Agile, Design, Stronghouse

Working agile and design-thinking are essential to the Stronghouse ambition. Persona's, customer journeys and user-stories enable us to focus on homeowners. How do they help us to deliver on our innovation promise? How can we learn from IT development? Why did we brush up our agile and design-thinking skills during the Stronghouse kick-off? And how do those skills fuel the next steps in our project?

Stronghouse challenges: engaging, enabling, empowering
The North Sea Region Interreg Stronghouse project is based on three questions: How do we enable individual homeowners to renovate their homes, their houses and their neighbourhoods? How do we engage homeowners in fighting climate change through energy renovation? How do we engage them to save energy, to reduce CO_2 emissions? And, how do we make the most of our limited resources to support, to empower these homeowners, their neighbourhoods and their suppliers?

Different drivers, varying possibilities, diverse needs for support
Based on the experience of our partners we see that homeowners and neighbourhoods have different reasons or drivers to renovate, varying possibilities to invest and thus diverse needs for support. Stronghouse believes that the best route towards effective support, greater investment, and more energy renovation is a focus on homeowners' drivers to renovate, their possibilities to invest and their needs for support. And Stronghouse believes that focus on these will ultimately result in a greater reduction of CO_2 emissions.

Clear need for reduced emission, but lagging energy renovation
The need for this reduction of CO_2 emissions is clear, as is the technical potential for a substantial emission reduction in the built environment. Throughout the North Sea Region policies are in place that aim to realize this reduction. Many instruments have been developed and implemented. However, notwithstanding regional successes, energy renovation is still lagging. The invested public resources do not seem to yield the hoped-for results.

Impasse: Few homeowners act on awareness
Although awareness about climate change is high in the North Sea Region, only a limited number of homeowners act on this awareness and an even smaller number effectively renovate their houses in such a way that the CO_2 emissions of heating and lighting are substantially reduced. If homeowners, authorities and other stakeholders all want energy renovation, why don't they act and renovate (more)? Everyone seems to be waiting for someone else, before taking action: a classic deadlock situation. The important question is of course: How can we break this deadlock?

Experience with deadlocks
During the development of the Stronghouse project, we noted that this deadlock has interesting similarities to unsuccessful IT-projects. Unfortunately, for many (public) IT-projects the need is clear, the technical potential is available, many policy decisions have been taken and enormous resources have been invested without yielding the results aimed for. Why did all those detailed plans, technical solutions and large investments not result in tools that were effectively used by citizens?

Evolving context, new insights, interaction with end-users
One factor is that the context kept evolving, new insights or concerns came up, whereas the grand design didn't leave room to adapt. Of course, climate policies also have to deal with the challenge of evolving contexts, new insights and concerns. A second factor is that the designed and developed tools didn't interact with their end-users, did not respond to their wishes, concerns and needs. So far, interaction with end-users has also been a challenge to climate policies. Learning from unsuccessful IT-projects, many firms have changed their methodology to what is called agile or scrum and started to work with design-thinking. This approach has yielded impressive results in terms of usability, adoption and impact of IT-solutions. Stronghouse wants to learn from this experience.

Agile step-by-step instead of a grand design
Agile is all about adapting to changing circumstances, new wishes or possibilities and most important, adapting to lessons learned. To stay adaptive, agile calls for developing step-by-step, module-by-module. Thus, agile is the opposite of a grand design in which everything is planned and designed beforehand. The agile step-by-step method helps to discover mistakes, ineffective functions or unnecessary solutions as early as possible, to learn from these and to adjust the course of the project in due time. This is important because the context and technical solutions to fight climate change in the built environment are at least as difficult as the context and technology for big IT-projects.

People over processes, responding to change
Stronghouse agrees with the key values from the official Agile Manifesto: 'People over processes; products that actually work over documenting what that product is supposed to do; collaborating with customers over negotiating with them; and responding to change over following a plan.'[1] Following this agile manifesto, Stronghouse will focus on homeowners and their drivers, on proven support measures, on the engagement of homeowners and neighbourhoods and on the development of insights and opportunities during the project.

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[1] Jeff Sutherland, *Scrum. The art of doing twice the work in half the time* (London 2015) 13.

Working together, reviewing together, teams deliver results.
The value 'People over processes' is not just about the products we want to deliver, but also about how we want to work. Working with the Agile Manifesto means working together in multidisciplinary teams and realizing results within fixed periods of time. These fixed periods – probably two weeks to a month (max.) - are called sprints. Together with other teams and relevant stakeholders, we review the sprint results. This review helps us to improve the product and take steps in the following sprints.

Agile sprints prioritize, have a definition of done and demonstrate results
To use our time and resources as efficiently as possible, we start by translating our vision to items in a so-called backlog. In Stronghouse our vision is that more individual homeowner will retrofit their homes and thus reduce CO_2 emissions. To realize this vision, we need a large number of instruments based on a new understanding, redesigned elements, a re-use of existing tools etcetera. All this will be gathered in our backlog. Next we need to refine and estimate: Do we have enough information to complete each item, is the item small enough to estimate how many weeks we need to complete it, is there a definition-of-done and, finally, how does it contribute to our vision? Only when all these questions have been answered, can we start realizing the items. The items we're working on – together with what has already been delivered – is visualized on an online board - theKanban board.

Design thinking toolbox
Closely related to the agile methodology – and a second essential tool to help us focus on the people we're working for - is the design-thinking philosophy. Design thinking helps us to realize the 'People over process' value by combining what's desirable from a human perspective with what is technologically feasible and financially viable. It is probably just as easy to misunderstand the wishes of a software end-user as it is to misinterpret the drivers and needs of the homeowners we want to support in Stronghouse. Therefore, Stronghouse will use three especially important tools from the agile & design thinking toolbox: Persona, Customer Journey and User-story.

Persona, Customer Journey, User-story
- A persona is a fictional, but realistic, user of a product or service. He or she has a name and some social details. He or she helps us to understand user's context, behavior, attitudes, needs, challenges, goals and motivations. A possible Stronghouse example: Eva, 31 years old, wants act on climate change, to renovate her house and also make it more comfortable. Eva is a young professional who already has a maximum mortgage.
- A customer journey sketches the path which a persona follows using an application, or in our Stronghouse case, follows the route from awareness to actual energy renovation. The customer journey helps us to translate our vision to a backlog of items to be realized.

- A user-story is a short, simple description of a feature told from the perspective of the persona who desires the new capability. Typically, the user-story has the form: 'As a (role) I can (capability) so that (receive benefit). A Stronghouse example could be 'As a homeowner I can apply for green finance so that I can pay for my energy renovation.' Or 'As a homeowner I retrofit my house so that I contribute to saving our climate.' These user-stories are the items that – when refined, with a definition of 'done' and an estimate – will be realized by a regional or transnational team in our Stronghouse sprints.

The difficulty of speaking both the technical and homeowner languages
Interestingly, the persona tool was developed – just like sustainability policies and technical solutions – because the process of creating software is so 'demanding, so all-consuming, that programmers must completely immerse themselves in an (…) alien thought process. In the programmer's mind, the demands of the programming process not only supersede any demands from the outside world of users, but the very languages of the two worlds are at odds with each other.'[2] Precisely the demanding, often all-consuming difficulties of climate policies and support measures to reduce CO2-emissions, make it worthwhile to use the persona tool in Stronghouse.

Bridging the gap by relating the persona's need to technical possibilities
The persona helps to bridge the gap between on one side the demanding, complex sphere of technical possibilities (investment tools, consulting arrangements, contractors) plus calculated effect (CO2-reductions, economic potential) and on the other side the often blurred houseowner perspective (wants to help the environment, save money, gain comfort and wants all of that as easy and soon as possible). Therefore, in Stronghouse the definition-of-done of a new (element of a) support measure or tool will often include 'The homeowner as described in persona X is happy with it and can easily use it'.

Customer journey: interaction with the homeowner is key
The customer journey helps to understand the path a homeowner can and/or wants to follow through the complexity of technical possibilities and both public and private effects. It gives the necessary focus to get from an idea to acting on this idea, or as it is called in design thinking, from inspiration to ideation. The interaction with the homeowner is key to a successful outcome of the long journey from awareness to realized energy renovation. For example: many homeowners probably don't want to be bothered with too technical details and difficult choices. The personas and customer journeys help Stronghouse partners to focus and adjust their instruments and measures to these wishes and needs. They are essential in translating our vision to the tasks at hand. Nudging is an interesting, if not

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[2] Alan Cooper, *The inmates are running the asylum. Why high-tech products drive us crazy and how to restore the sanity* (Indianapolis 2004) 16.

uncontested technique to engage homeowners and could be used in different steps of the customer journey.[3]

User-stories enable working together
When we understand what a certain group of homeowners – illustrated in a persona – want or need and which steps they might follow from awareness to actual energy renovation, we can improve and adjust support measures, and develop additional solutions. Again we use the persona, who in a certain role needs a particular capability to act and thus to receive a benefit. This we describe in user-stories. These user-stories are collected in the Stronghouse backlog. These user-stories should be as clear and precise as possible. Which information or building blocks do we need to complete this user-story? What is its definition-of-done? These user-stories help us to prioritize: What has the most impact? What is most important to the homeowners? What is the easiest to do? By starting with creating the Stronghouse user-stories with the most and fastest potential for results, we achieve the most impact (and also reduce the risk of innovation).

Brushing up our skills, design thinking and agile working together
Of course, using the agile methodology and design thinking toolbox does not only demand a common understanding of the rationale behind it, but also for shared skills. To brush up and combine the different agile and design thinking skills, Stronghouse invited Dutch designer and concept developer Michaël Dommershuijzen to give an agile workshop during the kick-off, where he walked us through the different steps of design thinking. It was very instructive and a fun exercise to develop a persona for a small renovation project: our own bathroom renovation.

Learning from bathroom renovations about personas
This exercise made us aware of how many more factors affect decisions to renovate – it's not only about the financial or climate concerns. This is also how agile works: acting and learning fast from small steps, prototypes, testing and adapting.[4] Of course, just as for bathroom renovation the same applies with regards to energy renovation. There are many different groups of homeowners with individual wishes, concerns and personal possibilities. As Michaël demonstrated in his workshop: the first persona is often the largest group of end-users and this is then supplemented with more personas and more customer-journeys.

Next steps: Stronghouse Personas and Customer Journeys

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[3] See also: Christoph Schneider et at, 'Digital nudging. Guiding online user choices through interface design' *Communications of the ACM* 61 (7) 2018, 67-73. Here it is also stressed that 'the design of nudges should not follow a "one-size-fits-all" approach'.

[4] Especially for the development of digital tools there is a large literature on Ideation and working with so called design sprints: Jake Knapp, John Zeratsky, Braden Kowitz, *Sprint. How to solve big problems and test new ideas in just five days* (New York 2016).

How do we use these agile and design-thinking skills and how do we apply this toolbox in Stronghouse? We want to use personas and customer journeys to focus and adjust our instruments and measures to coincide with the wishes and needs of homeowners and their neighbourhoods. For this we want to learn from the different experiences of all Stronghouse partners, from available literature and other projects and especially from the impact of existing tools and measures. All of this will be input for a Stronghouse backlog and will consequently be refined and described in user-stories.

Learning from what we have, insight in persona's
All Stronghouse partners have different experiences with instruments and tools that - in practice or in theory - enable individual homeowners to energy-renovate their homes and thus reduce CO_2-emissions. Partners have, for instance, different approaches to engaging a neighbourhood in energy renovation. Also, different digital tools have been developed and ambitions formulated regarding the use of block-chain technology. Moreover, various customer journeys have been sketched, party in the form of a one-stop-shop model. For some of these tools and measures we know the impact, for others we primarily see the need for more. Discussing all of these we have learned about the different personas and have agreed upon the need to develop a more varied set of personas and allow for different drivers, such as the driver to save the environment, to save money, to gain comfort and the driver to want all of that as easy and soon as possible.
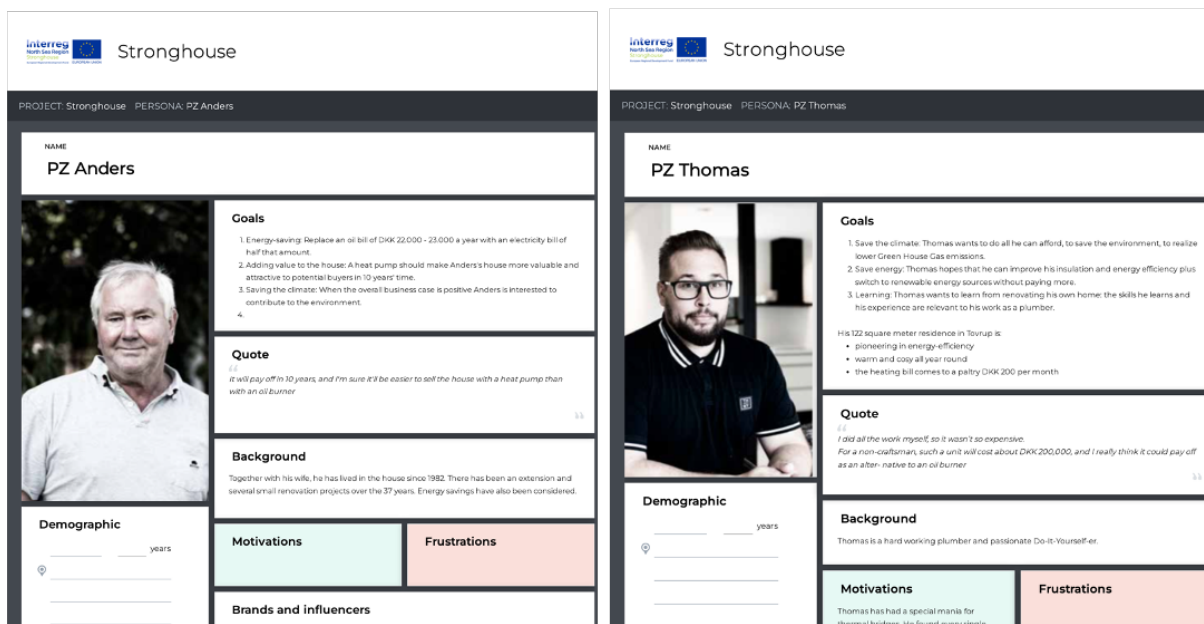

Figure 1 Examples of different Persona's which we can base on the knowledge and experience of Stronghouse partners.

Plotting what we have and what we want in a Stronghouse customer journey
Based on our discussion of our current instruments, we also agreed to plot our current and desired tools and measures in a Stronghouse customer journey. Plotting them in a

Stronghouse customer journey will help us to answer a number of questions: Where do our current tools and measures fit, what can be easily re-used for other groups and other regions, where and how could these tools and measures fit even better and what do we miss?
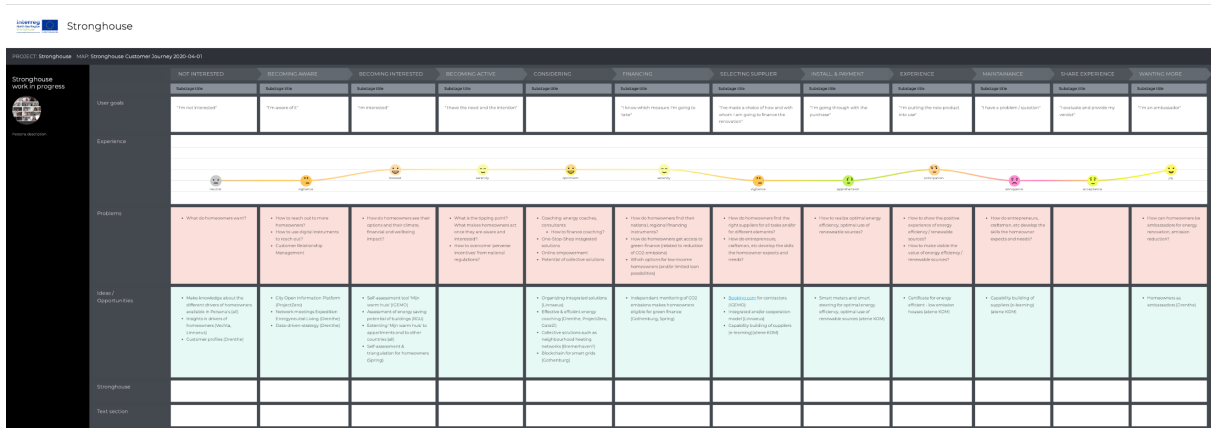

Figure 2 Potential Stronghouse Customer Journey

Describing user-stories, building a Stronghouse backlog

When we've described the improved Stronghouse personas, have plotted our current and desired tools and measures in a Stronghouse customer journey, we can start with the more detailed description of user-stories and build a Stronghouse backlog. These user-stories need to be as clear and precise as possible. Which information or building blocks do we need to complete these? What is the definition-of-done? And what is their impact to our overall Stronghouse ambition?
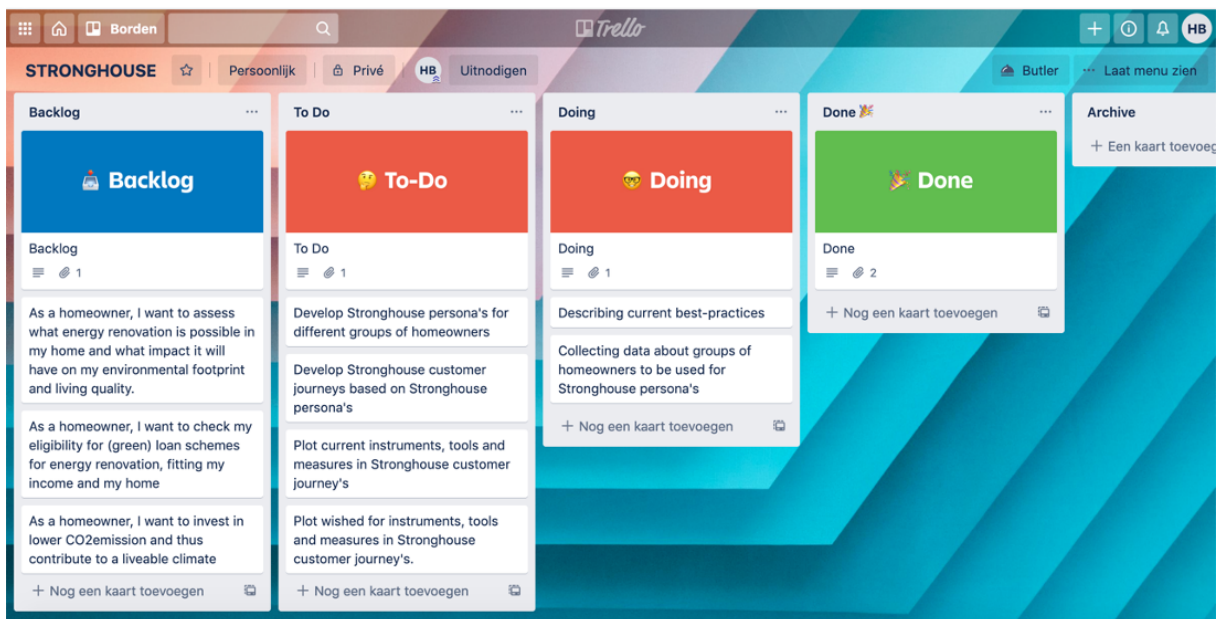

Figure 3 Possible Stronghouse kanban board

Further steps, starting sprints
Building (elements of) instruments that realize these user-stories. Of course, this can also be the adjustment, improvement of current instruments and or translating instruments developed elsewhere to the local situation and to different groups of personas. In addition to describing our Stronghouse user-stories, we must also develop our strategy for working together in a regional and transnational team to implement these user-stories, decide on the length of Stronghouse sprints are and how to organize our transnational sprint reviews. Based on these user-stories our regional and transnational teams can start their sprints:

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