

Storyboarding for Design: An Overview of the Process

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Introduction

Stories and Storyboards are valuable tools in the sale, specification, design, implementation, and introduction of Knowledge Management solutions. They focus attention on the people who will use the solution and the value it will bring. Stories are rich, fleshed-out descriptions of settings, people, activities, goals, motivations, and values presented in a coherent, causally connected way. The process of creating a story can insure that attention has been paid to the factors necessary to create an effective solution.

Because stories capture in detail the real-world context in which a new technology will be used, they help determine which functions will be useful, how they should be presented, and what integration with other tools, people and information will be important. Stories can be highly effective tools for communicating to others problems with current work processes and the value of new functionalities being proposed. Stories are useful with multidisciplinary or cross-organizational teams because they tend to serve as a "common language" that spans differences in background and organizational status and focuses attention on the people who will use the system (a constituency often absent from many design discussions). Stories are particularly valuable for conveying the benefits of Knowledge Management systems whose full value is not in any single user task or set of screens, but in the real world collaboration and information sharing they enable among the people who use them.

Stories are more than simple "use-case" scenarios.

Scenarios around a technological artifact typically focus on the way a system is used to perform a specific task, but often do not include detailed descriptions of the people involved in a task, or their motivations, values and goals. Scenarios can vary greatly in level of detail but are often quite generic.

Stories, on the other hand, are by nature specific, with fleshed-out characters and settings, dramatic elements, well-formed plotlines, and enough detail to understand the people who will use a system and the value it will bring to their lives.

Reasons for using stories and storyboards include:

1. Anchoring design in end use;
2. Promoting innovation by capturing the problems people face in a real world domain;
3. Conveying functionality of a proposed solution, product or service;
4. Convincing people of the value of a proposed product in a real-world domain, and, by analogy, that it would be valuable in their own settings;
5. Collecting requirements and generating feedback on how the events and functionalities depicted in the story map to the intended domain.

6. Helping people understand how they could incorporate a new technology in their own work practice and recognize the value of doing so.
7. Promoting “Due Diligence” by insuring that the factors required for a successful KM solution and user experience have been considered.

Description

This document outlines the steps required to create effective storyboards. These include determining the audience and goals of the storyboard, selecting a setting and characters, choosing key events and actions, structuring the pieces into a compelling narrative with a meaningful plot, determining a presentation style, and, finally, crafting the final storyboard.

The sequence and steps followed to create a specific storyboard can vary. For example, if you are creating a story to explore customer requirements, you will likely begin from descriptions of the customer setting, characters and issues. If you are crafting a story to illustrate the value of an existing or proposed product, you will generally start by itemizing the functions, capabilities, and benefits you will want to convey. (Much of this document focuses on stories crafted from this perspective: illustrating the use of a system and conveying its value.) The process of storyboard construction generally involves a lot of iteration. Changes in plot, for example, can lead to modifications to your characters or to the events and system capabilities you will want to show. The process outlined here is one we have found effective, but it is by no means the only way to create a storyboard.

A Caveat

Crafting an effective story is both a skill and an art. For stories to be maximally effective, they must include many of the same narrative elements that contribute to a compelling novel, short story, or movie. In practice this means that teams using stories as a design tool should include participants with talent, experience or skill in crafting stories. Fortunately, we have found that people can learn to be better storytellers and storycrafters through practice, training, and by reading books on stories, film, and narrative to become sensitive to the elements that lead to effective stories.

Step 1 – Determine the Goals and Audience

Determine why you are creating the story and for whom it is being created. What specifically do you want the audience to learn from the story? What impression do you want them to have?

The goals may include:

- Explaining a specific functionality
- Convincing that a proposed solution would provide value, as part of a sales presentation
- Illustrating a proposed design to gather feedback
- Eliciting requirements by having target users describe in detail situations analogous to those shown in the storyboard
- Initiating a brainstorming or design session aimed at devising solutions to the problems faced by the people in the story

Step 2 - Determine the Starting Point: The Features, Activities, or Domain the Story Will Explore

If you are crafting a story to demonstrate the capabilities and benefits of a particular system, either existing or proposed, start by listing the specific features you will want to be sure to show. What benefits of using the system will you want your story to illustrate? Examples of capabilities include “seamless integration with other tools”, “the ability to quickly check on current inventory”, and “access from wireless devices”. Examples of benefits include “better handling of customer service calls”, “quicker response to problems”, and “more expert decisions.”

If you are crafting a story to motivate the design of a specific new solution, start by itemizing the general tasks and activities you will want the system to support. These can include such items as “calendar and scheduling” or “joint editing of documents.” Then expand them to reflect the values of the target users, and the broader implications of the tasks in realizing the users’ goals.

If you are crafting a story to inspire innovation aimed at defining visions for new products or services, start by selecting a general domain. The goal of the story will be to richly capture the values, goals, activities, and problems experienced by the people in a setting you will choose. The plot of the story should rise naturally from the people and the setting, capturing their “pain” and thereby revealing opportunities for new solutions.

Step 3 – Select a General Setting

Compelling stories include details of time and place, helping the audience situate themselves in the setting in which the story takes place. When designing a solution or product, it is important to understand the overall environment in which a tool or system will be used, and the other artifacts and activities with which it must fit.

If you are crafting a story to capture details of a specific customer and situation, you will generally base the choice of setting on observation and research of the customer site. Sometimes, however, you will want to choose a setting from scratch. Some stories are created around a general product or functionality being designed for broad user group, with no single customer in mind. Also, when a story is being used to elicit general feedback and requirements early in an engagement, showing a storyboard from a domain other than the customer’s can focus attention on the broader capabilities being discussed. This can lead to more “open-ended” discussion, instead of focusing on the specific details that happened to be included in the story.

Your story should accurately reflect issues that arise in the real world. If you are not familiar with the setting at the outset, do the necessary research until you know it well. Visit settings like the one in your story, and observe and interview the people who work there. Ask them to tell describe specific experiences involving the themes you care about; the anecdotes they tell you will suggest characters and events for your story.

It is generally important to select a setting that is:

- relevant
- seen as important, respectable
- generalizable
- mainstream (not a fringe or atypical use)

- understandable to the people you will show it to, and not full of esoteric technical details
- familiar to you, so the story rings true even to people who work in that domain.
- often, core profit making business

The tasks and capabilities you wish to show will help guide your choice of settings. For example, a story written around a tool that allows large-scale collaboration and includes language translation would suggest choosing a large, multinational corporation as the setting.

Step 4 - Determine Protagonists

Create a protagonist and other key participants. These should be typical of the intended users in terms of experience, training, job, goals, motivations, and other descriptive details. They should also be representative of the domain expertise and familiarity with computers and other tools and resources that people in the domain typically have. It is important to conceive of your protagonists as real, fleshed-out, human characters. Understanding what is important to them, what motivates them and what they fear, where they have been and where they want to go, will insure that they behave believably and that the systems you design to support them will seem natural. A good way to accomplish this is to go out and interview several people in the domain, and base your characters loosely on them.

Step 5 - Select an Overall Activity and Goal

Choose an overall activity and set of goals that will form the basis of your story's plot. What is the general activity in which your protagonist is engaged? What is the protagonist trying to accomplish? Once you have determined the overall activity and goals, think about the problems that could arise and what the protagonist would need to overcome them. This will help you clarify what obstacles will the proposed system help the protagonist overcome, and why doing so is important? An overall activity and goal might be "designing a strategy for a new product launch", or "selling a piece of real estate."

Step 6 - Generate Events

Generate events to illustrate the capabilities you want to convey, using the setting, protagonists, goals, activity, and problems you specified above as a guide. Brainstorm to create a list of alternatives from which you will choose as you iron out the plot. Examples of events are "Bill uses his PDA to locate a nearby supplier", or "Kim's flight is cancelled so she needs to participate in a critical meeting remotely."

Step 7 - Combine Events into a Script

Begin stringing the events together into a coherent plot. Select from the events you listed in the previous step, and order them in a way that makes sense. Be sensitive to the flow and pacing of the story. Feel free to modify the events to fit the plot, or to change other details of the activity as you proceed. Just be sure the events and activity remain representative of the setting and protagonist.

Step 8 - Review with Domain Experts

Review the story with experts, both those familiar with the setting and domain, and those familiar with the system. Is the story believable? Are the terminology and other details correct? Does it reflect the issues that really arise? How should the story be changed to make it more realistic, or more compelling? It is useful to have such expert feedback throughout the story construction process.

Step 9 - Determine a Style and Medium

Decide on a style for rendering and presenting the story. This can range from a simple textual story in prose, to a full movie-like production. Other options include showing a series of static illustrations or screen-shots with verbal narration, self-running animations, interactive presentations with printed scripts, Director or Shockwave movies, and slides for a presentation graphics program. Consider the intended effect, the situations in which the story will be presented, the audience, and the delivery mechanisms (Viewed over the Web? A file sent by email? A CD-Rom or DVD? A presentation in front of a large audience?) Will the story be given to others to show as part of a larger presentation?

Step 10 – Rough Storyboard the Script

Determine the critical scenes you will show. Iterate during this step to be sure the sequence of images you are planning to present leads to a storyboard that is understandable, moves smoothly, and focuses the audience's attention on the key elements. It is generally useful to sketch out the scenes in a rough form, and test them with the script to be sure it flows. At this stage you will also consider the design of the interface elements you will show.

We often create a table at this point, with a row representing each individual scene. Columns include brief story bullets which label the scene, the narrative, the specific functionalities and benefits being depicted, a screen sketch, a description of any interactivity, animation or effects, and other miscellaneous notes.

Step 11 - Create Screens

Design and produce the specific images, screens, animations and effects that will visually represent the storyboard. Depending on the choices you made regarding presentation style and medium, the tools used at this stage can include: word-processing software, graphics and imaging tools like Photoshop, animation software such as Director or Flash, presentation software, and sound recording and video production tools.

Review the story with the screens for clarity and overall flow. Are the transitions smooth and understandable? Are the interface actions clear? Often adding a screen or two (such as showing the intermediate state of a menu or other onscreen control) can contribute greatly to the overall flow. Run through the story and narration with others to uncover areas that are confusing.

Using the Story

You can use the storyboard you created in a variety of ways throughout the lifecycle of a project. In addition to supporting each phase, the storyboard can serve as the glue that keeps the team focused on what they are building, for whom they are building it, and what the system is meant to accomplish.

For Initial Sales

Because stories reveal the end value that a system will provide, they can be effective sales tools. Stories help potential customers understand what the technical features of the system will really mean from the user's perspective. They can be useful in generating discussion on particulars as prospects map the situations in the stories to their own domains.

For Requirements Gathering

Storyboards can be highly effective tools for generating requirements. Hearing a story reminds people of similar situations they have experienced in the past. Show the storyboard to potential users of the system you are building. Ask for:

- General feedback and reactions to the story and the system it depicts. Could they see themselves using such a system? Why or why not?
- Situations the story brings to mind that they have encountered in the past.
- Situations in which they could imagine using the depicted system. How well would the system fit their needs? What would have to be changed? Probe for detailed descriptions of these situations, as they can form the basis for additional stories that capture more aspects of the target setting.

For Design

The process of creating a storyboard helps designers put themselves in the shoes and setting of the people for whom they are designing. It often prompts invention and ingenuity as problems end-users encounter are recognized and opportunities to solve them are devised.

The story can serve as a “user experience testbed” as prototypes are developed and critiqued. Take a proposed design for the system, and run through the story imagining the protagonist using it. Does the system solve the problems the protagonist encounters? Does it “fit in” with the story and the protagonist's environment? Does the solution provide the intended value to the people in the story? What changes to the system should be made so it does?

For System Rollout

It is often hard for users to understand how and why they should use a new system. Even if they understand how a system works, they often fail to recognize situations in which they could use it to further their work. Seeing a story showing the system used in a detailed real-world setting helps people map the capabilities of the tool to their own domain. The story you created can help introduce people to the system and be incorporated into training materials.

Suggested Reading

A number of good books exist that can help you understand and become sensitive to the elements that contribute to successful, compelling stories. These include:

Burroway, J. (1999). **Writing Fiction: A Guide to Narrative Craft**. Addison-Wesley.

Feld, S. (1994) **Screenplay: The Foundations of Screenwriting**. (3d edition) MJF Books.

McKee, R. (1997). **Story: Substance, Structure, Style, and the Principles of Screenwriting**. Harper-Collins.

The following two texts discuss the power of stories and scenarios, and include examples of how they have been used in the past. (The first focuses more on use-case scenarios than on the richer stories discussed here.)

Carroll, J.M. (Ed.) (1995) **Scenario-Based Design**. John Wiley, and Sons.

Schank, R. (1997) **Virtual Learning**. McGraw Hill.