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Situation Scan

A *situation scan* (a sitscan) is a research activity that involves a selective and iterative exploration of an environment, the people in it, and the interactions among those people and between them and the environment, as described by a design brief. It results in an organized collection of information about the context for which a design intervention will be developed.

What is a situation scan?

A *sitscan* is the process by which a design team develops and maintains a *knowledge base* of information about a situation that is pertinent to a design project.

Good designers can create bad designs if they do not understand what the situation *really* is that they're trying to improve. Often, the problems presented to designers by clients are really just symptoms of deeper problems. As in medicine, addressing the symptoms rarely leads to successful outcomes. A proper design solution will address the deeper, root-cause problem that gives rise to the symptoms that clients perceive. Sitscans help you understand how things are, so that you can find out what the real mismatch is between *how things are* and *how we wish they were*.

Sitscanning is also good for team collaboration. It helps your team:

- work together to develop a *deep understanding* of all the nuances of a situation,
- ensure that everyone on the team *agrees* on the nature and extent of the situation, and
- ensure that everyone is *working together on the same situation*.

A sitscan is only about *how things are* and not at all about what your future design may eventually be. So:

- **Stay grounded in the present.** Do *not* think about how you might improve the initial situation. Don't try to *solve* the problem; instead, *explore* the conditions in which your eventual solution will have to exist.
- **Avoid thinking about your future designs.** Do *not* discuss specific potential or actual solutions, parts, subsystems, technologies, or products that you think might improve the initial solution.
- **Make no judgments.** Do *not* discuss which aspects of the initial situation are dispreferred, undesirable, or “bad.” Situations simply are what they are.

The sitscan evolves over the course of the entire project. Designers will often discover specific situational aspects that are relevant to the project throughout the development cycle. When they do, they need to pause their design work and do the background research necessary to expand the sitscan and document those situational aspects, to ensure they can justify their decisions.

Teams are expected to update their sitscan regularly throughout the course to capture all significant research findings.

How do we conduct situation scans?

You should read some general notes about conducting research.

As a team, discuss your design brief. Look for key points, goals, and areas where you will have to do some research to understand what is expected.

Use the steps described below to guide your research. Divide up the work so that all the aspects below are covered and try to minimize duplicated effort.

Make sure you set a deadline for completing the research.

Finally, your team should regroup, compare notes, and create a single, organized document containing all the useful information you found out during your research.

CUCEGS

This is a (admittedly weak) mnemonic for the six aspects that constitute a sitscan: Competition, Users, Circumstances, Environment, Goals, and Strategy. (Think: “cook eggs”.)

Each of the six aspects below include a series of questions. *These questions are neither exhaustive nor necessary.* That is, while all six aspects are always relevant, individual questions may not be relevant to your specific project; and there may be other questions that are not covered below but are absolutely crucial to a successful design. Feel free to add or remove questions as your team sees fit.

Do **not** include the questions themselves in your design report. They are only meant to stimulate critical thinking. Organize the information in whatever way makes the most sense for *your particular project*.

Throughout this process, you must remember to think about the *three stages of usage*:

- **Set up (initialization)**
  - Example: Where is a blender *before* you use it? What do you have to do to get it ready for use?
  - Example: You're going to ride your bike to work. Where is it before you leave your house? What do you have to do to prepare to ride it?
- **Use (as you probably imagine it)**
- **Put away (finalization)**
  - Example: Do you just leave the used blender sitting there on the counter? What do you do when you're done with it?
  - Example: When you get to work, do you just drop your bike on the ground at the front door of the office? What do you do with it after you've used it?

Competition

Find as many significantly different **existing** interventions as possible that are consistent with the design

brief. An existing intervention is a product, technology, or process that actually exists (e.g., that you can go out and buy right now) and is a viable intervention to address the design brief.

From all the possible existing interventions that are *consistent with the design brief*, select a subset of those interventions that are representative of the range of consistent interventions, such that each team member has their own intervention. We call these interventions **reference products**. If there are five people in a team, find five significantly different reference products that are consistent with the Design Brief; each team member is responsible for researching one of those reference products.

Focus not on what the “best” interventions are, but rather which are most popular.

Each team member should consider questions like the following when analyzing their reference product:

- Why was this reference product included? What makes it relevant to the Design Brief?
- What functions and characteristics are *common* among all the reference products?
- What functions and characteristics are *unique* among all the reference products?
- How does a reference product's structure imply how and where it is supposed to be used?
- How complex is the product? And what are the specific implications of that complexity for manufacturing and maintenance?
- …and many other questions.

Your sitscan must include:

1. information about each reference product (in an appendix of your report), and
2. a tabulated comparison of the key features your team decided are most relevant to your project (in the body of your report).

Users

Each student will characterize the users of the reference product for which they are responsible.

- What might be reasonable ages, genders, incomes, and backgrounds of the users?
- What are the key human factors that could impact initialization, use, and finalization of the reference product?
- Are there any particular abilities (or disabilities) that would enable (or prevent) use of the reference product?
- In what kind of mood or emotional/psychological state could users be when they use the reference product?
- What impact will *co-users* have on the situation?
    - A *co-user* is another user who is not the primary user yet can influence a situation significantly. The classic example is a passenger in a car; the driver is the user, but the co-user passenger can very strongly affect many situations.
    - Sometimes, it can be confusing to distinguish a co-user. For instance, from the point of view of the *co-pilot of an airplane*, the co-pilot is the user and the pilot is a *co*-user.
    - Other times, the distinction between users and co-users is simply an arbitrary decision by a team. For instance, one may design a baby stroller taking either the child as the user and the care-giver as the co-user, or vice versa.

- What other “agents” besides the users and co-users could benefit from achieving a better situation? In particular, consider people who maintain the reference product, and people who may deal with the reference product's end-of-life.
    - Remember, all kinds of agents, including other products, organizations, etc., can be *users* of the thing your team will design.
    - Consider a person driving a car on a road. The person is the user of the car, but the car is the user of the road!
- What other people/organisms or co-users could be affected *adversely* by a change to the current situation? What situational changes should you *avoid* to ensure non-users will not be harmed?
    - A classic edge case is that of the lack of noise made by electric cars. While most pedestrians would welcome more quiet cars, people who are deaf or hard of hearing will be at greater risk because they will have even more difficulty sensing approaching cars. Incidentally, if electric cars were made noisier, then *all* users would benefit (except, perhaps, those who suffer from misophonia because it will be easier for *everyone* to sense an approaching car.

Circumstance

Products don't exist in a vacuum; they have cultural, social, technological, and economic impacts.

Each student will characterize these aspects of their reference product.

- What environmental/sustainability concerns exist about the reference product?
- How is the economy in the regions where the reference product is used?
- Is the regional society stable?
- Are there any particular outlier circumstances that are important? (Examples: earthquakes, armed conflict, drought or flood, etc.)
- What industries/businesses are typical in those areas?
- Is there a client that is different than the end user? Are there any goals set by the client that conflict with the goals you may set for the users?

Environment

More specifically than general Circumstances, the Environment includes the immediate context in which a reference product is used.

Each student will characterize the physical setting in which their reference product is typically used.

- What's the ambient temperature range? Is is humid or dry?
- What's the weather like?
- How many hours of daylight does the area get? How much artificial light is available?
- What kind of electrical and other power sources are available?
- How clean is the immediate environment?
- How sensitive is the environment to pollution and other impacts that might accrue through use of the reference product?

Goals

Based on the all the preceding research, the team will develop its goals for their eventual design.

- What does the design brief *really* expect you to do?
- What does the design brief *exclude* from the scope of the project?
- What ancillary goals are suggested or implied by the design brief?

Strategy

To achieve its goals, each team needs to set certain strategic bounds, by addressing each factor described below.

Market Segment: At what kind of users are you targeting your product? If you're designing a new electric razor, are you targeting men, women, or both? Are you targeting people 18 to 45 years of age, or 30 to 60 years? Are you targeting people who will use the razor only on their faces or on their bodies too? Are you targeting hipsters or *manscapers*? Are you targeting high or low income users?

Degree of Innovation: Are you going to:

- *create a disruptive design* (e.g., an "invention" such as the flush toilet, refrigerators, penicillin, 3D printing, Uber,...),
- *reconceptualize a product class* (e.g., smartphones, the Boeing 747, the Smart Fortwo,...), or
- *expand a market* (digital media players instead of Walkmans, power steering and brakes in automobiles, the "Internet of Things",...) to make it "better"?

Time to market: How long have you got to get this design into the market? Is it a design intervention that must be on the market in six months? Or can you plan for six years of development time? Obviously, this will influence every aspect of your design. Imagine what could happen to any technology you might want to use in your design intervention in six years....

Production: How many items of the product total would constitute a good "run"? How fast (number of items per year, say) must the product be made? If Boeing has a complete run of 400 planes of a particular model over several years, then that is considered a great success. However, Ford must be able to make 50,000 cars of a particular model each *year* to claim a similar success.

Customization: An emerging area of interest in product development, customization is the capacity to make relatively minor variations in a product to provide special, but not necessarily functional, features that appeal to "sub-markets". For example, in its heyday, the Sony Walkman (cassette tape version) was available in over **300** models in Japan, because everyone wanted "their own".

Tips & Tricks

To help you decide what to include and research in your sitscan, consider these tips and tricks.

Visualize yourself in the situation. Imagine that you are in the situation described by the design brief, along with a few people you know (and *not* just people you like). How would you react? What would bother you most? What hazards would you face? What things that you take for granted would be difficult in that situation? What are the environmental factors that will most likely lead to harm? The other people joining you on this hypothetical voyage may well respond differently than you; how will their responses increase or decrease the hazards that you yourself will face?

Consider all life cycle stages. How hard is it to maintain the reference products? How complex might the manufacturing be? How hard is it to set up or install those products? How hard is it to clean and store or un-install those products?

Pause to weed out solutions. As you do your research, take regular breaks to review your findings and carefully weed out any information that suggests a design solution. Sitscans are ***never*** about your new design; they are only about what is already there and understanding what the actual, real problems are. If you find content in your sitscan that makes design decisions, take it out and save that content for later.

Clean up mistakes in the summary. The documentation of your sitscan is very important. Raw data (the raw notes of the session) can contain mistakes. Make sure the summary contains no such mistakes. At the same time, though, those raw notes may contain a diamond in the rough - an idea that, later in the design process, will lead the team to a breakthrough. So summarize and organize your sitscan carefully, but *keep all the raw data and your original notes* so you can revisit them later for ideas.

Deliverables

- Keep your individual research notes in your design journal.
- In the Situation Scan section of the design report, and using extended point form, teams will integrate their individual findings into an organized and cohesive collection of relevant information.
- Detailed information can be put in an appendix of your report; present key findings and summaries in the body of your report.
- Make sure you report only relevant information. If a fact is not ultimately relevant to your team's design, remove it by the end of the project.
- **Teams will revisit, refine, and expand their sitscans throughout the semester.**

However

TODO Describe consequences and counter-indications.

activity, analysis, method