value on customer interaction. Likewise, product managers can specify the relevant drivers that will affect the profit and loss for a line of business, marketers can provide data that correlates customer needs with purchase decisions, and technology teams can provide basic metrics as well as important cost-of-implementation data. Together, all of this data provides the detail needed to complete the picture.

This is a very different form of linking than what was presented in *Cost-Justifying Usability*, the landmark 1994 book by Randolph Bias and Deborah Mayhew. It presented a model where the benefit of a design effort (the “R” in ROI) is estimated based on factors such as increases in productivity, decreases in training and errors, and decreases in late changes to product development. For instance, on an intranet, say an average of 250 users view 60 screens per day for 230 days per year. If the viewing time is reduced by 1 second per screen, at an hourly rate of pay of \$25, the increase in productivity should deliver \$23,958 in value. The flaw with this method, and the reason the book hasn't definitively resolved the ROI question, is that this sort of return is hypothetical — it can never be measured, and may never come to pass. Hypothetical calculations cannot be used for management decision-making, and are not taken seriously by financial managers, in part because there can be no accountability for delivering on the expectations that are set.

### Hard Dollars Make ROI More Compelling

Emphasis on “hard dollar” returns makes the ROI estimate more believable to business units and senior managers. In contrast, “soft dollars” can be used to supplement the decision, but are much less compelling. The difference is:

**Hard dollars:** An expected return that will directly influence profitability by increasing revenues or decreasing budget-line costs, such as decreased call-center volume, increased enrollment success, improved customer retention, and so on.

**Soft dollars:** A return that may achieve a business or user goal, but can not realistically be expected to directly predict changes in revenues or costs, such as increased productivity, decreased time of user sessions, increased employee morale, and so on.

By contrast, the companies we saw that were using ROI calculations to value their user experience investments exclusively used return metrics that would be measurable and real. We often heard this conceptual difference described in terms of “hard” and “soft” dollars (see box on previous page).

## CASE STUDY

### **Making Connections for Bank of America’s Online Enrollment Application**

In January 2003, an online banking product manager at Bank of America identified that customers were having a hard time completing the online enrollment process. First she looked for data to understand the problem — a review of research provided by the marketing department showed that Bank of America was falling behind the competition for successful registration completion. An examination of internal “voice of the customer” data — gathered as part of Bank of America’s Six Sigma quality process — identified specific parts of the five-step enrollment process that users found most difficult. With the design team, the product manager identified “yield,” the number of customers who successfully complete enrollment as a percentage of those who start it, as the fundamental behavior metric that would indicate better user experience design.

The next link in the chain was to attach a financial value to this behavior metric. At Bank of America, the finance department had already analyzed historical data to forecast the dollar value of an online enrollment, both in terms of reduced service costs and increased customer loyalty. In this case, the final linkage was easy to make — increased yield improved the bank’s bottom line by the per-customer amount predicted by the finance team.

Next, the design team led a collaborative effort to design and test a new online enrollment process that would address customer problems and improve usability.

With this quantitative value metric, the product manager and design team could predict the value of the design improvements before they were made. More importantly, they could later prove the value of the improvements to the line of business, and to the bank as a whole, once they went live.

Armed with this information, the value of user experience design was very clear to designers, product managers, and their bosses. With this type of ROI calculation, Bank of America finds it much easier to make a case for specific design investments.

# How Are Companies Measuring Value and Why?

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**T**he value of undertaking an ROI calculation lies in making connections between user behavior and business goals to make better management decisions. In this section, we will present a framework understanding the rationale and methods managers use to value user experience, and what effect those methods are having on their work and their decisions.

To protect the confidentiality of our subject firms, we do not disclose actual ROI returns or dollar values in this report, but focus instead on applications of ROI.

## Why measure the value of user experience?

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In firms that attempt to measure the value of user experience, ROI is perceived as useful in two ways:

**1. Project valuation:** Here, the project value or ROI is estimated before the project begins. ROI calculations help managers and executives compare possible projects on an equivalent, business-relevant basis. This comparison is used specifically to choose which projects to approve. Because head count is fixed in the short term, these “ex-ante” (or “before”) calculations are used to identify the most strategically relevant and highest priority ROI projects among a larger set of possible projects. Often, managers consider both tangible and intangible returns.

**2. Accountability assessment:** Actual project value or ROI is measured after the project has been completed. These “ex-post” (or “after”) measurements are used to allocate resources over a longer term (e.g., annual budgets). Here, managerial accounting techniques are used to determine the financial value of all user experience design interventions actually implemented over a period of time (e.g., last fiscal year). Actual results are compared to estimates, and managers (and, in some cases, design teams) are held accountable for meeting expectations or given credit for exceeding them.

Managers who are held accountable for business results of design interventions can make a case for increased budget and head count, when they can prove that such investments have delivered measurable financial returns consistently.

These reasons for valuing user experience complement one another and can be thought of as a circular process. If value metrics are determined in the ex-ante process of choosing which projects to pursue, then those same value metrics can be used to determine the business impact ex-post. Combining pre- and post- analysis provides greater insight into how user experience can deliver business value in future projects.

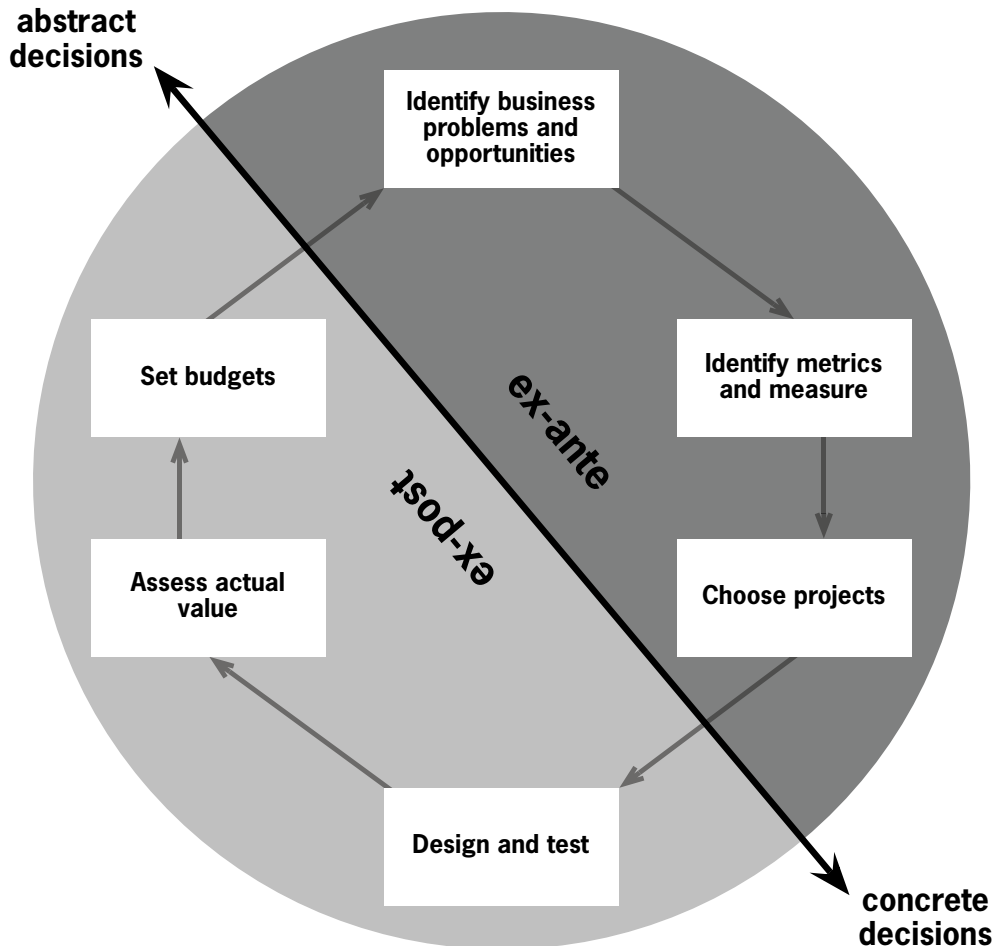


As with other forms of ROI analysis, this is a process of making educated guesses, and each cycle improves the ability to guess well. We call this the User Experience Value Chain.

## User Experience Value Chain

To understand how ex-post and ex-ante measures fit together to form a process, we identified six steps, which the firms that we examined followed to varying degrees. The User Experience Value Chain is deliberately represented as circular (Figure 1); there is no first step, per se. However, we will provide examples of each step in order.

Figure 1: The User Experience Value Chain



## Identify opportunities



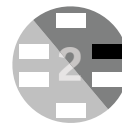
The key to effective ex-ante project prioritization is having a full pipeline of project ideas and high demand for user experience design services. In this step, managers compile lists of business problems to solve and new opportunities to realize through user experience projects. The more channels for ideas the better — user experience project insights come from customer feedback, market research, business unit managers, product developers, executive teams, and from designers themselves.

In this study, the companies with the most successful valuation methodology have an open process through which ideas are contributed. To encourage evaluation of as many innovative ideas as possible, we saw successful design teams evangelize past successes and systematically educate business units about the value of user experience.

**Case example:** Belkin's Industrial Design Group (IDG) was created specifically to execute on new corporate strategies that leverage user experience as a competitive advantage. Recent successes include the award-winning designs for its line of iPod accessories.

With the goal of creating the best designs for new, ground-breaking, high-margin lines of products, the IDG works closely with product managers and the marketing and e-commerce units to develop ideas. By communicating and evangelizing the success of its designs, IDG has garnered credibility. This ensures that the group can choose the highest value projects from a full pipeline of possible opportunities.

## Identify metrics and estimate value



After an initial viability screening to consolidate and narrow project opportunities, this step requires determining value criteria, defining value metrics, measuring benchmark data, estimating returns, and assigning accountability for results. This is where the connection between user behavior and business value is made, using a financial metric if possible. Non-financial criteria are also considered, such as risk, complexity of project, and political factors.

Input from other departments, such as finance and the sponsoring business unit, is often required to make the necessary connections to business value. In this step, managers also determine what resources will be necessary to execute projects, including stakeholder involvement, design team hours, technology requirements, and the cost of consultants (if necessary). The outcome of this phase is a business case for each viable project that includes an ROI value.

**Case example:** In conjunction with their human resources department, design managers at Cathay Pacific Airways identified that an intranet tool for managing staff travel could vastly improve productivity and decrease the cost of administering the employee travel benefit. Together, they identified key indicators for project success: staff time spent on inquiries made by phone and email, and the time necessary for special handling by crew at the airport during check-in and boarding. In aggregate, projected productivity improvements translated to a financial savings because excess administrative staff could then be redeployed if the project goals were achieved.

Cathay Pacific has developed a matrix of criteria to ensure that all appropriate metrics have been identified and to “score” possible projects (see Cathay Pacific Decision Matrix, below). For each project being considered, a cross-functional team comprised representatives from the business unit, technology, and design teams builds a business case to assess all the relevant criteria, and to measure baseline data.

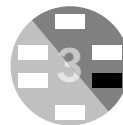
### Cathay Pacific Decision Matrix

Benefit criteria	Cost criteria	Other criteria
Increased revenues	Hard dollar costs	Risk
Staff relations	Resource consumption	Complexity
Productivity	Management time	Political factors
Cost savings	Business unreadiness	Time in queue
Staff loyalty		
Service support		
Crisis management		

Decision criteria at Cathay Pacific are fully transparent — everyone knows how possible projects will be selected.

### Choose projects

This is the final component of ex-ante analysis. Using the business cases that were developed in the process of the previous step, managers rate the relative value of each project and make go/no-go decisions based on resource constraints. Valuation methods, like ROI, provide the rational basis to make apples-to-apples comparisons of different projects, and prioritization of projects is then possible.



Based on our observation, establishing well understood selection criteria (see previous step) and ensuring transparency in the final decision are vital. If project sponsors do not understand the rationale behind selection decisions, they are less likely to propose “fundable” project opportunities. Similarly, if project selection seems arbitrary, they are less likely to view user experience as a strategic resource available for their use.

**Case example:** eBay\* has an interdepartmental committee to review Web development project ideas. Because management wants to encourage idea generation throughout the company, they have established clear project-selection criteria. For consideration, projects must address at least one of four key business levers (registration, bids, listings, or cost structure). Selection decisions include strategic considerations, but are most influenced by a value assessment of business cases and an ROI calculation that expresses estimated returns relative to total cost.

\* This information is reprinted from materials presented at the 2004 IA Summit in Austin, Texas. eBay was not a formal research subject in this study.

## Design and test



Once selected, projects move into the design and test phase. Because stakeholders have already been identified and given input in the process of establishing metrics and choosing projects, designers can concentrate on developing solutions for particular business problems. In addition, if success criteria have been effectively premised on desired changes to user behavior, the design team has a head start on requirements gathering.

The previous steps in the Value Chain will also prove useful in testing new designs. Using the business case as a guide, metrics provide the specific success criteria against which designs and prototypes can be tested, which helps to refine the questions for user research and usability testing.

**Case example:** KQED wanted to develop their online content into a third line of business, in addition to its television and radio businesses. KQED identified that increased traffic could influence its ability to generate underwriting revenue — the business driver for the online content. Designers decided that a home-page redesign emphasizing online content as value-added to the television and radio content was the appropriate solution to the problem.

### Not All Projects Need Big Process

It is important to recognize that not all projects require involved data analysis to know that they are worthwhile. A value-driven Web development process also specifies thresholds below which a rigorous ROI calculation is not necessary. For example, user experience design projects might be classified in three categories:

- 1. Quick Fixes.** Web developers can be assigned an allotment of hours to work on small projects that can be initiated by a product manager with little or no value analysis required. These are easy to execute and would require more time to analyze than they are likely worth.
- 2. Small Builds.** Many small- to medium-sized projects are foreseen in the ex-ante analysis conducted in the annual budget allocation process. To ensure accountability, the full Value Chain is usually calculated for these projects.
- 3. Big Investments.** For large projects that touch several business units, a full ROI analysis will engage stakeholders, refine the value assessment, and ensure accountability.

The key metric for this project was traffic to landing pages for special third platform content. Each new home page prototype was tested with users to assess their behavioral choices and ultimately their success in finding the landing pages. After several design iterations were tested for this metric, they were able to develop an ideal home page design proposal.

As with most home pages, there were multiple home-page stakeholders at KQED whose business goals can sometimes be at odds with one another. This project required an additional layer of approval from the other business unit stakeholders that compromised the final design. A possible solution would have been to bring them to the table as ex-ante stakeholders in scoping the project.

## Assess return

Once a new design has been tested and has gone live, the next step in the Value Chain is determining that the project has had the desired impact. This is accomplished by re-measuring user behavior and associated value metrics to determine the actual degree of business impact. This is a vital step toward understanding the actual impact of user experience interventions and determining accountability for success or failure of the project.



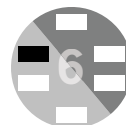
The ultimate goal of establishing user experience design as a competitive resource of the firm hinges upon proving value over time. Predicting value ex-ante and validating it ex-post will lead to increased credibility and additional resources. Conversely, if a design solution is not successful, examination of the relevant metrics is a starting point for determining why not and developing better design solutions in the future. In either case, value assessment ensures meaningful change.

**Case example:** Bank of America identified and funded a project to improve its online enrollment application for online banking. In developing the business case, the design team identified yield (or the percentage of customers completing the process) as the primary metric.

Prototyping and testing various design solutions with yield as the primary success metric proved a successful design strategy. The week the new registration form went live, the yield metric nearly doubled, and exceeded the desired ROI benchmark. This was a win for the design team, as well as the business unit that sponsored the project.

## Set budgets

With increased accountability comes increased credibility. Once a design team has proven its ability to deliver business



value, the next logical step is to use such proof to advocate for greater resources; particularly if increased investment in design can deliver a higher business value than other investments. Eventually, continued proof of success improves the standing of Web development within the organization.

**Case example:** ESPN Fantasy Games was so successful in creating a new subscriber audience and dedicated ad revenue for its Fantasy Football League Manager project, the executive team added the division to the fast-track priority list for 2004. Additional investments included purchase of customer feedback tracking software, dedicated interaction designers, increased server capacity for game days, and creation of a project manager role for the League Manager product.

## Benefits of the Value Chain

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Based on the research data, we contend that without the application of a valuation methodology (like ROI), project selection and accountability cannot be accomplished in a transparent, persuasive, or repeatable manner. By modeling the system in a very general and idealized way, we hope to facilitate discussion about how valuation techniques allow for the selection and evaluation of more successful projects.

A firm with advanced ex-post analytics will find that many of its ideas for development opportunities will come from the latter stages of ex-post analysis (i.e., determining additional opportunities based on the success of past projects.) In more mature firms, we observed that as much as 75 percent of the project pipeline may be fed from ex-post analytics.

Design teams in firms that are not applying valuation methodology will find that they mostly operate within the first ex-post step (design/test) with some influence on the last ex-ante step (choose projects). Getting involved earlier in the Value Chain is a paradigm shift for these organizations; however, early involvement is absolutely necessary for firms that would like to start viewing user experience design as a strategic resource, and investing accordingly.

Bearing this in mind, we believe most firms that are just beginning to apply valuation analytics will find it helpful to first think about ROI in terms of project prioritization — the ex-ante steps. The reason for this comes both from our observation and from our review of the product development literature. In short, it is first necessary to predict possible value metrics and prioritize projects (ex-ante) before it is meaningful to measure the business value of a design solution (ex-post). Otherwise, you will be tempted to look for value that may not have been the result of good project selection and application of a methodical user-centered design process.

## Challenges in applying the Value Chain

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We derived the User Experience Value Chain from our case data to show the comprehensive process that subject firms used in making management decisions based on the business value of user experience. Despite variations in application, the Value Chain provides a complete, although idealized, model for how ROI can be used within a firm. Using an ROI calculation to select projects and evaluate their impact has had clear benefits for the companies in this study, though not all firms were capable of using it for valuing all projects.

In this study, there was considerable variation in how companies used ROI calculations in their user experience practices, from very informal (ESPN) to very complex (Bank of America). Subject firms recognized that complex processes are not appropriate for all design investments, and some firms adjust their approach based on the size of the project (see “Not All Projects Need Big Process,” on p.21). Our results show that a useful value assessment process helps to prioritize possible projects and allocate future resources without becoming too cumbersome for the organization. Situations in which complexity of the calculation may outweigh the benefits include small incremental improvements or projects that must mine data from legacy systems that are hard to manipulate. However, the process of identifying value metrics and relating them to changes in user behavior is still valuable.

An additional layer of complexity is added when the analytic process itself has a significant cost. A few firms commented that in some cases they would like to apply more rigorous ROI methodology, but the data to determine business value is too difficult to analyze given their current technology and staffing constraints. However, these limitations do not negate the use of ROI methodology. In most cases, some linkage between user behavior and business value can still be made, even if the quality or granularity of the data is not ideal. Instead, teams can establish user experience metrics that are likely to indicate business impact. Such hypotheses regarding the quality of indicators can then be tested.

Even if not measured ex-ante, moving the behavior metric may be shown to indicate business value ex-post. For instance, an intranet improvement might be hypothesized to reduce calls to an employee benefits call center, but not necessarily reduce the duration of calls. Only after the project is implemented will the team know the exact nature of the “soft-dollar” productivity improvements. In fact, we have seen cases where human resources teams were able to reassign staff to more valuable functions as a result of an intranet improvement. This “hard-dollar” benefit could only be measured ex-post. However, because it was identified as a possible benefit ex-ante, the project team made sure to collect and report on this important success metric.

**Using an ROI calculation has had clear benefits for the companies in this study.**

Again, an ROI calculation is always going to be a guess. The value of the analytic process is not diminished by the difficulty in drawing statistically significant correlation between user experience and business impact — the greatest value comes over time, as the ability to make more-accurate estimates increases.

## The role of designers in the Value Chain

Often, designers are not involved in the Value Chain until after the project has been selected. Among firms in the study, it became apparent that this was a major stumbling block to delivering business value. Too often, we heard designers complain that they were given project specifications that included an inadequate solution proposed by another stakeholder. Had they been asked to help scope the project, designers would have been able to offer a more specialized perspective on the user-centered design process, and could have suggested the most appropriate data sources for determining project value. The higher cost of redeveloping specifications after project selection makes design team input into business analysis a requirement for the effective use of valuation methodology.

This raises an interesting question about the role of Web design teams.

We have often seen excellent designers who have not been successful because they were handed a design problem that was ineffectively scoped, and was therefore predisposed to disappointing results. In other words, designers needed to be involved earlier in identifying business opportunities and problems. Their insight into how the problems could be tackled would have helped to establish relevant metrics and more accurate ROI calculations across the portfolio of possible projects.

So where should Web design fit within the organization? Internal to marketing? IT? A separate department? The most effective teams in this study enjoyed quasi-independence. Web design was recognized as a unique competency team and was not subservient to another department, but rather served the role of an internal consulting group. This provided them a degree of power in selecting projects predisposed to success and setting appropriate scope and performance expectations. As a result, these teams were perceived as strategic partners who contributed meaningfully at all stages of the Value Chain, and particularly in the ex-ante steps from opportunity recognition through project selection.

### Organizational Structure for Design Competency

The firms that were most successful in valuing user experience and Web design shared similarities in their organizational structure that were too compelling to be merely coincidence. Here are the most noteworthy characteristics:

**Independence.** Web design and development is not subservient to another department, but rather has an independent budget and serves an internal consulting role.

**Control of pipeline.** The Web team controls its own development pipeline by managing a transparent process for selecting projects that is well understood by internal clients.

**Acknowledged expertise.** The Web team contributes project ideas into the pipeline itself and is viewed as an expert resource in scoping business problems and developing business cases for other departments.



## Implications of the Value Chain

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We developed the Value Chain based on our direct observations of how companies apply valuation methodology, correlated with successfully capturing business value through user experience projects. As suspected, a more sophisticated process for measuring value resulted in better project selection, more efficient use of resources, more reliable business results, less frustration, and better recognition for design success. Interestingly, we also observed a shift in organizational structure as companies applied a more rigorous valuation methodology to their development process.

The reasons for these structural changes are worthy of additional research, but it's enlightening to examine some of the insights that came anecdotally from our study. Assuming that most Web teams grow organically and over a long period of time within another department (usually IT or marketing), it makes sense that valuation and accountability structures would be somewhat lacking. In these early stages, the internal level of Web investment remains small compared to larger IT and marketing expenditures. Also, since most Web development work was outsourced in the late '90s, the design team often finds itself simply overburdened with fixing parts of the original site that are broken.

There is no reason to apply ROI in this type of scenario. Because the design team has little visibility within the organization, business units are not yet aware of it as a strategic resource. Projects are chosen simply because they have to be done and are prioritized based on obvious need. These firms would benefit from application of the Value Chain, but there is no real source of pain that makes the need for organizational change apparent.

So what happens? At some point, the Web team creates a user-centered design solution that delivers obvious business results. Suddenly, there is a demand for user experience design. As the need for internal Web design competency grows, a development process evolves that at first attempts to rationalize project selection. Eventually, value criteria emerge for making better prioritization decisions. Finally, relegating the design team to the design/test box proves limiting — their expertise becomes more and more valuable in identifying metrics and scoping business problems. When this happens, all of the ex-ante steps in the Value Chain have been covered.

If the Web team does good work by choosing high-value projects and delivering business results, then eventually the ex-post evaluation of design success becomes increasingly important. As design is recognized as a strategic resource, the business case for increasing its organizational status and budgetary authority becomes more apparent. Over time, the organizational structure changes in order to fully optimize the value of user experience.

**Over time,  
organizational  
structures  
change to  
fully optimize  
the value of  
user experience.**

The scenario we have described above is somewhat idealized, but we have seen elements of it in each of our subject firms, as well as in our consulting work. Although anecdotal, it is clear to us that applying ROI to determine the value of user experience changes the way companies view Web design — they evolve to recognize it as a strategic resource with inherent value. We describe this evolution in more detail in the next section.

# The ROI Process Model

## How valuation evolves in organizations

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**B**y mapping the degree to which our subject firms were using all six steps of the Value Chain, we found that there was a correlation with the firms' success in using user experience to achieve a wide array of corporate goals. Not only did design teams with more sophisticated valuation processes have more success in executing projects, but they also enjoyed more recognition within the firm as serving a vital strategic role. The ROI Process Model summarizes these findings in five stages, from the simplest to the most complex valuation processes (See Figure 2 on the next page).

While the User Experience Value Chain describes the conceptual process for integrating ROI into user experience management practice, the ROI Process Model demonstrates how using the Value Chain helps firms to make value-based management decisions. Before we introduce the model, we'd like to make it clear that we are not making a value judgment by describing a firm's level of "sophistication." We are not saying that more complex is always better. In particular, because of the cost or difficulty in conducting robust value analytics, we found that fully utilizing the complete Value Chain is not possible (or even appropriate) for all companies, or for all projects. Rather, we use the Process Model to describe the use of valuation methodology as movement along a continuum. We also provide diagnostic questions to assess where your organization is on the continuum and to determine if your development process is at the most appropriate place given the untapped value of user experience that valuation methodology could help realize.

In the earlier stages of the model ("o" and "1"), it may be that an overly complex process is unnecessary because the level of investment is too small to warrant costly analytics, or the Web strategy may be so simple that success is easily realized. However, it is more likely that organizations can recognize increased value by adopting a more complex (re: thorough) means of assessing user experience value — and thereby setting up an ex-ante process for recognizing possible projects and prioritizing those projects based on expected returns.

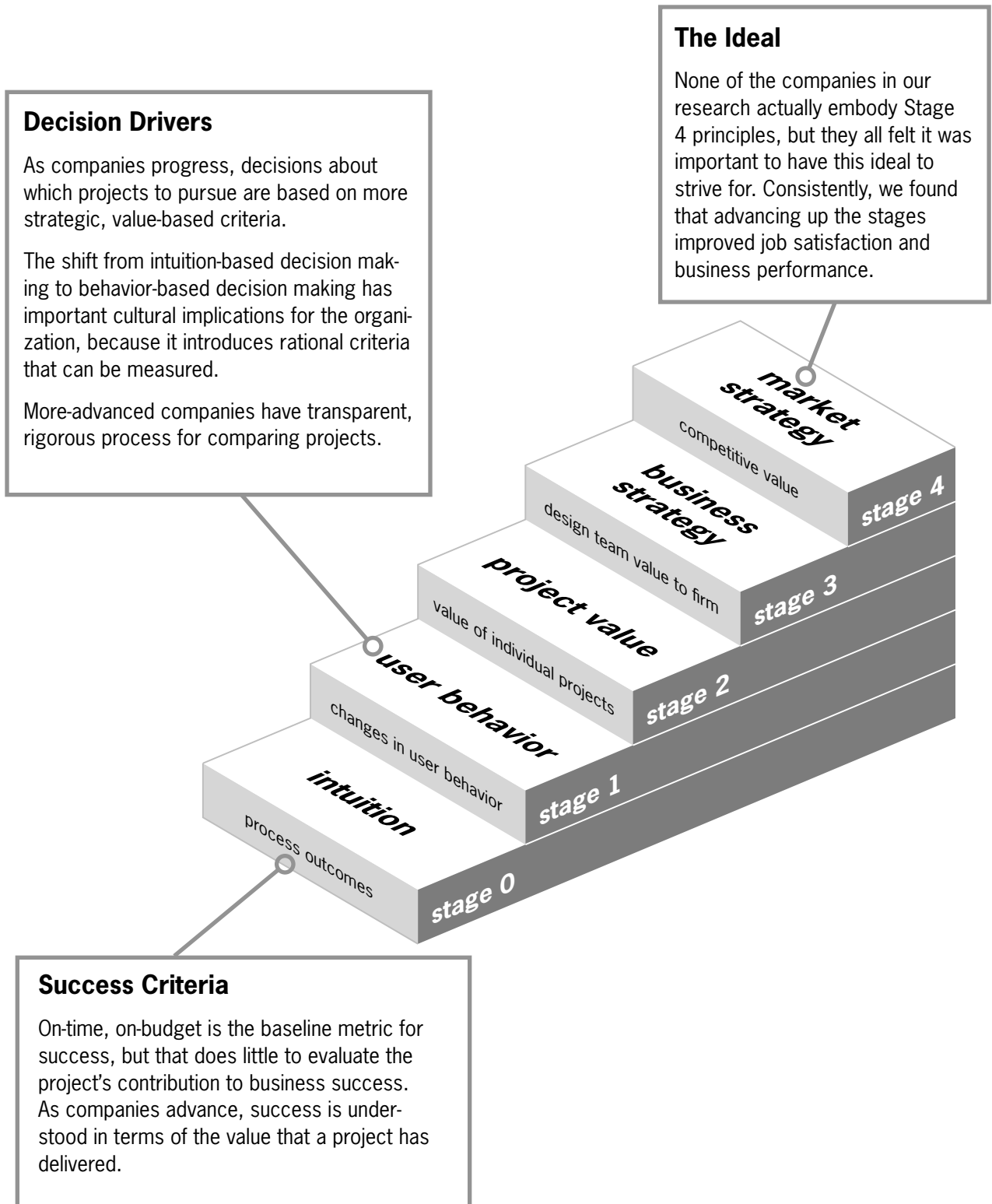
The most advanced stages ("2" through "4") make a more and more compelling case for ex-post analysis for the purpose of assigning accountability, measuring success, and advocating for resources. At the later stages, companies can use ROI to aggregate project data after a portfolio of projects has been implemented. This will help with future resource allocation decisions. A small firm with a Web site that serves mostly a marketing support function may have little or no need for a full-blown project valuation process that utilizes such ROI calculations.

The remainder of this paper describes the use of ROI across a continuum of firms based on their need, and readiness, for recognizing user experience as a strategic competitive advantage.

**Web teams with more sophisticated valuation processes have more success.**

Figure 2:

# The ROI Process Model



## **Stage 0: Value defined by intuition and personality**

We call this Stage “o” because this is the starting point; these companies have not yet begun to shift toward value-based decision making. User experience priorities and funding are set based on anecdotal or instinctive information, and accountability is limited to process metrics like on-time, on-budget delivery.

This sort of environment can be challenging for designers, who may feel unempowered and under appreciated. Without value metrics as guidelines, designers can find themselves struggling with scope creep. As managerial attention shifts from feature to feature, it can be difficult to deliver a cohesive, on-target product.

When scope creep leads to problems of inadequate funding, missed deadlines, or overworked and frustrated teams, managers find it necessary to develop more rational means of prioritizing work, which is the first step toward value-based thinking.

**Perceptions:** User experience is thought of as a commodity. It is perceived as a cost to be contained rather than a strategic lever that can deliver value back to the company. The best that can be expected of user experience from this point of view is that it will do no harm. Decisions can seem arbitrary.

**Project selection:** Go/no-go decisions are largely intuitive, with little consideration of value. These decisions are informed by simple Web metrics like traffic and unique visits, and are focused on tactical items (such as which features to build) rather than strategic (such as building a platform for future feature development). Personality and persuasion can play a significant role in the decision process. Because of this, there is little understanding of decision criteria; the process is not transparent throughout the company.

**Accountability and involvement:** User experience is viewed as a tactical rather than strategic contributor to the business. Therefore, designers have limited involvement in project definition and selection, and have little accountability for quality. Success is evaluated on process outcomes (on-time or on-budget delivery), rather than value. Accountability is usually centralized on a product manager who is far-removed from the design team. There is little interdepartmental collaboration and no clear consequences for outcomes.

### **ESPN: Eliminating Frustration**

#### **Moving to Stage 1**

Web producers at the Fantasy Games Division at ESPN.com were asked to get a new Football League Manager product up and running by the first day of the 2003 NFL season draft. Management was committed to the project and wanted to leapfrog the competition in terms of the numbers of features and quality of experience. The enthusiastic design team set out to develop every cool feature that they could think of. The Web team quickly found itself mired in the details of designing a more sophisticated product than they had staff to manage, leading to inadequate testing and an incomplete user experience. Although the product exceeded sales expectations, the design team was burned-out and frustrated.

To fix the problem, ESPN.com has committed significantly more resources and put in place management processes to avoid these problems in the future.

**Metrics used:** Largely process metrics (e.g., on-time, on-budget). The only value metric was total sales.

## Stage 1: Value defined by user behavior

Stage 1 marks the beginning of data-driven decisions. Behavior metrics, like conversion, begin to measure the impact design projects have on business priorities. Managers at this stage are taking a somewhat larger view, and prioritization discussions focus less on features and more on which projects will have a greater impact.

Although the connection between user behavior and financial value is not yet explicit, this is the stage at which value begins to be considered in a way that can be applied to ROI. Stage 1 analytics fall short when it becomes clear that better prioritization of design projects would provide more value or when a company begins to more fully develop its online business strategy in relation to its other channels.

**Perceptions:** User experience is considered as a support to other value-drivers in the organization. While it is still thought of as a cost to be minimized, business units are becoming aware that it can contribute significantly to the success of the business. There is still no transparency in go/no-go and funding decision processes.

**Project selection:** At Stage 1, user behavior metrics, such as conversion rates, become important. Managers begin to compare possible projects based on measurable user behavior criteria (for instance, completing a defined set of tasks), and go/no-go decisions are based on the perceived impact that projects will have on those metrics. User behavior is not yet connected to financial return.

**Accountability and involvement:** While process outcomes are still the primary measure of success, project leaders are held more directly accountable. The design management examines how design solutions affect user behavior metrics. Because user experience is still viewed as a tactical rather than strategic contributor to the business, designers have limited involvement in the project definition and selection, and have little accountability for quality.

### KQED: Aligning Business Goals

#### Moving to Stage 2

The interactive design team at KQED has a double-mandate. First, they are charged with building the interactive site as a third line of business that is profitable independent of the radio and television businesses. Second, they provide online support for the radio and television businesses. While the team has identified behavior metrics to influence management decisions for their first mandate, they have difficulty reconciling these goals with those of the “competing” business units, which use their political power to push projects through interactive.

KQED would benefit greatly by moving to Stage 2, because they would then have a process for valuing projects across all of business units and the interactive team could make a stronger case for supporting its independent mandate.

**Metrics used:** Some user behavior (e.g., traffic patterns, hits to target content). Value metrics include the ability to generate underwriting.

## Stage 2: Value defined by project

At this stage, user experience is broadly recognized as a means of returning value to the business. Behavior metrics are used ex-ante to prioritize projects and ex-post to understand project success, although these assessments are not part of a formalized, consistent process.

User experience teams tend to gain some freedom either as quasi-independent departments or under an “internal consulting” mandate. Incremental improvements to conversion, process completion, and contribution become important metrics and can affect annual budget and head count decisions.

This stage lacks a formal calculation of ROI — when possible, project returns are quantified financially and compared to the investments required. However, ROI calculations lack the formal rigor that would allow comparison to unrelated capital expenditures. The trigger that inspires companies to move on and begin measuring ROI is largely managerial — some user experience projects have proven more valuable than other investments, and there is a desire to send good money after good money. As user experience becomes more visible and more valuable to the company, executive attention also demands more formal, consistent, and quantifiable decision processes.

Most Web teams thrive at Stage 2, where value is anecdotally recognized, but processes are still lean and efficient.

**Perceptions:** User experience is viewed as an important business function worthy of organizational attention and investment. Although prioritization and funding decisions are still not fully transparent, demand for user experience is growing, and there is a broad recognition that user experience has business value.

**Project selection:** Behavior metrics are used to support go/no-go decisions. Because user experience has gained credibility as a value driver for the business, user experience designers are included earlier and more often during project selection. Projects are compared and chosen based on their perceived value to the company, as suggested by measurements in user behavior data.

**Accountability and involvement:** Past successes, viewed in the aggregate, inform budget and resource allocation decisions. Design managers are held accountable for delivering specific changes in behavior metrics that have presumed value (e.g., 15 percent increase in lead generation this year).

### Belkin: Funding Good Design

#### Moving from Stage 2 to Stage 3

Belkin created the Industrial Design Group (IDG) specifically to develop a new product design competency in the high-design, high-margin market. From its inception, the IDG has chosen projects based on their projected value and has enjoyed considerable success, particularly with its line of iPod accessories, but also with package design, rebranding efforts, and work on customer support for its Web site. As a result, the IDG has gained such credibility within the firm that there are more viable projects waiting than they can realistically tackle. To move to Stage 3, the IDG needs to prove its aggregate business value (ex-post) so that the group can make a case for increased budget and head count.

**Metrics used:** User behaviors include conversion from wizards. Value metrics include potential profitability of project.

## Stage 3: Value defined by business strategy

At this stage, user experience is recognized as a strategic contributor to the business, and user experience staff are included very early in the project definition. Value is measured in financial terms, taking into account both return and investments. The introduction of formal ROI enables financial managers to compare user experience investments with other investments, such as marketing campaigns, in order to allocate resources.

The process of calculating ROI involves collaboration with finance or other departments that can connect user behavior metrics with financial value metrics. Developing the value metrics to make this connection can be difficult, and for this reason many companies choose not to attempt Stage 3 operations.

The data suggests that Stage 3 is appropriate for firms that consider online user experience to be a primary component of the core business. The two Stage 3 firms in the study (an airline and a national bank) have very large and complex Web sites and intranets, where users execute a wide array of tasks, including transactions, product research, and customer support.

**Perceptions:** User experience is recognized as a means of solving business problems and delivering significant value to the business. User-centered design practice may also be viewed as a way to re-engineer internal process and to continuously measure business strategy effectiveness.

**Project selection:** The question of which projects to pursue is considered in the larger context of which business problems should be solved. The financial value of a potential project is assessed ex-ante, and includes an estimate of the expected financial return. This ROI analysis often takes the form of a “business case,” which business units must submit for consideration, either to the user experience team or to a committee that includes both business and user experience representatives. Projects are compared based on a number of criteria, including ROI, for a go/no-go decision.

**Accountability and involvement:** Historical ROI figures (i.e., actuals) are quantified ex-post so that financial managers can estimate future returns from user experience projects. Budgets and staff are allocated accordingly (i.e., good money follows good money).

### Cathay Pacific: Selling User Experience as a Strategic Asset

#### Stage 3

In the three years since its creation, the eBusiness unit at Cathay Pacific has become widely regarded as a means for change management in business processes throughout the airline. Before agreeing to undertake the TravelDesk Intranet project, the unit conducted significant process analysis and insisted on working with the HR department to streamline the staff travel policies and procedures. Because the quality of their user experience work is so widely respected at the executive level, this project was not merely an online automation of the existing process, but a complete revamp that realized many levels of business value.

**Metrics used:** Value and user behavior metrics are determined by the cost savings of having employees use the online benefits system, as indicated by call center volume and intranet use.



## Stage 4: Value defined by market strategy

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Though no companies in our research were beyond Stage 3, we believe that it is conceivable to be at Stage 4. This level of sophistication is most likely to provide business value when the Web site is also the product (e.g., online applications, subscriber-based model, or some e-commerce models). Movement to Stage 4 is particularly important if the site exists in a highly competitive space where user experience has the greatest potential to improve user satisfaction and deter attrition to competitive sites.

**Perceptions:** User experience is viewed and managed as a key market differentiator. Competitors' relative user experience is closely monitored. Firms invest heavily in analytics and user research to anticipate future user needs and lead the market.

**Project selection:** At this stage, user experience project selection divides into two categories or departments: ongoing incremental improvements and breakthrough research and development. Since the ROI of research and development is often hard to predict, and can stifle innovation if applied too rigidly, the two portfolios are managed independently. This way, the firm can be sure to invest adequately in both.

**Accountability and involvement:** As in Stage 3, past returns provide a hurdle rate for future projects and help managers set an appropriate level of investment. It is likely that a Stage 4 firm might also attempt to correlate user experience metrics to other high-level financial indicators, like market share, return on equity, and possibly even stock valuation.

## An Ideal Case: Bank of America Online Enrollment

The discipline of the Six Sigma approach and its reliance on data-driven decisions helped Bank of America earn the status of a Stage 3 firm in this study. As a matter of practice, the finance department at Bank of America explores value metrics that project managers can use to estimate the ROI of various site changes, new functionalities, or projects — as they relate to current or future customer behavior. As part of this commitment, the bank has determined the dollar value for a wide array of customer behaviors. Therefore, product managers and designers have specific metrics against which to value various customer-facing projects.

Six Sigma requires the use of a design process called DMAIC, where problems are defined, measured, analyzed, improved, and controlled. This offers the project team complete awareness of how their designs impact financial performance. As a result, many different design improvements can be rolled up into larger strategic financial goals, which the bank measures.

For the study, we looked at a recent redesign of the enrollment application for online banking. This project is in many ways a best-case scenario:

- The company has a sophisticated and transparent process for project selection and accountability.
- The finance team has value metrics that product managers can use for ROI calculations.
- The design challenge is a process interaction, with a clear beginning and end, which makes user behavior very easy to measure.

The project team used the Six Sigma metric “yield” as the key behavior metric. When paired with the finance department’s financial metric \$X/enrollment, the team was able to estimate, ex-ante, the value of the project. The design team led a collaborative process that included stakeholders from IT, legal, product, and other departments, and was able to increase the yield by 45 percent.

Because consumer banking is a highly competitive industry, the user experience of online banking has become a primary means of keeping customers. Leadership at Bank of America is well aware that once customers have become accustomed to online banking, they are less likely to switch banks. Therefore, it is easy to predict how improvements to the user experience of online banking enrollment help acquire customers and impact the bottom line. Although not all business problems lend themselves to such a simple value assessment, this case illustrates a clear connection between user experience design and financial returns.

### Improving Throughput

Before	After
Four or five screens	Only one screen for most customers
Many form fields	Three form fields
Dropout at many stages	One opportunity for dropout

**Yield increased by 45% after project implementation**

# Conclusions

# How To Use This Report

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**F**eedback from an independent panel of reviewers in user experience management positions indicates that the User Experience Value Chain and the ROI Process Model provide a framework for understanding areas of frustration within their organization. These conflicts appear to arise from a disconnect between Web design teams and senior management, regarding their expectations for the level of value that can be delivered given resource constraints. Designers often feel like they are unable to deliver value for certain poorly defined or ill-conceived projects, and at the same time, their work goes unrecognized for successes on others.

Before examining methods for overcoming these conflicts, note that the ROI Process Model is progressive. We do not believe that it is possible to meaningfully value the ex-post contribution of a Web design team (Stages 3 and 4) without having first determined the ex-ante value metrics on a project basis (Stage 2). The User Experience Value Chain provides some insight into why. Assessing value ex-post is predicated on having defined and measured metrics ex-ante.

We have heard design managers make comments, such as “my CEO thinks we’re at Stage 3, but in reality, we only have the resources and interdepartmental relationships for Stage 1.” The frameworks provide a model for identifying missing pieces in order to advance to the next stage — the next step for a Stage 1 firm to progress to Stage 2 is to establish a project prioritization process. Managers who had these problems were excited by the possibility of using the results of this research for just such a purpose. That way, they could have more informed conversations with senior management about the value they are able to deliver.

Together, these tools provide a means for directing strategy conversations to focus on the primary objective: Using good design to deliver business value. The report can help resolve this disconnect by giving design managers tools they can use in the following ways:

**1. The User Experience Value Chain** helps designers and other stakeholders visualize the importance of interdepartmental collaboration in scoping design projects and determining relevant success metrics.

**2. The ROI Process Model** is an advocacy tool to educate senior management about the importance of valuing design efforts and setting expectations for accountability. Not only do we advocate design involvement early in the opportunity recognition process, but our research definitively shows that the most advanced processes require that the design team actually manage the project pipeline through a set of well-known criteria.

## **Where is your company on the Process Model?**

The Value Chain provides a basis for understanding how to value individual projects within a portfolio. The Valuation Process Model is abstracted to a level higher to show how user experience design is valued at the enterprise level. However, the two can also be viewed as complementary. By examining which steps of the Value Chain your firm can master, your stage on the process model becomes evident. Further, the next step for maturing your valuation process is outlined by your stage.

Knowing where your company is on the Process Model in relation to where you would like to be given your business model and online strategy, you can evangelize the importance of user experience valuation across departments and at higher levels of the firm. Such advocacy is the only way to affect meaningful organizational change.

### **Extending User Experience**

While user experience is often applied first on public Web sites, the discipline has found application across organizations.

Having done an ROI calculation on your external, public-facing Web site, it becomes easier to make a case for how it can be applied in other areas of the company:

- Intranets and employee support services
- Online marketing and lead generation
- Customer support services
- Product packaging design
- Brand building activities
- Business process engineering
- Management consulting

# Final Thoughts

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**W**e began this study with the premise that attention to building a strong user experience for customers translates into a measurable financial result for the company. Although we were initially hoping the research would support generalized predictions of the ROI of User Experience, what we actually found was a much richer process for determining user experience value on a project-by-project and company-by-company basis. The User Experience Value Chain and ROI Process Model are frameworks that will prove useful to practitioners who believe that user experience design provides tangible value, but who don't yet know how to quantify that value.

Now is an important time in the history of online business. In the four years since the peak of the Internet boom and the beginning of the bust, we have seen many successful online business models emerge, just as consumers have developed considerable online acumen. For example, firms like Amazon.com have set new standards for personalization of the online experience, to provide a rich and valuable user experience. In the same way, successful non-native Web models have proven that you don't have to be first to execute an effective Web strategy; you have to be best. User experience is a primary strategy for differentiating a site and delighting customers. The most successful firms of tomorrow will understand how to value user experience and invest in it as a strategic asset.

After examining five subject firms that represented a cross-section of industries, business models, and Web strategies, we determined that a firm's ability to measure the value of good design is an acquired skill — it takes commitment, experience, and history to adequately answer the question, What is good design? However, as firms grow more savvy at executing online strategies, it is a question worth answering — the future of your Web site, and of your company, may depend on it.

# Appendix A

## Case Data

# Bank of America

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Subject: Bank of America, Customer Experience Department

Project: Online Banking Enrollment

Location: San Francisco, CA and Charlotte, NC

## Organizational information

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### Industry and site strategy

After its merger with Fleet, Bank of America is the third largest bank in the United States. The general economic environment for consumer banking in the U.S. requires a significant online presence. Banks have also found that moving customers online decreases attrition and service costs.

The Web site serves two primary functions: to service online banking customers, and to provide interactive marketing content to acquire new customers and cross-sell to existing customers.

### Organizational structure

**Product groups (e.g., Online Banking).** Product managers “own” the user experience behind the login for customers who have enrolled in online banking. Groups are organized by type of service — bill pay, credit care, and so on.

**Sales and fulfillment (bankofamerica.com).** Marketers own the user experience on the public-facing site, which is used to generate new business. These groups are organized by customer segments and by business unit.

**Customer experience team.** Serves as an internal Web development consulting department with clients in both sales/fulfillment and the product groups.

**Technology and operations.** Integrates back-end technology to achieve the goals set by front-end design. This is a very iterative process because not all data manipulation is possible, due to legacy systems.

### Design group: Customer Experience Team

Internal team members include:

- Interaction designers who provide conceptual and detailed design specifications.
- Usability engineers who conduct usability testing.
- Visual designers who work off specifications determined by interaction designers, product managers, and marketing.
- Content/editors who work with the product manager.



- Voice-of-customer manager who provides data and metrics to inform decisions

Project partners in other departments include:

- **Project managers** who act as liaisons between the design team and the business owner.
- **Product managers** who are business owners with profit and loss responsibility.
- **Design engineers** who are the developers.

## Business approach to Web design

Based upon Six Sigma methodology (DMAIC):

- **Define.** Business units define the problem/innovation to be examined in more detail with the e-commerce team. Projects are sorted by size and potential impact.
- **Measure.** To establish baseline user behavior, team members review all data sources relevant to the problem/innovation, including voice of customer (VOC) data. Key metrics are determined, for which the product manager will be accountable.
- **Analyze.** A high-level design process ensures that all stakeholders are involved in accurately scoping the problem and evaluating solutions.
- **Improve.** Design is tested and implemented.
- **Control.** The product manager continues to monitor metrics to determine whether a significant change from the baseline actually occurred, and to observe whether the change met expectations.

## Project description

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### Design project: New registration pages for enrollment in online banking

The existing process for online enrollment was thought to be too long and difficult, with many opportunities for customers to encounter errors and to drop off. Customer data and secondary research confirmed this suspicion. A project was undertaken to understand the enrollment process and design a solution based on several parameters:

- What is the minimum number of fields/screens required?
- What are the legal requirements?
- What is the least amount of information needed from customers?
- How comfortable are customers with the proposed solutions?
- What data systems are affected?

## Project motivation and justification

- Improve online enrollment process, simplify and eliminate obstacles.
- Ensure a greater likelihood of enrollment success.
- Quantify by the economic value of an online customer. (The finance department provided an actual dollar value for an online enrollment.)

Before the project, there were four steps in the enrollment process:

1. Survey information to find out who the customer is.
2. Legal agreement, which frightened some customers.
3. Dynamic page that authenticates accounts.
4. Choose ID and password.

## Data sources and metrics

- **Data sources** included system errors, call center reports, VOC surveys, and pre-coded business events, like server logs.
- **Error rates** examined errors and drop-offs in each step of enrollment.
- **Customer segmentation** examined trends in types of customers who dropped off.
- **Error type** examined whether the problem could be eliminated or mitigated.
- **User preferences** examined what data customers wanted to provide for authentication.
- **Process flow** examined which steps in process could be combined or eliminated.
- **Shepherding** examined how the UI could help educate and guide customer decisions.

Key metrics include:

**Process yield.** Percentage of people who finish the process compared to those who start process. This measures the holistic success of the process vis-a-vis usability, information design, content, and so on.

**Yield.** Percentage of people who finish each piece of the process compared to those who start each piece. Yield measures the success of discrete pieces of the process, so product managers can learn what's broken and where to concentrate future improvements.

Total online enrollment was not a key metric, because it is substantially affected by marketing, general business climate, and other factors out of the product manager's control.

## Design process, application of DMAIC

**Business need.** Internal review of secondary research showed that Bank of America was lagging behind competition in the usability of its online enrollment system.

**Appropriate metric.** Roll-throughput yield and process yield — percent of users successfully completing enrollment compared to those who start.

**Relevant data.** Historical roll-throughput yield, value of an online banking enrollment (provided by the finance department), and VOC data on the existing enrollment process.

**Design intervention.** The design team worked with the product manager and design engineering representatives to develop a solution. The team worked iteratively through high-level and low-level design.

**Control plan.** The week after launch, the roll-throughput yield improved to the desired level resulting in a measurable financial return to the bank. The improved performance has continued.

### Application of DMAIC at Bank of America

Step	Task	Goals / Information
<b>Define</b>	Define the business need	Improve customer success in completing online enrollment
<b>Measure</b>	Determine appropriate metric	Improve roll-throughput yield
<b>Analyze</b>	Analyze relevant data	VOC data, process analysis, legal requirements, user data
<b>Improve</b>	Design intervention•	High-level design: alignment of front-end and back-end requirements  Low-level design: visual design and usability
<b>Control</b>	Re-examine the metric	Success in moving the metric and achieving predicted level of improvement

## Valuation methods

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### Resource allocation

Projects are broken into categories based upon the scope of resources required. The amount of process required for go/no-go decisions varies with project size.

### Project prioritization

Large projects (big rocks) go through a “gate” process, which has many stages of consideration and approval. These projects are reviewed twice a month.

Each of these projects must fit into one of the priorities from the corporate Hoshin Plan. For instance, decreasing customer attrition is a common priority, and a metric that many projects in many departments can work toward reducing.

Each project must have a business case. These business cases are written according to departmental standards for comparison of all possible projects. Business requirements and outcomes are monetized in the business case to allow for an ROI-like calculation. The financial requirements are clearly analyzed in every case. (Although there is no chargeback for design and technical resources, the measured investment level includes internal development costs for big projects.)

### Accountability structures

The company Hoshin Plan ensures that all projects meet organizational objectives.

Six Sigma and Management by Fact methodologies ensure that incremental process improvements can be tied to success metrics that have business value.

The control plan identifies success metrics, which are monitored by the business owner who initiated the project. This continuing metrics analysis reveals ongoing opportunities for incremental improvements. The metrics can be aggregated and rolled up to the lowest appropriate person with profit and loss responsibility.

### Lessons learned and other observations

For Bank of America, the DMAIC process for this project proved to be a valid methodology. It focused the product manager and design team on interventions that would move the target metric and deliver a return to the company.

The process might be cumbersome for smaller, more iterative projects that have a lower potential for return or a higher potential for customer disruption, which would require slower implementation.

The process worked very well here, but note that in this case the business and user goals were very closely aligned. Changing the user behavior could be connected to success metrics with obvious financial outcome.

# Belkin

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Subject: Belkin, Industrial Design Group

Project: Product Selection Wizard

Location: Hollywood, CA

## Organizational information

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### Industry and site strategy

**Mission.** Belkin seeks to be the leader in providing connectivity solutions that maximize the consumer electronics experience.

**Pre-2000 strategy.** Through the strength of its sales organization and strong partnerships with channel resellers, like Best Buy, Belkin achieved \$500 million in annual sales by providing commodity computer accessories, like cables.

**Current strategy.** Belkin is shifting strategic focus to more complex, higher-margin products that feature strong design as an important competitive advantage. As such, they've brought more product development work in-house by acquiring a research and development firm and forming the IDG.

Web site management is the responsibility of the eBusiness unit, which is housed within engineering and is headed up by the corporate general counsel. As engineers, they focus more on building functionality rather than user experience.

Because of a strong channel sales culture and the need to limit channel conflict, Web development is primarily targeted at supporting channel partners, which integrate Belkin.com modules into their sites. However, the Belkin.com site also sells direct. Prices on the Belkin.com Web site are generally higher than in a channel.

### Organizational structure

There are four business units: power (anti-surge, UPS, cables), mobility (phone accessories, notebook cases, iPod products), networking (wired and wireless LANs, Bluetooth, voice over IP), and desktop (cables, firewire, gaming).

In 2002, Belkin created IDG to reduce the cost of using external design firms and to focus on new strategies for product development. IDG's business plan requires that it be located off site to ensure a certain degree of independence from the established Belkin culture, and to facilitate recruitment of creative talent.

IDG is in charge of proposing opportunities and making contributions toward building a complete and consistent user experience for products, services, support, and Web.

## Design group: Industrial Design Group

The IDG's first product was an award-winning top seller for serious gamers. As a result of this and other successes, IDG is now assessed on its contribution to top-line growth, rather than the original cost-reduction expectation. IDG tracks time and materials, which are charged back to the business units that benefit from their design work. Through the quantity and quality of the work they've done, IDG's focus has expanded to include:

- **Partnerships.** IDG develops Belkin-branded accessories for other companies' products. The most successful example is Belkin's line of iPod accessories, which were developed in partnership with Apple.
- **Product design.** IDG develops new products for internal customers, which currently include wireless networking and digital music.
- **Packaging.** IDG developed its package design competency by working to meet Apple's stringent guidelines. They have extended this competency across the whole Belkin product line. Packaging is now viewed as important marketing collateral that influences consumer purchase decisions in the store.
- **Brand.** IDG is leading an effort to "de-commoditize" the Belkin brand, including the logo.
- **Web site.** The user experience strategist has expanded his team's approach to include the Web site.

## Business approach to Web design

IDG is charged with taking Belkin from its commodity brand position (or non-brand) to being a high-design brand that attends to the user experience at all levels of customer interaction — brand, packaging, product, Web site, marketing, and so on.

According to the marketing director, "the Web site should recommunicate the brand image — change from 'Oh, you make cables' to 'Oh, you make these cool interactive products.'" As Belkin becomes more of a consumer brand, management has recognized that the Web site needs to evolve into a pull-marketing tool, and not just an online brochure.

## Project description

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### The “uber” wizard

**Project goal.** Consolidate and redesign the 14 product selection wizards on the public Web site. The existing product selection wizards were written separately over time by developers who were more concerned about functionality than user needs. As a result, the wizards were very similar to one another in concept and function, but were implemented inconsistently and with differing design.

**Team members.** The IDG user experience strategist developed personas to guide the user experience and designed wireframes; the marketing director was the business owner who was responsible for outcomes; the e-commerce team did the programming.

### Project motivation and justification

After talking with a dissatisfied channel partner, the marketing director approached IDG to redesign the wizard for networking-related products. Because IDG’s mission is largely one of consistency and quality across product lines, they decided to fold all the product-selection wizards into one uber-wizard. This increased the project’s potential value to the company and to customers.

**Business goal.** To ensure that consumers can understand the products that would help them achieve their goals; to develop a wizard based on user needs and tasks rather than on what products are available.

### Data sources and metrics

IDG and marketing don’t have access to the metrics that would help determine project success. The e-commerce unit is not evaluated based on changes to Web metrics, although they do track this information when a product manager asks.

The e-commerce team does track metrics like clickthrough and task completion, and can determine if the user made a purchase on a channel partner’s Web site (via cookie reports).

### Design process

Because of the relative difficulty of getting good data, the user experience strategist decided to use personas to guide design decisions. Six prototypical users were identified for this purpose. The personas were also used to educate and get buy-in from the developers who would be responsible for implementing the design work. This was a new approach for the engineering team.



## Valuation methods

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### Resource allocation

Currently, the IDG project pipeline is primarily fed by external partnerships (e.g., Apple, XM Satellite Radio) and on building relationships with people inside the corporation, particularly with marketing, which has limited resources to address customer experience internally.

IDG's ability to take on projects is limited by the number of designers on its team. They have been successful in requesting additional resources in the annual budgeting process, but recognize the need to better track and aggregate project success as a justification for additional resources.

### Project prioritization

**Valuation.** IDG does not yet have a formal methodology for identifying the value of potential projects. A long-term strategy for IDG work has yet to be established, so key success metrics have not been identified.

Projects that will help Belkin hold market share in competitive areas are prioritized. IDG is testing many product lines to understand how design investments can improve price advantage and market share. The business value of IDG is not currently being measured.

**Project comparison.** IDG is starting to experiment with creating business cases for potential projects. This is an ad hoc process using criteria like revenue, brand impact, positioning impact, and ROI.

**Project selection.** Demand for IDG's services is growing quickly as awareness grows among business unit managers, and IDG made managers prioritize their requests during the last round of project selection. IDG selects projects based on intuition and prior successes.

### Accountability structures

At IDG, the design team tracks its contribution to profitability for its new product designs. There is no formal ROI target, but IDG believes that better profitability analysis is needed to make the case for additional funding.

Because IDG does not have access to user behavior data, there is very little direct accountability for their work on the Web site. Many stakeholders have suggested that this would improve if responsibility and accountability for the site were moved from e-business to the marketing department.

## Lessons learned and other observations

**Looking forward.** A key next step is for the Web site to become better aligned with the new high-design business strategy — drawing upon the new brand, new packaging, new design focus, and new products.

**Ownership of Web site.** The current organizational structure is an impediment to the future vision. There is some degree of consensus that the site would have better accountability if owned by the marketing department.

**Ownership of online user experience.** Corporate needs to build a user experience competency for the Web site. IDG focuses on product design and can guide site development, but this is outside of its core mission.

**Measuring effectiveness.** Corporate metrics of departmental effectiveness are based on an old model of sales and channel partnerships. New types of measurement are needed to assess the online component of the marketing function.

# Cathay Pacific Airways

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Subject: Cathay Pacific Airways, eBusiness Unit  
Project: Employee TravelDesk (intranet)  
Location: Hong Kong (SAR), China

## Organizational information

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### Industry and site strategy

Cathay Pacific Airways is a full-service international airline based in Hong Kong that is often ranked first or second among its competition for quality of customer experience.

Cathay emphasizes online user experience as an important component of the total customer experience. Particularly in the last few years, the company has made significant investments to extend the site and improve its overall consistency.

Responsibility for ensuring a strong online customer experience resides within the eBusiness Development Team (ECX).

### Organizational structure

The ECX is a quasi-independent, internal consulting department that sits between the information management and sales and marketing departments. Until 2001, responsibility for online user experience and Web design was a function of information management. Movement to a new organizational model allows the team to better leverage customer data and establish more user-centered success criteria for selecting projects.

ECX exists to manage user experience on the public site and intranet, and to quickly respond to changing business needs with the available technology resources.

ECX services are available to all departments that submit and defend a business case, identifying the value they expect to deliver to the company through the use of ECX resources.

### Design group: eBusiness Unit (ECX)

ECX is comprised of designers, usability experts, and business strategists charged with being ombudsmen for user experience throughout the public site and the intranet.

The ECX department has two primary functions:

1. To manage a project screening and selection process in which the team members serve both as coaches and as evaluators to ensure that business units understand the selection process and are effectively guided through it.

2. To manage the selected development projects by serving as facilitators and conveners of the various stakeholders, including the business unit, the information management department, and the end-user.

## Business approach to Web design

Cathay makes customer service and user experience a priority in all of its interactions with customers.

Because of its recognized capacity to improve productivity across business units with Web-enabled tools and services, the ECX leadership plays a strong role on the CEO's Productivity Task Force. This task force has identified specific opportunity realization priorities for public and internal customers. All projects must have tangible benefits within these areas.

### Web Development Business Drivers at Cathay

Public site priorities (B2C)	Intranet priorities (B2E)
<b>Distribution.</b> Direct online sales and sales support	Cost reduction
<b>Loyalty.</b> Frequent flier and other loyalty programs	Increased productivity
<b>Service.</b> Site enhancements that provide added service	Employee morale
	Front-line support for staff and crew at airports

## Project description

### Design project

Reduced-price and free air travel is a very important benefit for Cathay Pacific employees. However, it is expensive to administer this benefit — a staff of eight to ten people work full-time to answer questions and book travel for employees.

The goal of the TravelDesk project was to create an intranet portal for the employee travel benefit, as well as business travel, so that employees think of it as an online, one-stop shop for staff travel.

The project described here is the implementation of Phase II of a three phase process:

- **Phase I:** Policies and procedures were consolidated and published on the intranet. This site became the third most visited site on intranet.
- **Phase II:** An application was developed to generate dynamic information on flight availability, likelihood of boarding, and online check-in.

This site was so popular that it actually crashed the servers at launch. It is the most popular site on the intranet.

- **Phase III:** Online reservation and booking will be available in the future.

## Project motivation and justification

As part of the CEOs Productivity Task Force, the human resources director and ECX manager began discussing ways to improve internal processes through better use of the intranet.

After examining the viability of automating internal procedures, the human resources director decided to pursue the travel desk project and designated a manager to prepare the business case to submit for project selection. A business strategist from ECX collaborated with the human resources manager to examine the project and prepare the case.

This project also provided a context within which to revise and refine some the policies that were ineffectual or outdated.

## Data sources and metrics

**Cost savings.** Reduced call-center volume (employee benefits center regarding policy questions, and service center regarding flight availability).

Also, the project reduced waste. The old policy called for “mandatory listing” any time an employee wished to fly, even though the employee might be turned away from the flight at the last minute. Policy changes as a result of the TravelDesk project eliminated this requirement, which in turn eliminated waste from unused in-flight meals.

**Increased productivity.** Ground staff at the airport previously spent significant time managing the listing and check-in process for employees using their travel benefits. This project reduced the time required for these tasks. Likewise, the project reduced the time spent by staff checking availability before they fly.

**Information security.** The user experience project uncovered security holes that were subsequently closed.

## Valuation methods

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### Resource allocation

An annual budgeting process allocates head count for ECX projects within the larger budget of the information management department, but does not specify which projects must be undertaken by ECX. Instead,

ECX maintains a high level of responsiveness and tight control of project selection and prioritization throughout the fiscal year.

A consistent, transparent project selection process ensures that ECX resources are used optimally. For example, a department cannot “jump” the prioritization queue by allocating budget to the ECX department. The assumption is that if the project is worthy of execution, it will make it through prioritization.

As a result, ECX controls its own project pipeline and can work with departments to design projects that deliver the most business value.

In addition, ECX “owns” the site templates — this ensures a consistent user experience across the site. Even projects that are designed by outside vendors (for instance, if a project is not selected by ECX), must conform to the template standards. If a project does not, the business manager must provide funds to maintain it outside of the ECX servers.

## **Project prioritization**

By means of a project screening process with well-established and well-communicated selection criteria, departments compete with each other for ECX services.

To be considered for selection, the department must prepare a high-level business case that includes both tangible and intangible costs and benefits for the business.

The ECX business development team provides guidance to business units in developing their business cases. Design team input prior to selection helps guide departments toward maximizing the business value of their proposed projects.

The comprehensive scoring system upon which selection decisions are made is also transparent, and the criteria are broken into three categories. Each business case is scored according to the criteria in the following figure.

## Decision Criteria at Cathay

Benefit Criteria	Cost Criteria	Other Criteria
Increased revenues	Hard dollar costs	Risk
Staff relations	Resource consumption	Complexity
Productivity	Management time	Political factors
Cost savings	Business unreadiness	Time in queue
Staff loyalty		
Service support		
Crisis management		

### Accountability structures

Once projects are selected, project stakeholders meet to identify key performance indicators (KPIs) against which project success will be evaluated.

KPIs are chosen to indicate business value, and financial metrics are used whenever possible. Baseline data is collected for each of the key performance indicators.

KPIs guide design decisions throughout project design, testing, and execution. ECX recognizes the need to track KPIs after project implementation to prove business value, but has not yet established tracking systems.

### Lessons learned and other observations

Some stakeholders commented that the project prioritization process can be too grueling — a good project might get overlooked because it does not have a champion in the project prioritization process.

The project prioritization process assumes that all departments have equal ability to write and present a good business case. Likewise, some business units need help to understand the value of user experience and get their project through prioritization.

Cathay does little in terms of post-project review and accountability, which is left to business units. However, they recognize that post-project tracking of KPIs would help in resource allocation.

# ESPN

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Subject: ESPN.com, Fantasy Games Division  
Project: Fantasy Football League Manager  
Location: Bristol, CT

## Organizational information

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### Industry and site strategy

ESPN is the iconic sports network that has been the leader in cable sports broadcasting for more than 25 years. ESPN is currently owned by the Disney Corporation and operates as an independent subsidiary. ESPN<sub>3</sub> comprises all of the company's non-broadcast businesses: ESPN magazine, Enterprises (licensing arm), Emerging technologies (wireless, broadband, iTV), and ESPN.com.

ESPN.com is the industry leader in providing sports content online; parts of the business, including Fantasy Games, date back to the pre-Web days of Prodigy and CompuServe. Through licensing agreements, ESPN.com provides content to other sites, including MSN. Competitors include CBS SportsLine and Yahoo!Sports.

### Organizational structure

Each business unit maintains its own team of content developers and interaction designers, or producers. Engineering resources work for a separate company, the Disney Internet Group, and are shared across business units. Advertising/sales is located in a separate division of ESPN.com.

The business units are: general content (the main site sponsored by MSN), SportsNation (community message boards and chat), Insider (online subscriber magazine), Fantasy Games (with free and subscriber games), and motion video services (still in development).

The Fantasy Games division has more than ten years of history in the field and has built a devoted customer base. Most customers are not just casual players, rather, the segmentation ranges from avid gamers to fanatics.

### Design group: Fantasy Games Division

Producers are responsible for all aspects of online product development, including interaction design, responding to customer needs, and planning product improvements. Content developers are counterparts to producers and own the front-end experience.

The system engineers, who work for the Disney Internet Group, own the back-end and must work in coordination with producers to deliver



products. Although they work for a separate company, they are located in the same Bristol, CT building.

A marketing manager in the ESPN.com corporate office in New York is dedicated to supporting Fantasy Games. This manager works with the business unit to determine price points, conduct market research, develop marketing strategy and messaging, develop flash tours of new products, and broker promotion on ESPN.com, TV, and in the ESPN magazine.

Although advertising and sponsorships represent a major revenue opportunity afforded by the Fantasy Games products, there is minimal coordination between the advertising/sales function and the Fantasy Games business unit.

## **Business approach to Web design**

The goal of the Fantasy Games team is to develop new high-quality games. New business ideas come from video games, like the xBox, competing sites, and new statistical breakdowns in the industry. They also provide ongoing incremental improvements to popular games, and cull older games that deliver diminishing business value.

The head of Fantasy Games has profit/loss responsibility for the business unit. Subscriptions are the primary source of revenue. Opportunities to cross-sell game-related merchandise provide a small amount of revenue and improve brand awareness. Fantasy Games is one of the few business units with non-advertising revenue.

In addition, the Fantasy Games division develops games that are attractive to corporate sponsorships and advertising, and this is a strong source of revenue for the company overall. However, this revenue is not credited to the division's gross income.

## **Project description**

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### **Design project: League Manager project history**

Fantasy sports leagues have been around for years, and have attracted avid fans. Managing a team, though, requires complex calculations with large amounts of data, which has limited management participation to only a few die-hards. Online Fantasy Games like ESPN's have made the games more accessible, and League Manager is designed to leverage that deepening interest.

League Manager is a premium product targeted at devotees of fantasy sports. It gives the subscriber the ability to control a whole league, with up to ten friends participating as individual team managers. Subscribers

have a lot of options to control how the game runs. Accordingly, the subscription fee is significantly more than for simpler Fantasy Games.

## Project motivation and justification

ESPN was a late entry into the League Manager service. Competitive intelligence suggested that League Manager products offered by SportsLine and Yahoo!Sports were very profitable, and that those gamers were coming to ESPN.com for sports content despite subscribing to a competitor's game service. ESPN saw an opportunity to capture those subscribers by offering a similar game at a mid-level price.

(Yahoo!Sports offers a basic service for free and charges for enhanced features. SportsLine, the first mover, has the highest price. ESPN decided to undercut SportsLine.)

## Data sources and metrics

League manager was a brand-new product so there was no existing data to analyze in making initial design decisions. The League Manager producers used their own experience and competitive analysis to develop product specifications.

After launch, ESPN worked with dedicated customer service staff to identify and categorize product fixes based on customer feedback and complaints.

## Design process

The design team conducted a competitive analysis and brainstormed to identify the features that they would like to see in a best-of-breed League Manager product. Separately, an aggressive marketing campaign that included television commercials promised a number of specific, ambitious features.

Senior management gave League Manager a hard launch deadline of the start of the 2003 NFL draft. With no limit on scope and no additional resources, the project fell behind schedule and launched with problems.

Although all of the problems were eventually resolved and the product is profitable, both the designers and the customers were disappointed.

## Valuation methods

**Accountability.** When League Manager was developed, there were not strict accountability structures in place.

**Resource allocation.** Capital budgets are set a year in advance, and the corporate environment makes getting additional staff very difficult. As a result, head count is restricted — in order for one Fantasy Games project to get more resources, another has to get less.

## Project prioritization and scope

In retrospect, League Manager's passionate designers and marketers created an overly ambitious product specification. Likewise, developers underestimated the challenge of building a game platform from scratch.

Projects are now prioritized through an informal set of criteria:

1. Cost, meaning number and duration of dedicated staff.
2. Importance to the business, with an emphasis on new product lines and revenue streams.
3. Feasibility and technical capacity.
4. Importance to users.

In addition, the team has created a product development template and specification process. The goal of this process is to involve the proper stakeholders, ensure technical feasibility, and create early agreement on the specifications.

The next step will be to apply the prioritization framework to major product features as the team prepares the specification. This sort of feature-ranking will have several effects:

- It will focus design efforts on the most important features.
- It will enable the team to control scope and make trade-offs when unforeseen challenges arise during development
- It will also reveal potential problems so they can be avoided or hedged early.

## Accountability structures

Success for League Manager was viewed in terms of process outcomes: on-time delivery, quality assurance, and specific features that were promised.

The League Manager staff worked extremely hard and did hit their target launch date. Without a central project manager, however, they also collectively felt responsible for each of the product's shortcomings. In reality, the product's success/failure was a result of many factors that were outside any one team member's control.

Based on this experience, the team has now introduced a project manager position. The project manager has the authority to manage scope, convene stakeholders, and hold everyone to their commitments. The project manager is responsible and accountable for process outcomes. This is

an important and positive shift that enables team members to succeed within their area of specialization — designers can focus on the quality of the user experience, engineers can focus on clean code and performance, and project managers can focus on managing the specifications, schedules, stakeholders, and scope.

The team has also renewed its commitment to open communication to avoid mistaken assumptions and misaligned expectations. Goals, agreements, and deadlines are now recorded and distributed throughout every project.

## **Resource allocation**

The League Manager business owner has begun to track all revenue associated with the product, including sponsorship revenue, which is not currently included in the profit and loss calculations. By recalculating the true profit of the product, the team will be able to request a resource allocation that accurately reflects its contribution to the business.

# KQED

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Subject: KQED Public Broadcasting, Interactive Division  
Project: Home page redesign  
Location: San Francisco, CA

## Organizational information

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### Industry and site strategy

KQED Public Broadcasting is the non-profit public radio and television broadcaster for the San Francisco Bay Area. Its overarching mission is to inform, educate, and entertain.

The strategic vision for its online content is to provide an interactive means of community engagement by building community partnerships and new resources.

KQED has two major initiatives for the future: First, they seek to create a new online business model for public TV and radio; and perhaps franchise it to other stations. Second, they plan to leverage interactivity and community connections to generate more underwriting from sponsors.

### Organizational structure

KQED has three media platforms: television, radio, and interactive.

There is executive-level commitment to continue building and integrating the interactive platform, but strategies to support this investment have not been formalized.

Interactive also serves the online needs of the television and radio platforms. Thus, interactive has two roles — a line of business and a support for other lines of business — that compete for time and resources.

### Design group: KQED Interactive

Interactive is charged with creating new content as its own independent media platform. They have had success with a few popular sub-sites — I-5, Udecide, spark — that are led by dedicated producers in the Interactive group, but there has been little effort to integrate these properties within KQED or on the site.

Since the Interactive group is also charged with supporting the television and radio programming on the Web site, there is some difficulty in promoting Interactive as an independent platform and maintaining online support for television and radio.

In addition, Interactive must be responsive to community needs. For instance, they had to postpone current projects to provide needed content during the California Gubernatorial recall election campaign.

## Business approach to Web design

Key goals of the interactive platform:

- Generate more underwriting by growing traffic to the Web site and through tie-ins to specialized content.
- Improve community engagement through partnerships with third parties that provide content.
- Expand the demographics to a younger audience.
- Provide schedule, information, and feeds in support of the radio and television platforms.

Producers employ a user-centered design approach and make efforts to test new content and functionality. The ability to track user behaviors on the site is limited by their current data and analytics software, but new tools are being implemented now to improve the capability.

KQED considers online user experience an important business driver to help achieve its organizational mission to inform, educate, and entertain.

## Project description

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### Design project: Home page redesign

User research has shown that most people see only the television and radio schedules when they arrive at the home page. The redesign project focused on building traffic and click-through deeper into the unique interactive content on the site, and specifically to special content pages that are underwritten. The ultimate business goal of the project was to use the increased traffic to build partnerships with new underwriters and to increase underwriting fees.

### Project motivation and justification

Usability testing showed that people weren't finding the unique interactive content. Brand research, however, showed that once people found the interactive content, they found it interesting and trustworthy. These findings strongly support the idea that online content can be an important medium for delivering on the KQED mission to inform, educate, and entertain — and so it was decided that improving visibility on the home page was a vital undertaking.

### Data sources and metrics

**Behavior metrics.** Traffic, particularly to online-only content and special interactive features.

**Business metrics.** Higher dollar volume of underwriting, more targeted (i.e., higher-value) underwriting.

**Other success criteria.** Possibly an increase in online pledge revenue and increased credibility within the station.

**Long-term financial goal.** The interactive platform content becomes a profit center that is fully supported by underwriting.

## Design process

Usability testing and traffic analysis provided some insight into why users are finding (or not finding) the site's unique interactive content. Designers identified likely problems and developed possible solutions based on informal usability testing, user interviews, and paper prototyping.

## Valuation methods

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### Resource allocation

In the short-term the interactive budget and head count are fixed and there is no internal “chargeback” for the work they do to support radio and television. Assigning resources to interactive platform projects means pulling resources from television or radio projects. This conflict has slowed interactive platform development.

As this platform proves its ability to generate underwriting, it will provide justification for additional head count and other resources.

### Project prioritization

Interactive has defined three types of projects, and all projects go in the same queue:

- **Television and radio projects (initiated by an internal client).** Develop content and functionality to show listings, provide pages for particular shows, and so on.
- **Interactive platform projects (initiated within the interactive department).** Unique new content that may not be directly related to television or radio programming.
- **Emergency projects (initiated by external conditions).** For instance, during the Gubernatorial recall, resources were devoted to providing content for that hot issue.

Prioritization is subjective and not formalized. Projects in queue are not valued in monetary terms; rather, the team tries to reach internal consensus about the order and priority of projects using the following criteria:

- Timeliness and flexibility of deadline (e.g., if a new show is airing on a certain date, then the page has to be ready).
- Association with a source of revenue (e.g., projects that are related to pledges or underwriting),

- Alignment with strategic and long-term goals (e.g., interactive platform projects that build new partnerships, grow underwriting potential, or target younger audiences),

To date, no financial analysis has gone into this determination of business value for interactive platform projects.

## Accountability structures

The Interactive unit has no mechanism to separate accountability for its two roles: building its own content, and supporting television/radio content. Accountability focuses primarily on process objectives — quantity of projects undertaken, ability to meet deadlines, and so on.

Business value and accountability could be structured in several ways: pledge volume (during drive/apart from drive), underwriting (general and content-specific), and, in the longer term, revenue from franchising content to other public broadcasters.

## Lessons learned and other observations

**Determine required level of investment in third platform.** Decide what staffing and financial resources are necessary to pursue strategic and proactive development of interactive platform partnerships. These resources should be dedicated to the interactive platform so that they cannot be pulled off task for other projects.

**Forecast required returns to justify investment.** Determine what level of return — in the form of increased underwriting, more third party partners, and growth of desired demographic — will be necessary to justify the level of investment. This will provide a baseline for setting goals and accountability for third platform staff.

**Make an organizational commitment.** If the returns justify the investment (ROI is adequate), executive leadership and the interactive department should agree upon a comprehensive business plan for the third platform — assign budgets and staff to lead in recruiting partners and in developing associated content and functionality. If ROI is not adequate, reassess level of investment.

**Use success metrics to ensure accountability.** Underwriting and partnership development goals should be established to ensure that third platform staff are accountable.



# Appendix B

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## About Adaptive Path

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Adaptive Path advises organizations on user experience strategies to realize the maximum value from their product design and development investments. The company's principals are recognized around the world as industry leaders. Adaptive Path also shares its experience and expertise through publications, public workshops, and private corporate training.

Headquartered in San Francisco, Adaptive Path has worked with a range of clients, including Sony, PBS, Yamaha, Technorati, Google, PeopleSoft, and Genentech.



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