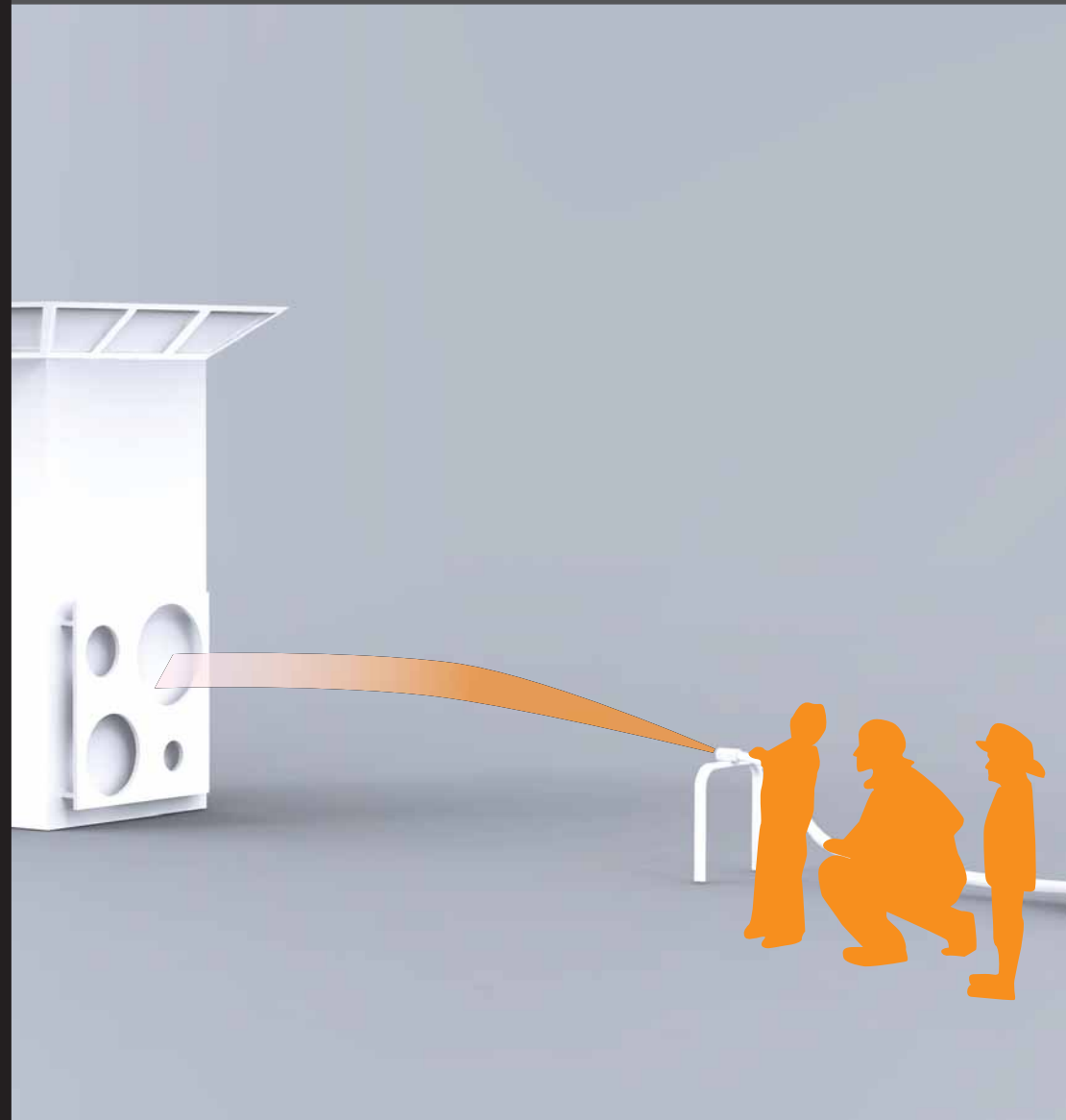


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PLAY WITH FIRE

HEIDI BORTHNE



Play with fire

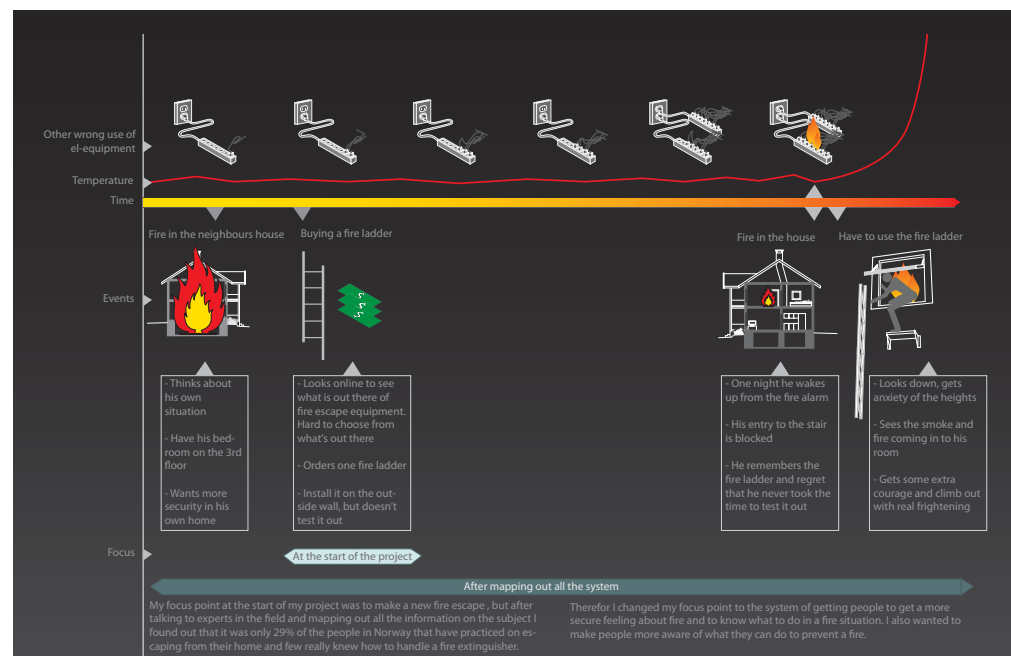
Developing methods to prepare people for fire response, focusing on the home as a context.

In this project I have developed methods to prepare people for fire response, focusing on the home as a context. The fire engineer from the fire and rescue research department in Molde said that today the public and protected houses are well countered for. But it is in the homes that the fire occurs. And there they have done little to prevent it. They only have Aksjon Boligbrann that visit 5000 houses each year to give some oral information about what you need to do to prevent a fire and what you need to have if a fire occurs.

Background

A fire is one of the most horrible things one can experience. There are so much things that gets lost. People think totally different in a situation like this. They can end up with running back into the house on fire to look for a cat. What is important is to plan a meeting point so people doesn't go in to look for someone that is already out-side. "Chaos appears to be everywhere and it is the rule rather than the exception" (Øyvind Andreassen 2009)

"For many years, fire safety engineers worked under a simple assumption: When a fire alarm rings, people will evacuate immediately. How quickly people manage to vacate a building, they believed, depends mainly on physical abilities, the location of the nearest exit and the behavior of the fire.

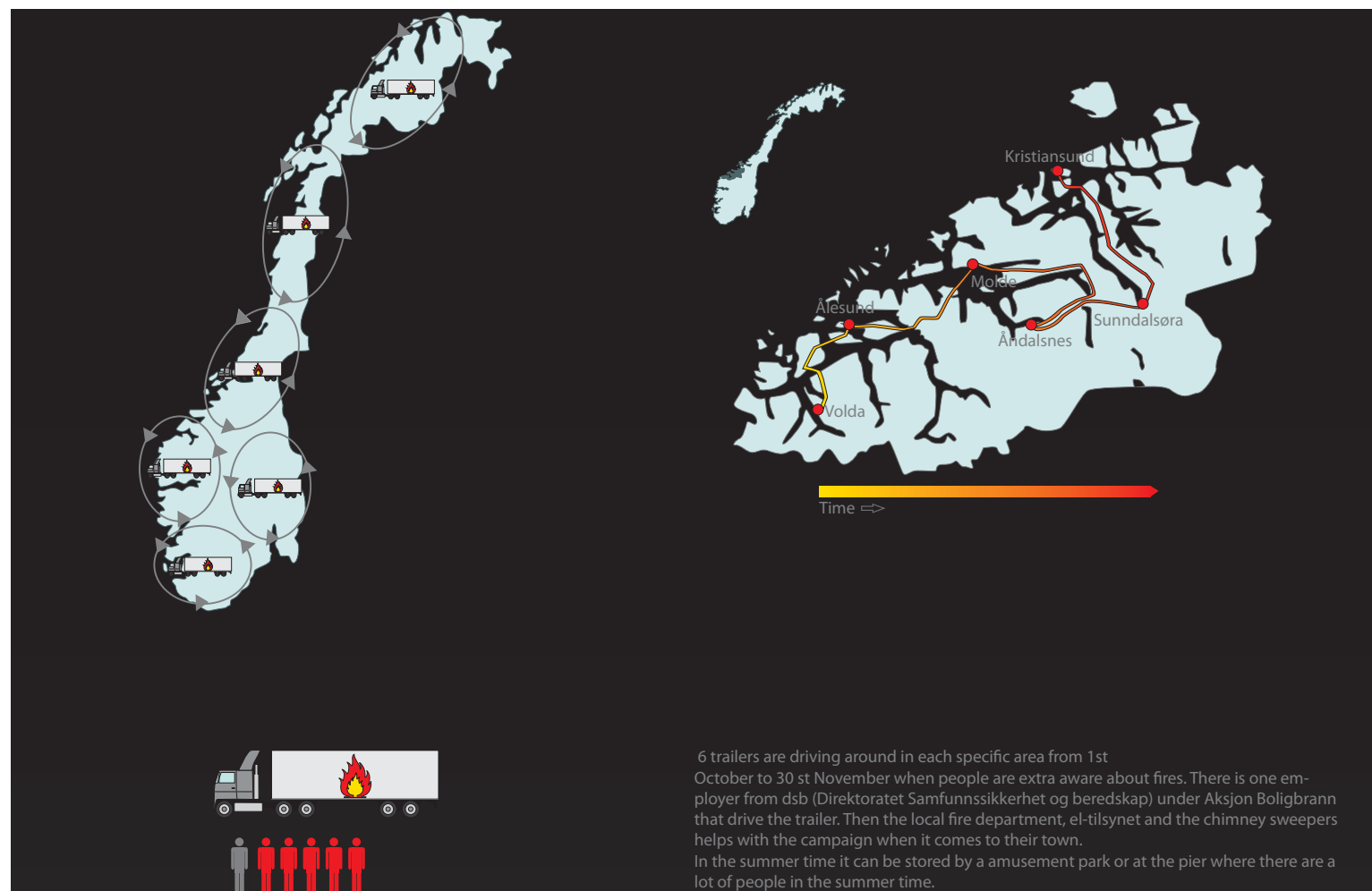


My point of view

My pion of view changed through-out the project because of the information that I found.

Concept

How the trailers are driving around the country from 1st October to 20th November.





But work by psychologists and other behavioral scientists has found that this idea fails to consider the often-surprising behavior of people during emergencies. In fact, research shows that as much as two-thirds of the time it takes occupants to exit a building after an alarm sounds is start-up time--time spent milling about, looking for more information.

Researchers have discovered other tenets of people's behavior during fires. Some examples include:

Cloud Diagram
The complexity of first step of the research

- * People generally do not panic.
- * People are often altruistic. In an emergency, strangers will often help each other out even when they put themselves at greater risk by doing so, says Groner.
- * Most people will try to exit through the door they entered.
- * People will move through smoke when necessary. “
(Fighting fire with psychology, Lea Winerman)

“The basic premise,” says Groner, “is that design should be human-centered, because human-centered design provides information that people need to adapt to the chaotic and uncertain ways that fires develop.”

<http://www.apa.org/monitor/sep04/fighting.html>

This section from the “Fighting fire with psychology” by Lea Winerman shows that human behavior can be somewhat be predictable before they know it is a fire, but as the fire engineer says it that people during a fire often doesn't think straight.

If it burns inside the apartment or house, it is critical after 3 minutes and it takes about 1 minute before the fire alarm starts. But this is very depending on what kind of materials that are there and how the smoke development is. As for example, a fire smolder take longer. According to the user survey Aksjon Boligbrann do each year it is about 10% of the population who do not have fire alarms installed in their unit. This figure has been stable since they started the survey for 5 years and counting that as fairly reliable. But even if people have a fire alarm, it is uncertain whether they test it every month or if it works. It says that the rule is that each unit should have at least one fire alarm, and at least one fire extinguisher. When it comes to escape routes people are more uncertain. There is much less knowledge. And there are approximately only 29% who have practiced to evacuate their building. It is important

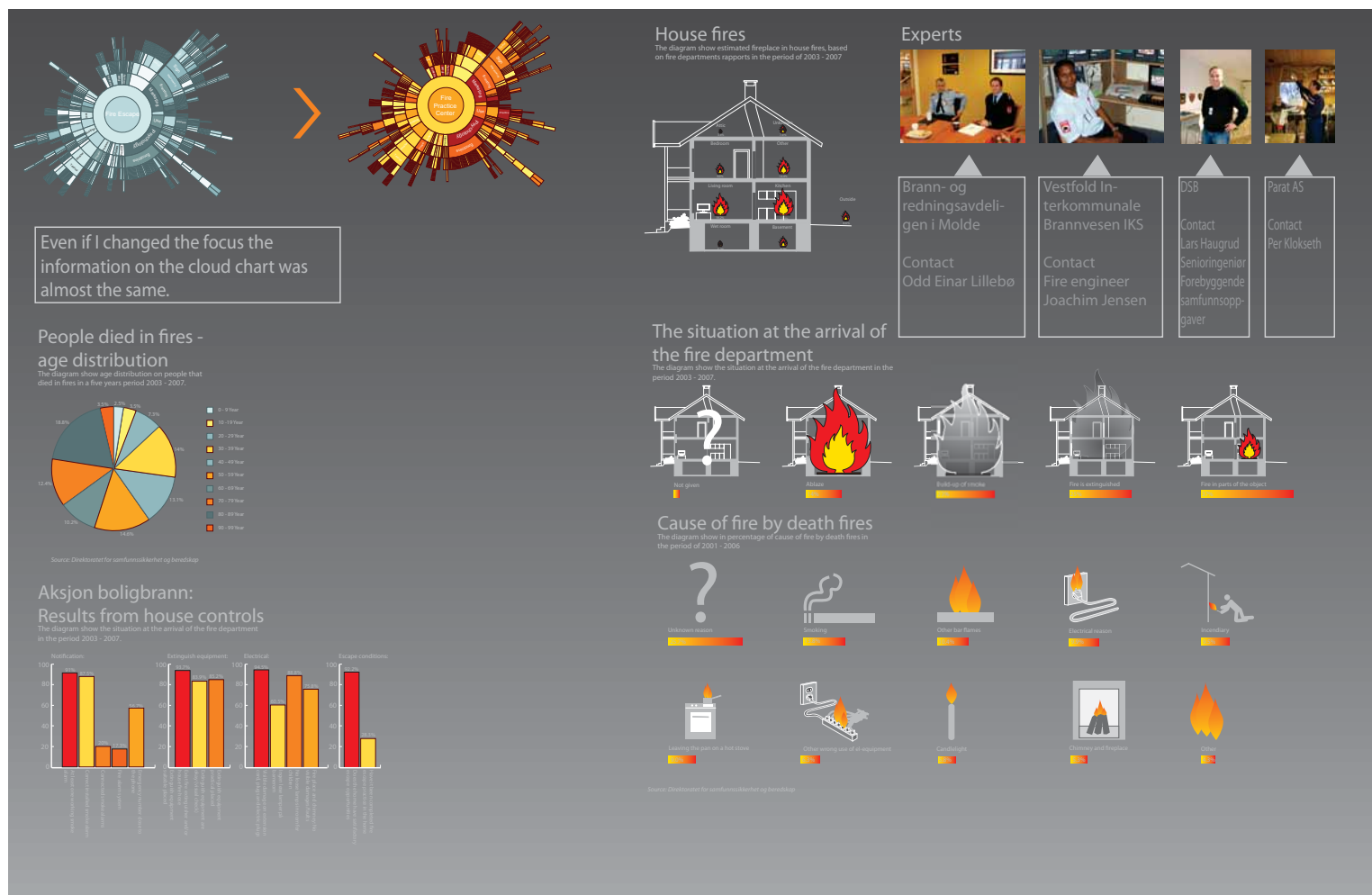
to practice, that is maybe the time when they find out that the equipment they have does not work, is too difficult or something similar. And one may get the opportunity to find the right product that works for them. Plus when you need to evacuate, you are stressed by the situation, have a bad time and your head is not clear. Therefore, it is important to have practiced, so that it becomes a routine and we know what to do.

People think that they should practice the evacuation, but uses excuses like that they do not have time as a reason. Haugrud look at this as a great improvement potential. If for example the people in Urtegata 31 had known this (maybe they did), maybe more people had been saved. Because all of the people that died was found in the staircase where the fire occurred. Maybe they had staid inside their apartments and waited to be rescued if they knew that they where safest inside. Another thing that few people know is that smoke can kill in just seconds.

These things were considered when I was developing the PLAY WITH FIRE center. To let them for example feel how fast a fire develop, then maybe their behavior change and take the fire alarm more serious. This is just a thought and have not been tested. But I think that one of the things that need to change is the behavior . Few products if any can help people from a fire if they don't do anything them-self.

Points of view

Edutainment (also educational entertainment or entertainment-education) is a form of entertainment designed to educate as well as to amuse. Edutainment typically seeks to instruct or socialize its audience by embedding lessons in some familiar



Statistics

Some information from the experts.

form of entertainment: television programs, computer and video games, films, music, websites, multimedia software, etc. Examples might be guided nature tours that entertain while educating participants on animal life and habitats, or a video game that teaches children conflict resolution skills.

<http://en.wikipedia.org/wiki/Edutainment>

It's a fine line from going to be too much entertainment based to be boring educational. And specially with a serious theme as fire and how to act in a fire situation it is really important to hit right on this line. I believe I have come close to that, but only with testing the activities and see how the users react and act later to that, we really can know if "PLAY WITH FIRE" have not been too educational or too entertainment.

My focus point at the start of my project was to make a new fire escape, but after talking to experts in the field and mapping out all the information on the subject I found out that it was only 29% of the people in Norway that have practiced on escaping from their home and few really knew how to handle a fire extinguisher. Therefor I changed my focus point to the system of getting people to get a more secure feeling about fire and to know what to do in a fire situation. I also wanted to make people more aware of what they can do to prevent a fire.

Today the fire departments have something called "Brannvernuka" where they invite kindergarden kids and children from elementary school over to the fire department where they let them test the fire hose, get asked questions about fire and learn about the important things of fire. In the end they get the "job" of being the fire security guard at home and get duties to check if everything is right at home. The fire depart-

ment and also other actors that wants to prevent fires (like insurance companies, actors that sells fire protection products etc.) have courses for workers at public buildings. But there are nothing for the everyday people. And where you can do it in your on time.

Concept

This product service systems, gives people a fun and educational experience of the most important subjects that people should know about fire. It is also meant to hopefully get people to feel more secure by knowing more about preventing a fire, and also have had the chance to test the things that they need to do if a fire occurs. PLAY WITH FIRE is a mobile edutainment center that have 6 trailers that are driving around in each specific area of Norway from 1st October to 30th November when people are extra aware about fires. There is one employer from dsb (Direktoratet Samfunnsikkerhet og beredskap) under Aksjon Boligbrann that drives the trailer. Then the local fire department, el-audit and the chimney sweepers take over when it comes to their town.

In the summer time it can be stored by a amusement park or at the pier where there are a lot of people in the summer time.

PLAY WITH FIRE have 8 main activities that will provide the information and experience people need. They are:

- A time based trip in a dark corridor with fake smoke, sparking sounds and parts where you need to crawl. This thrilling trip gives a feeling of how fast a fire occurs and what one need to do to get safe outside.

PLAY WITH FIRE

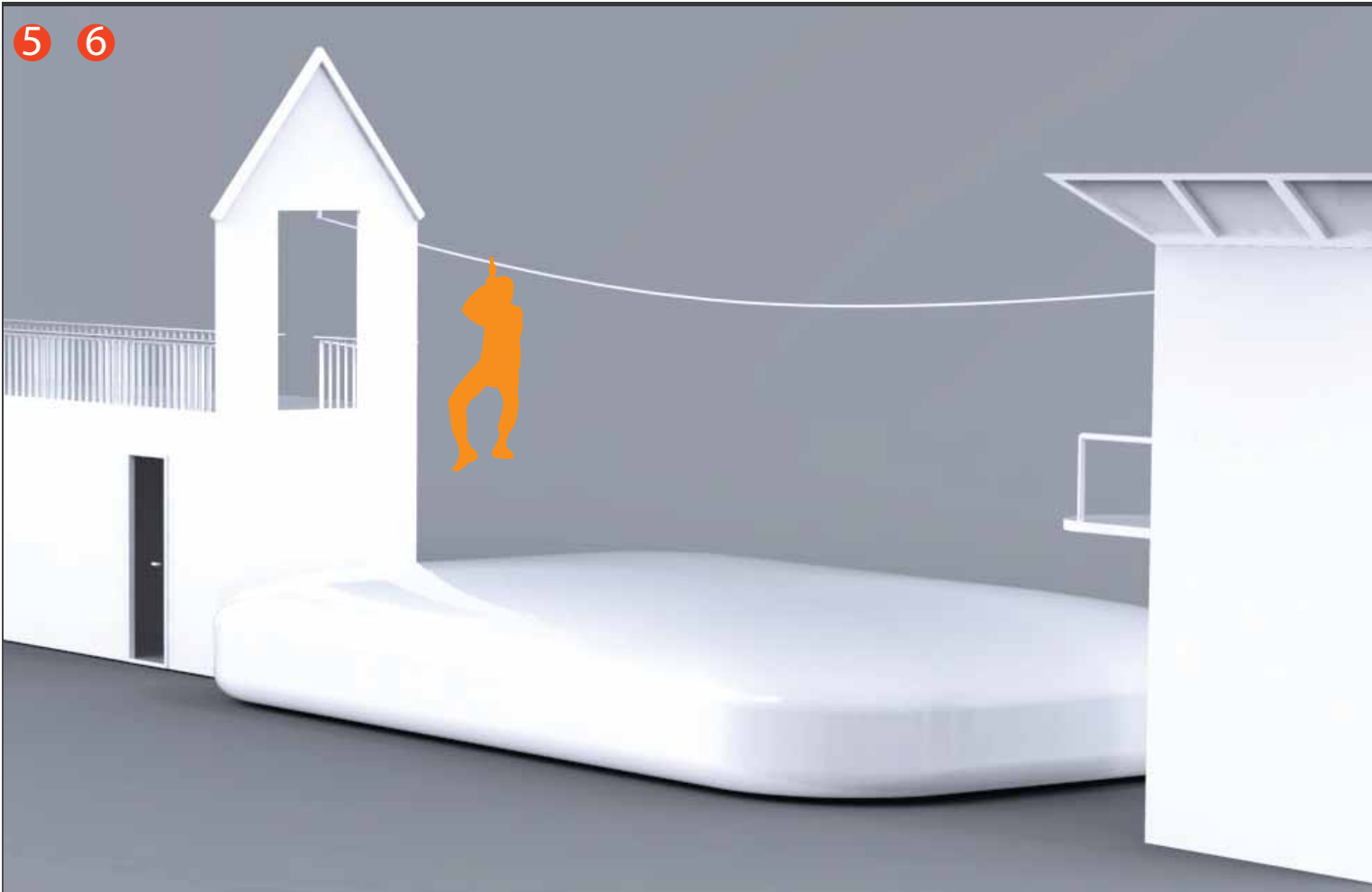
The different activities





House in fire

Get to experience what you need to do if it is burnign in your home.



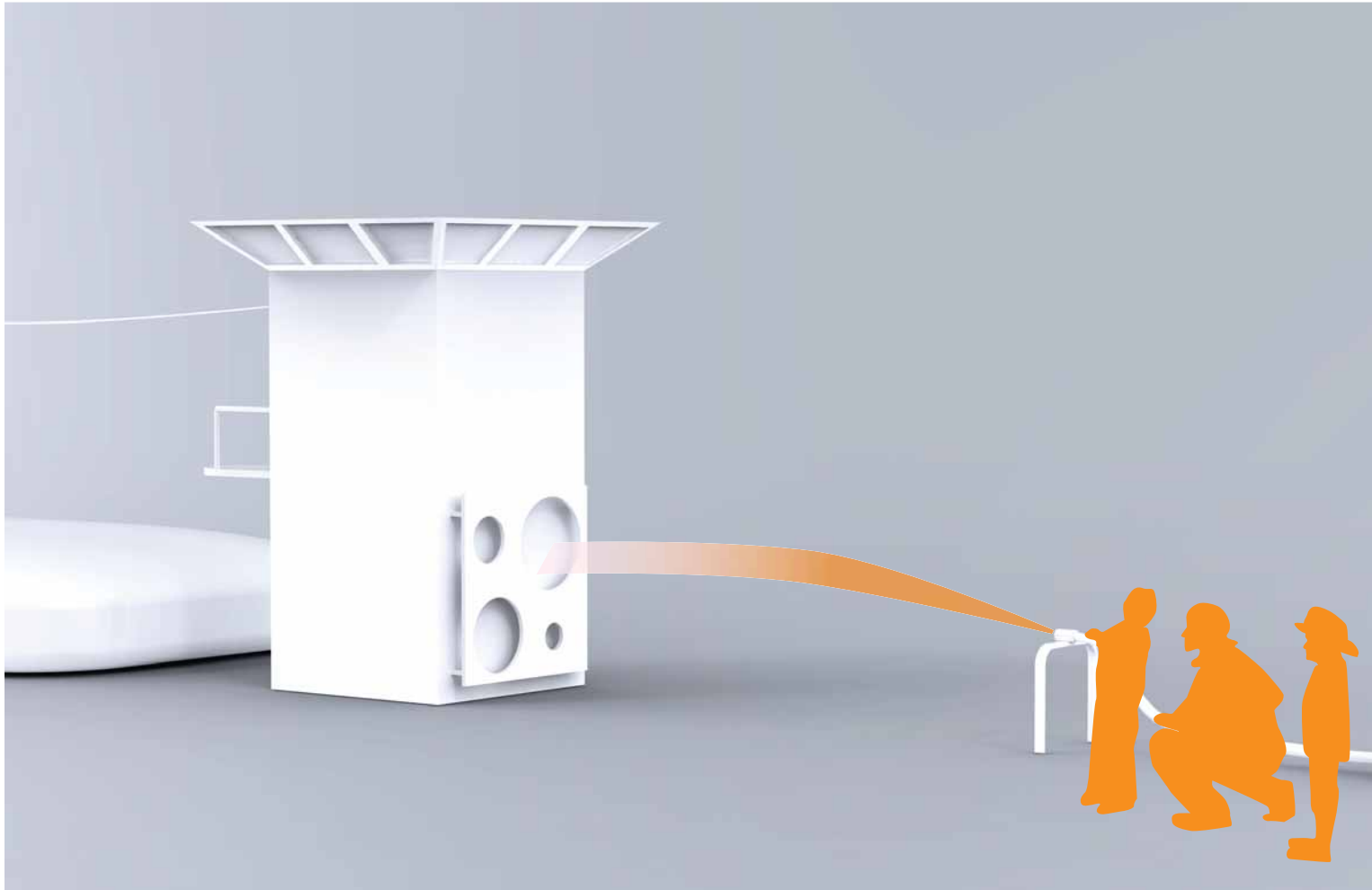
Fire flight

From the House of fire you can take the line over to the fire tower or jump and test the fire pillow.



Bonfire

To get also the experience of the warm and gathering side of fire.

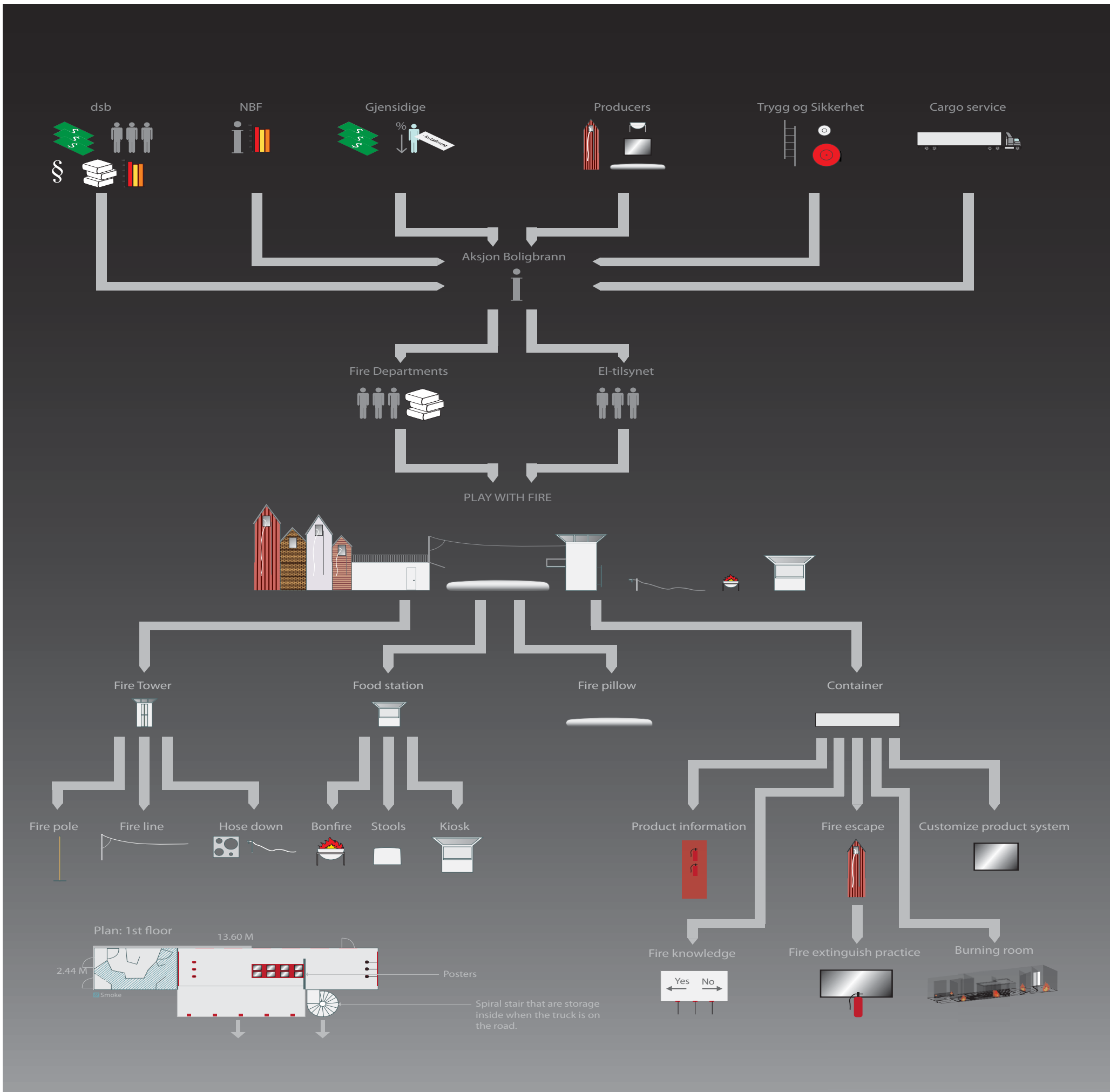


Fire hose

At the back of the fire tower they can test their skills on how accurate they are with a fire hose.

Resource diagram

*(next page)
From who have the resources to all the parts of PLAY WITH FIRE.*



- House of fire is a wall that is looking like several houses with windows. The highest window is over 7 meter above ground. Here can people test their fear of heights and get used to the fire escape they have at home or the one they want to buy. With fake smoke and damaged walls one get a feeling of reality.

- Inside the people can find out by “building” their own house, what type of products are best for them. They also get to test the fire extinguisher to a interactive wall.

- To also show the warm and gathering side of fire, there is a bonfire where you can grill hotdogs.

- From the House of fire you can take the line over to the fire tower or jump and test the fire pillow.

- Inside the fire tower people are getting closer to what fire fighters do and they can slide down a fire pole.

- At the back of the fire tower they can test their skills on how accurate they are with a fire hose.

All the decision I have made through this project have roots from what I have found out through my research and how the information that I found came out in my diagrams and system thinking.

There are many different way of learning. Some of them are:

Hands-on

Minds-on (the hardest one)

and Body-on: You do a conscious choice when you go in with your whole body.

Make things easy, it gets fast confusing with too many things.

Fire

Through my study-trip to Parat AS I got to see how their fire line worked. The fire line had in my impression few faults, but I can imagine that the threshold to go hang from this line 7-8 meters from a building would be high. These findings where some of the reasons for changing the focus to a system to get people more informed and prepared for a fire. Not only by having the information and products that you need, but also physically. When the news have many stories about fires, people tend to be more worried about fires. But if the where confident about knowing what to do and also how to prevent it, maybe the wouldn't be that worried.

When it applies to fire line Haugrud believe it is not designed for everyone. That to fling themselves from a building 4-5 meter from the ground is no joke. The threshold here he believes is very high and can give false security. People want to have more security, and they will buy security if needed. Aksjon Boligbrann started 5 years ago. They believed that the statistics showed the number of fires per year. Such as in the week between Christmas and new year it is three times as many fires in Norway than it is the rest of the year. They would find the measures that could reduce this figure. In the five years that figure has now halved itself. Action Boligbrann facilitator materials for local fire stations, sweeper, and el-audit. They sign up voluntarily to continue the information to people who live in their area. Aksjon Boligbrann goal is to get people to have more awareness towards fire and what they need to do in case of an accident. Statistics say that as much as 40% of all fires is related to electricity. It can either be leaving the pan on a hot stove, that is a human error or a manufacturing flaw in an electrical product. But how it is today it will be made tests of the electrical

house holds only every 20th year. While the chimney and pipes will be tested every 4th year, but it is only about 5% of the fire causes a fire. Many believe 20 years is too long and this is perhaps going to be changed. The sweepers or electrical workers are sent a questionnaire from the Aksjon Boligbrann and goes out with this to people every year between 3rd - 5th of December. On average, it has been in excess of 12 000 respondents. And people are positive to go through the information.

If it does not burn in the apartment which is built as a fire cell, it should be safe to be there for one hour before the danger of fire and smoke spread to the apartment. This is depending on that all windows and doors are closed. In most of the fires doesn't people die in their own apartment, but in the escape routes.

A Swedish study came to that it was important to know how to use a fire extinguisher than what kind of brand they had. Again, it appears that information is very important for this project.

It is important for a product that the threshold is low, good information and that the credibility of the product is high. There is much confusion among the people. It is a many bad products on the market as sellers sell to people with little knowledge.

Conclusion

In the studio course Challenge of Complexity, like it says in the course description, this studio departs from the statement that the designers of tomorrow need to cope with increasingly complicated tasks. There will be an increasing requirement to simulate predict and control potential consequences from design interventions. We can no longer regard design products as singular independent entities, but have to understand them in bigger contexts and as agents in large fields of interrelations that unfold over time.

In my case, I thought in the beginning that my end result was going to be a product, but through system thinking and the methods I used through the course I ended up with a product service systems that not only are preparing people for fire response by knowing what to do and what products to use, but also trying to give people a more secure mentally feeling about fire.



Literature list

Interview with Lars Haugrud, Senior Engineer i dsb

Interview with Jan Alfred Andersson, manager and educational responsible at the Science Center

Interview with Odd Einar Lillebø, Fire Engineer at the fire and rescue research department in Molde

Interview with Per Klokseth at Parat AS

Lecture from Øyvind Andreassen 2009

Lecture from Birger Sevaldson 2009

<http://www.aksjonboligbrann.no/index.asp>

<http://www.brannvernforeningen.no/index.asp?id=26451>

<http://www.apa.org/monitor/sep04/fighting.html>

http://www.visualcomplexity.com/vc/project_details.cfm?id=469&index=79&do_main=Knowledge%20Networks

<http://en.wikipedia.org/wiki/Edutainment>

<http://www.brann-og-redningsetaten.oslo.kommune.no/>

<http://www.dsb.no/Article.asp?ArticleID=3051&coppslag=1>

<http://www.tryggogsikker.no/html/166.html>

<http://aho.nxc.no/eng/content/view/full/2293>