



D6.4

Usability and Interaction Design

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1. Executive Summary

The goal of this deliverable is to establish the final interaction concept for the LIGHT^{est} Trust Policy Authoring Tool. First of all, an overview of the previous deliverable that dealt with established usability literature and a first interaction concept, is provided. Next this deliverable displays the interaction concept developed based on the results from a small usability test of the first interaction concept. With that interaction concept a high-fidelity prototype was developed and evaluated with a usability study. Test setting and results are part of this deliverable as well as an outlook on future work.

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2. Document Information

2.1 Contributors

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2.2 History

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3.2 Table of Acronyms

ATV	Automatic Trust Verifier
GE	Graphical Editor
N	Nominations
NL	Natural Language
UI	User Interface
UX	User Experience
TP	Trust Policy
TPAT	Trust Policy Authoring Tool
TPL	Trust Policy Language



4. Deliverable D6.3 Usability and Interaction Design

The goal of *D6.3 Usability and Interaction Design* was to establish a first interaction concept for the LIGHT^{est} tools. The Deliverable gave an overview of the related literature as well as usability principles and design suggestions important for the design of the LIGHT^{est} tools. Usability requirements were being defined for each tool and based on those user stories and user interface guidelines were formulated. On the basis of those stories and guidelines a first low-fidelity prototype was created.

4.1 The three-layer concept

In *D6.3 Usability and Interaction Design* the three-layer approach was established as a technical frame condition. The Trust Policy Authoring Tool will create and edit trust policies in the context of LIGHT^{est} (it can also be used outside of LIGHT^{est} to create trust policies). The tool must be usable to a wide range of different types of users with different levels of knowledge. This brought up the decision in LIGHT^{est} D6.1 (LIGHTest, 2017) to use the tool for creating trust policy at different layers of complexity.

The concept expects that three categories will use the Trust Policy Authoring Tool.

The first set of users are those that have no technical background, no programming skills and no experience in using such tools. We call such users from now on beginner users. The second user group, from now on called intermediate users, are supposed to have little to intermediate programming skills and no to little knowledge of such tools. The last user groups, from now on called expert users, are supposed to have good to expert programming skills and intermediate to expert knowledge in such tools. The needs of each assumed user group is met in a different, so called, layer:

The lowest layer is the Trust Policy Language (TPL) layer which will be used by expert users. This layer provides the most power and freedom in specifying a trust policy but it has a steep learning curve. The next layer above the TPL layer is the Natural Language Layer. This layer is less complex compared to the lowest layer but is still complex and might have a steep learning curve, therefor considered for intermediate users. It offers less power and freedom compared to the TPL layer but more than the next layer which is the graphical language layer. The graphical language layer is the next and highest layer of abstraction in the tool. The graphical layer is intended for the beginner users and it does not require a lot of training to start using it to write basic trust policies for electronic transactions. However, out of the three layers, this layer provides the least freedom and flexibility. Most of the policies can be designed in this layer but really complex policies have to be written at a lower layer.

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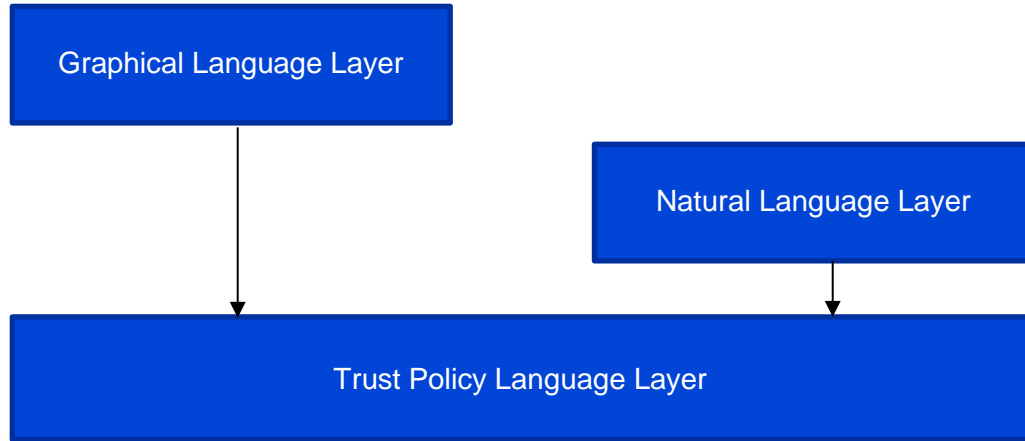


Figure 1: Interaction of layers in the Trust Policy Authoring Tool

On the basis of the description given above, the tool has the following technical limitations:

- The tool will not be able to translate a policy created in the graphical language format to the natural language format.
- The tool will only translate a policy created in the graphical language to the trust policy language format
- The tool will only translate a policy created in the natural language format to the trust policy language format
- The tool will not translate a policy created in the trust policy language format to the graphical language format
- The tool will not translate a policy created in the trust policy language format to the natural language format

4.2 Trust Policy Authoring Tool (TPAT) UI Requirements

With the Trust Policy Authoring Tool (TPAT) the user must be able to create individual Trust Policies. The UI requirements for the TPAT were defined in Chapter 5 of the technical requirements from D2.3 Chapter 5 and the User Story (see 5.2.2).

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4.2.1 Technical Requirements applying to the TPAT (see D2.3 Chapter 5)

Technical Requirement	
FR-07.00-Policy Authoring and Visualization Tools Use Acceptability	Policy Authoring and Visualization Tools MUST be an interactive software (e.g. one or several desktop/web applications) that make it easy for non-technical users to visualize and edit a Trust Policy.
FR-08.00-Individual Trust Policy	LIGHTest Trust Policy MUST provide formal instructions on how to validate trustworthiness of a given type of transaction. It always states which Trust Lists from which Authorities should be used.
FR-08.01-Individual Trust Policy: Flexibility	The LIGHTest Individual Trust Policy MUST be able to interpret LIGHTest Trust Policy Language.
FR-08.02-Individual Trust Policy: Interface	The Policy authoring Tool MUST have a user-friendly interface for non-technical users.
FR-08.03-Individual Trust Policy: Creation	The Policy Authoring Tool MUST be able to create and edit Trust policies.

Based on those requirements and the use cases in D2.3 the following User Story shows a typical usage scenario of the Trust Policy Authoring Tool.

4.2.2 User Story: Trust Policy Modelling

The following User Story builds upon the User Story “Verification Process” (see 5.1.2).

“You want to rename the Trust Policy, that it becomes a little bit more intuitive. After that you want to create a new Trust Policy which states, that you trust every company which is also trusted by the German Government.”

This story covers basically all of the above mentioned requirements.

4.2.3 Trust Policy Authoring Tool Requirements

Based on the technical requirements and the user story (see 5.1.1 and 5.1.2) the following requirements were defined:

The user must...

...have an overview of all existing Trust Policies.

...be able to create new trust policies.

...be able to edit existing trust policies.

...be able to delete trust policies.

...be able to give them a name to identify them more easily.

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Based on those requirements more assumptions were made:

- Trust policies should be copied to make the creation of new ones out of existing ones easier.
- Regarding error tolerance, the user must be able to undo all his actions.
- Before deleting a policy the user must be notified that this action cannot be undone.
- When creating a new Trust Policy the user needs clear instructions on what is possible.
- Considering the different layers (see Chapter **Fehler! Textmarke nicht definiert.**) it must be clear to the user which layer has which advantages and that the user can only change to the TPL layer and cannot undo that. This must be presented in a clear way so that the user is able to make a good decision for himself.

4.3 Usage sequence with mock-ups

The Low-fidelity Prototype developed within D6.3 shows a basic interaction flow with the basic elements of the Trust Policy Authoring Tool with no further design of the Trust Policies itself. The design of the Trust Policies themselves is part of this Deliverable.

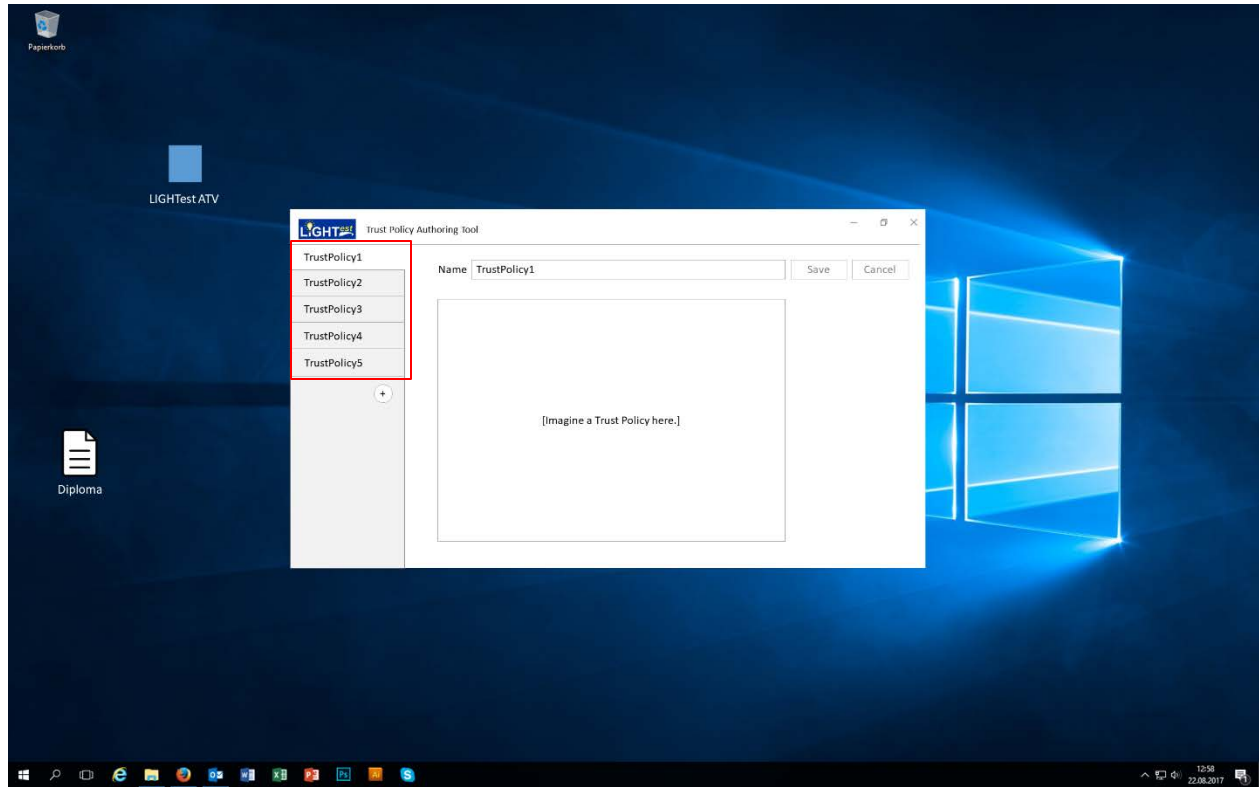
The Prototype was created with Adobe Photoshop and Microsoft PowerPoint. It was the basis for the first Usability Evaluation and for optimizing and further development of the Prototype and therefore the system.

This sequence shows how the user can edit and create Trust Policies with the *LIGHT^{est} Trust Policy Authoring Tool*.

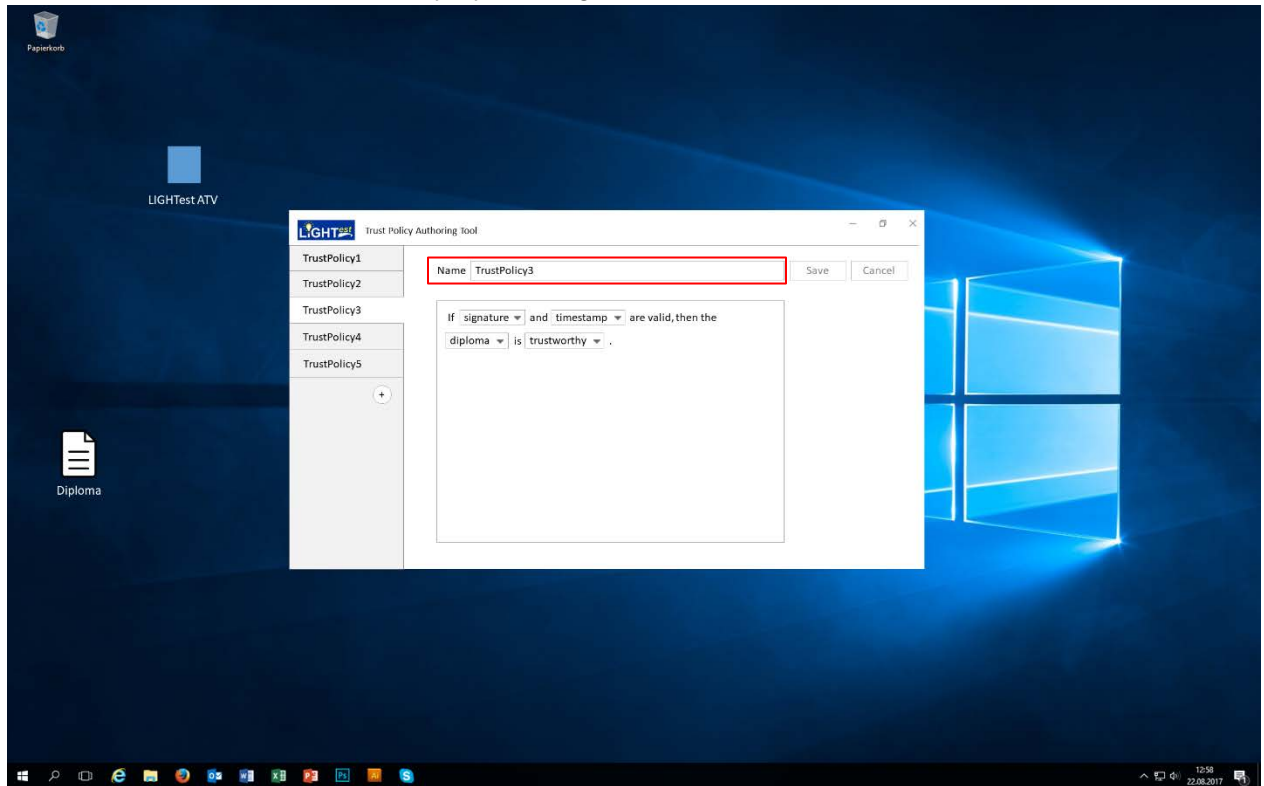
- First the user has to select the “LIGHT^{est} Trust Policy Authoring Tool” Desktop Icon to open the tool.

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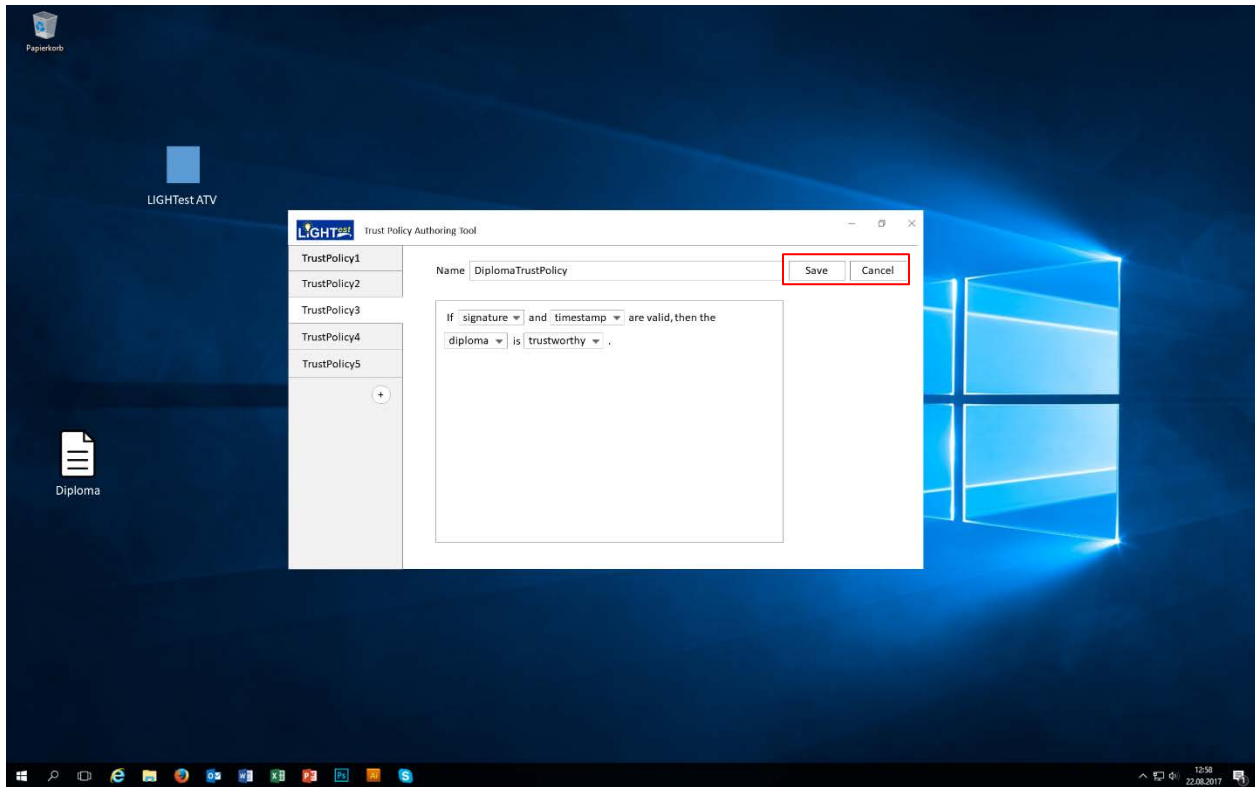
- The sidebar at the left shows the user all existing Trust Policies.
- The user can select a Trust Policy by clicking on it in the sidebar.



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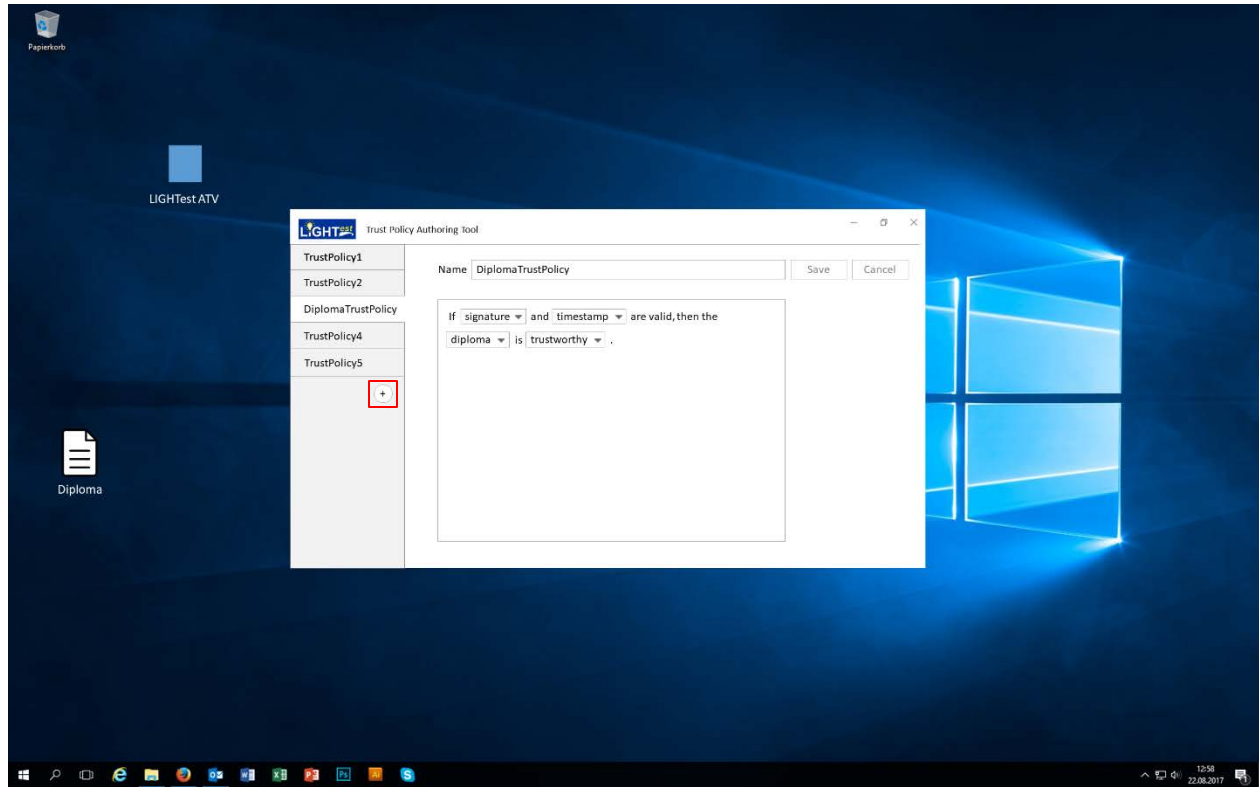
- After selecting the preferred Trust Policy the user can rename the Policy by changing the input in the text field provided at the top.



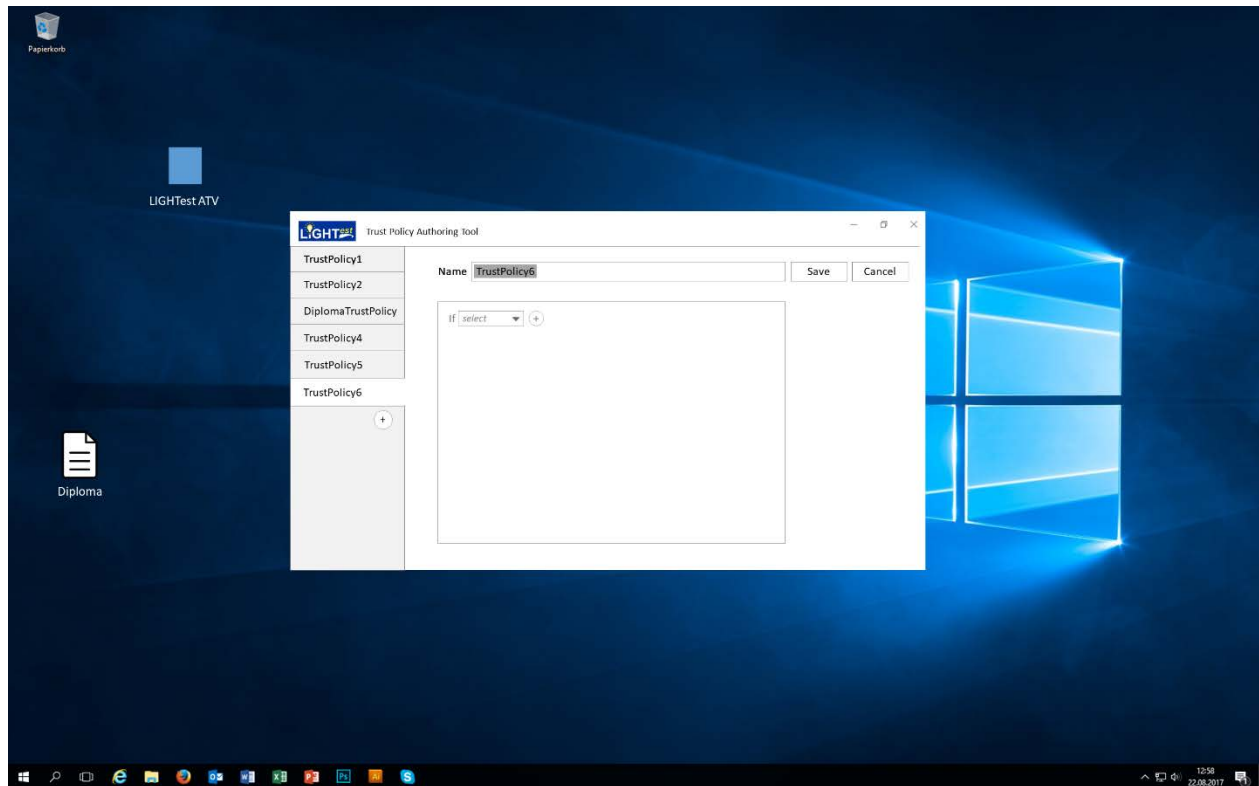
- As soon as the user changes anything, the “Save” and “Cancel” – Buttons become available.
- By clicking on “Cancel” the before conducted changes are deleted and the last saved state of the policy remains.
- By clicking on “Save” the current changes are going to be saved and the buttons are suppressed again.

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- By clicking on the “+”-Button in the sidebar, the user can create a new Trust Policy.



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- The newly created Trust Policy has a default name which is highlighted, so the user can change the name right away.
- The content field for the Trust Policy is basically empty, but shows the user a first hint how to start.

The content of a Trust Policy was defined in several workshops and is going to be addressed later on in the deliverable.

4.4 Summary of usability evaluation results

With the Low-Fidelity Prototype a usability test was conducted. As this was a huge part of the Deliverable D6.3, only those results relevant for this Deliverable will be mentioned.

Overall the navigation through the tool was understandable and straight forward. Tasks like creating, editing or deleting an existing Trust Policy were easy to accomplish for the users.

The main problem occurred when users had to create their own Trust Policy. Despite the fact that it was specified in detail what they should express, the overall concept and principle behind it was cognitively overloading the users. Interaction itself did not cause problems, but some users mentioned that they were missing help positions or more information, because they were just reproducing what they were told to without knowing if this made sense or is of high quality.

As at this stage of the project the detailed design of the policy creation was not defined and there was still major work required within this task we concluded the results as positive.

For the overall interaction concept this meant that no major changes needed to be made.

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5. Design of Editing of Trust Policies

5.1 Methodology

- Workshops
 - o Personas
 - o Establishing functional requirements
 - o Interaction design and Building Blocks

5.2 High-Fidelity Prototype

Based on all preliminary work we developed a High-Fidelity Prototype using axure¹.

The main purpose of the prototype was to evaluate the overall interaction concept and especially the creation of trust policies in the Graphical Layer and Natural Language Layer. Thus, not all possible functions are implemented in the prototype, only those to be able to fulfil the scenarios in section 5.2.2.

5.2.1 Interaction flow creating new Trust Policies

Considering user guidance and the technical frame conditions (see chapter 4.2.1) the following interaction flow was defined.

¹ www.axure.com/

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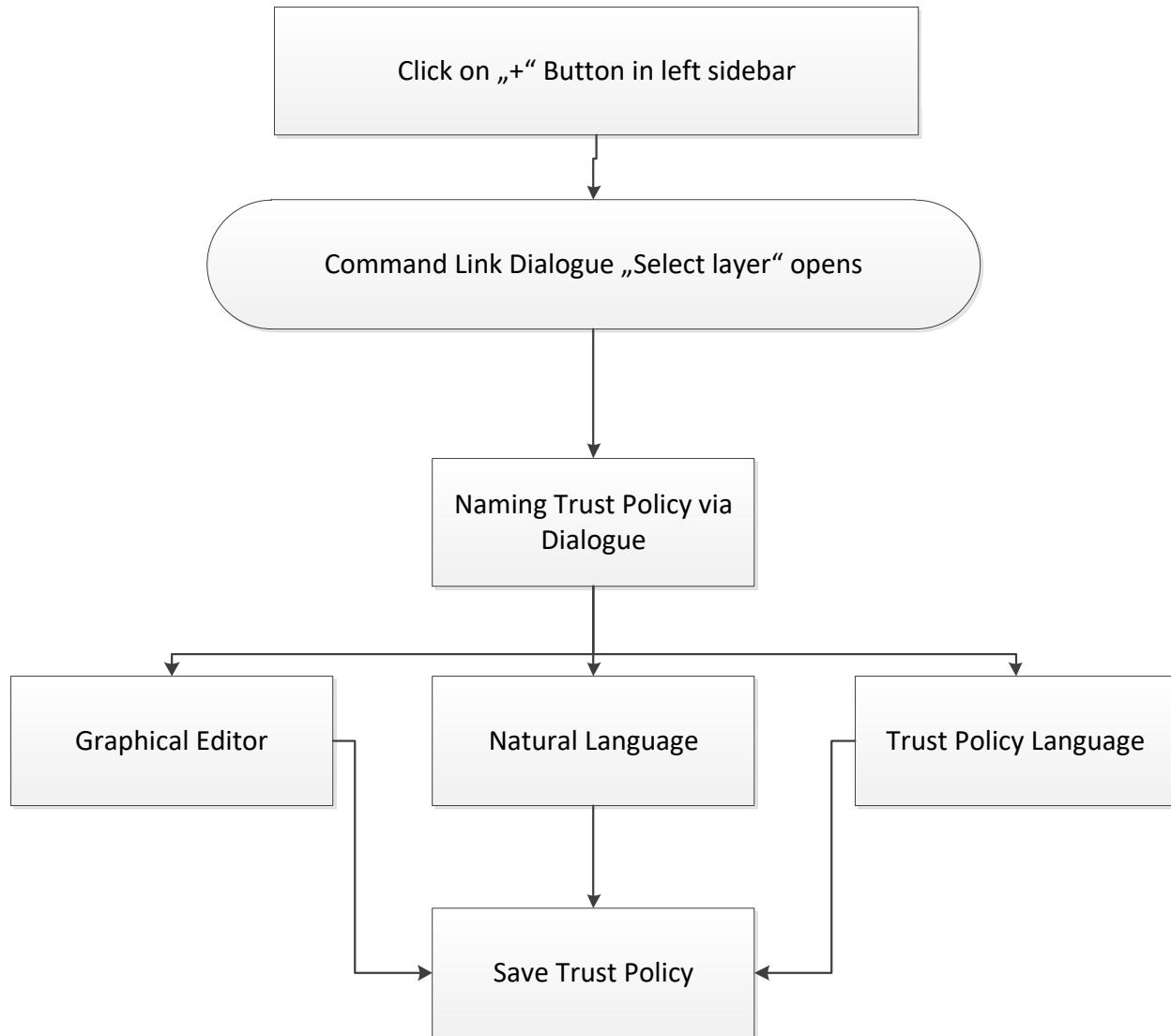


Figure 2: Interaction Flow showing how to create a new Trust Policy in one of the layers

Chapter 7.1 shows how Policies are created in the Graphical Editor and the Natural Language in detail.

5.2.2 Scenarios covered in the High-Fidelity Prototype

5.2.2.1 Scenario 1 – Trust Policy Creation in Graphical Editor

You are working in the administration office at a university and you're responsible for different types of tasks that have to be executed regularly. One of those tasks is to check the diplomas of applicants, to see if they are valid.

Digital diplomas need checking if the digital signature is from an official university and approved. As you don't know all digital signatures from every university worldwide, your technical department gives you a tool that enables you to check them.

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They told you that you can create so called „Trust Policies“ with the tool. In those Trust Policies you can define which Trust Schemes you trust or mistrust. A Trust Scheme is basically a list with elements, that are categorized either as trustworthy or untrustworthy.

The tool enables you to create those policies in different ways, the easiest way is to create them with the „graphical editor“ or with the „natural language layer“ for more complex policies. Your university’s policy only accepts diplomas from European and American universities, but your university does not accept diplomas from „random universities“. You are using the tool for the first time, therefore you want to use the graphical editor first.

5.2.2.2 Scenario 2 – Trust Policy Creation in Natural Language

After you successfully created your first trust policy with the graphical editor, you want to create a second trust policy. To decide if you are allowed to execute an invoice, you have to check the amount of each invoice first.

As this is really time consuming, you want to create a trust policy that makes that easier. The trust policy has to match the following terms:

You are allowed to handle invoices from European companies if the amount is less than 10.000€. If the amount is more than 10.000€ you are only allowed to handle invoices from German companies.

You realize that the graphical editor is not the right layer for this kind of policy. Therefore you decide to try out the natural language layer.

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6. Usability and User Experience Study

6.1 Methodology

The evaluation with a high-fidelity prototype based on html files took place in a laboratory setting. 18 participants took part in the evaluation. The overall study goal was to provide formative and summative feedback on the basis of the evaluated prototype. With the existing prototype, the LIGHTest client's functionality of the envisioned system could be presented in an interactive way and evaluated ideally for usability outcomes. In addition, we introduced a User Experience measuring questionnaire – the User Needs Questionnaire (UNeeQ). The UNeeQ measures to which extent a set of ten basic human needs are addressed and how the overall user experience with a product was. It measures that by letting participants rate their accordance to predefined sentences on a five level Likert-scale from “not at all” to “highly”. As these measurements are highly subjective and depend on the current mood of the participants, they had to fill out the UNeeQ right before and directly after interacting with the prototype. Thus, the data could be compared as we measured the users' mindset before the interaction and how the interaction changed it. In combination with the follow-up interviews we hoped for insights to which needs are addressed.

The study was conducted in September 2018 and consisted of three parts:

- Preliminary Interview
- UNeeQ
- Testing Phase
- UNeeQ
- Follow-up Interview

The preliminary interview, which can be found in the appendix, covers some basic questions to get to know the participants a little bit better. The participants were asked if they ever created some sort of Policy before and if yes, with which tools. This question was necessary to clarify the background of the participants in this topic. Experiences with different tools or with creating policies in general could influence the test results in both ways. Then they were asked to rank their coding skills and name their job title. As the task given in the evaluation is somewhat coding related these questions could offer some insights about the experiences the participants have with coding or in this topic in general. The last two questions were about physical limitations and if the participants would consider themselves technophile. The preliminary interviews closed with an explanation about LIGHT^{est}, the purpose of the evaluation and the test settings.

After the preliminary interview the moderator provided the participants with the needed information and asked him/her to comment or ask questions at any time. Also the participants were asked to think aloud during the test phase. According to the typical usability testing method, in each test session the participant has been instructed to follow along a predefined scenario and procedure. The participants were given one task to execute during which they

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were observed and notes taken of their behaviour. After finishing the first task, the same methodology was applied for the second task.

The two tasks applied in the usability test are “Trust Policy Creation in Graphical Editor” (see 5.2.2.1) and “Trust Policy Creation in Natural Language” (see 5.2.2.2).

The evaluation was wrapped up with a follow-up interview, with which the subjective view about positive and negative aspects of the interaction with the prototype were retrieved. Those questions complemented the objective observations of the moderator, with subjective test data.

A detailed listing of the overall tasks and interviews used in the tests can be found in the Appendix.

6.2 Results

The evaluation collected quantitative data through questionnaires and qualitative data in the form of observational and verbal data (e.g. comments and arguments by the participants, “think-aloud”-data, observed problems and statements). The results are reported in the following.

6.2.1 Participants

The test participants (TPs) have been chosen randomly from a pool of test users. 13 male and 5 female participants took part in the evaluation.

The average age was 31.29 years with a standard deviation of 5.98. Youngest participant was 23 years old, the oldest participant was 50 years old.

The following diagram shows the answers of participants about their perceived programming skills.

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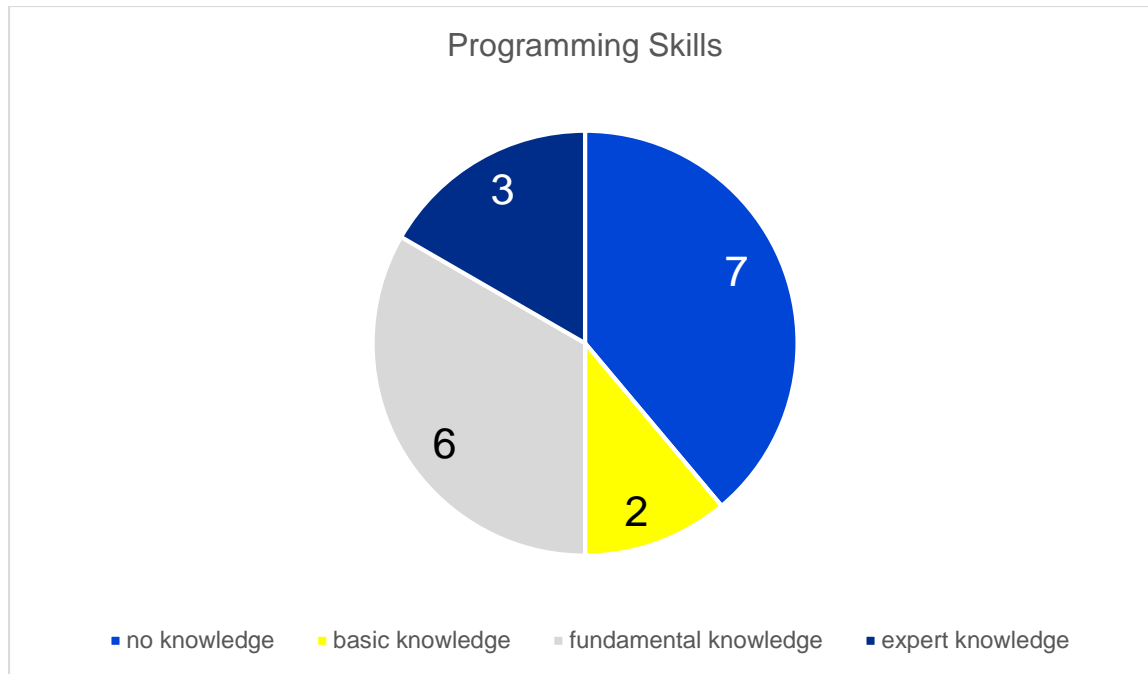


Figure 3: Distribution of answers considering programming knowledge

The following figure shows the distributions of answers considering participants perceived enthusiasm about technology.

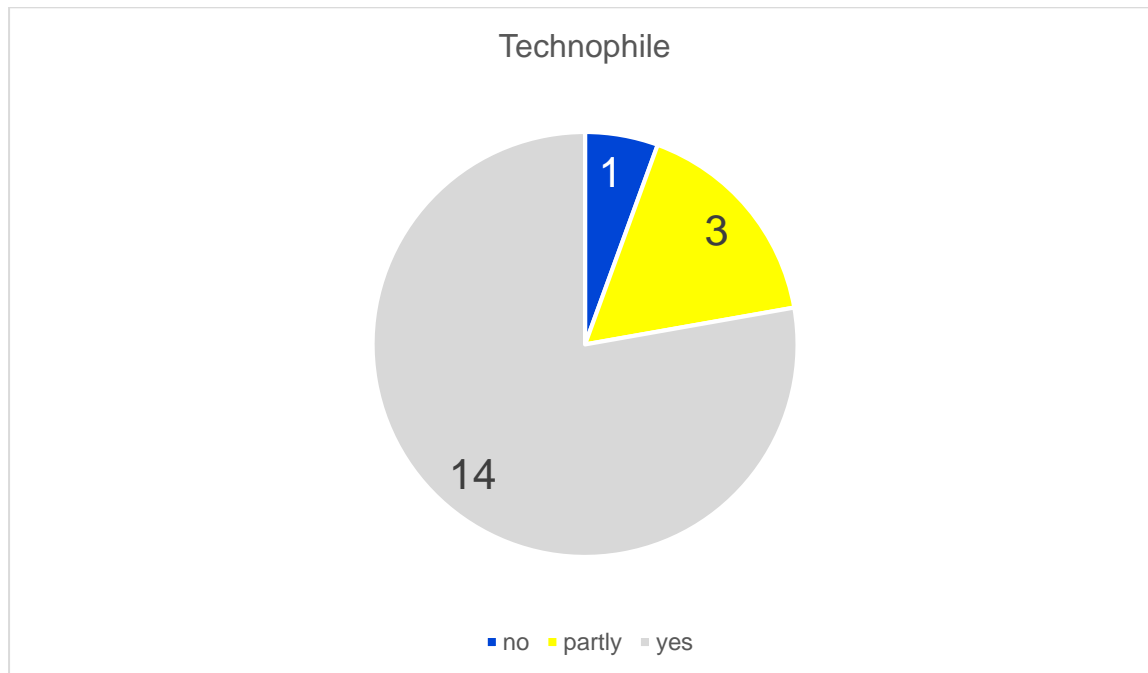


Figure 4: Distribution of answers considering being technophile

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Overall the participants are a good representation of the expected users of the LIGHT^{est} clients – no absolute experts but no beginners either.

6.2.2 Task Completion Rate

Both scenarios from 5.2.2.1 and 5.2.2.2 were split into several subtasks for the evaluation to be able to detect the task completion rate. Scenario 1- Trust Policy Creation in Graphical Editor, was divided into two subtasks:

1. Create a new Trust Policy using the Graphical Editor
2. Add Trust Schemes to the newly created Trust Policy

Scenario 2 – Trust Policy Creation in Natural Language, was divided into 3 subtasks:

1. Create a new Trust Policy using the Natural Language
2. Formulate a first statement
3. Formulate a second statement

The following figure displays the task completion rate for each task.

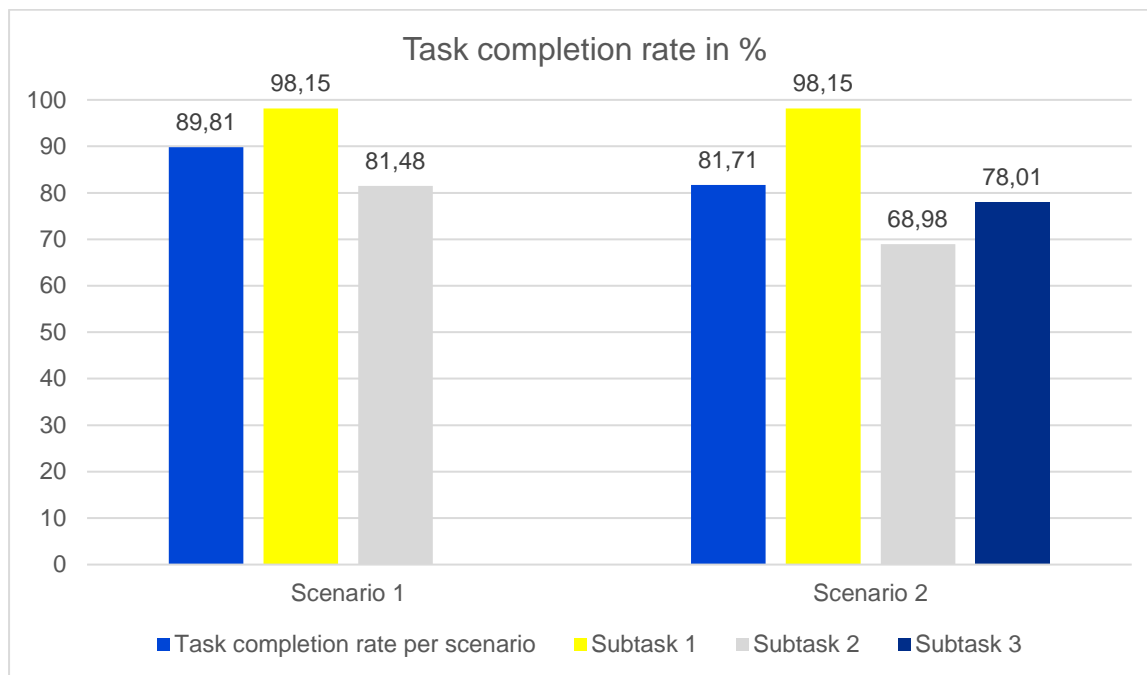


Figure 5: Task completion rate

The overall task completion rates are showing a high usability.

Only the creation of a first statement in the second scenario seemed to be a bit challenging for some participants. Shortcomings in the prototype were a big factor for that – nevertheless to be sure more usability testing would be needed.

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Main problem was the sequence in how tasks needed to be done and that the intuitive way was not implemented in the prototype. As those aspects will be considered in the final concept (see chapter 7) we are confident that this will not cause problems in future systems.

Also the task completion rate improved with the second statement within scenario 2, which can be interpreted as a learning effect.

6.2.3 User Needs Questionnaire (UNeeQ)

As the participants filled out the questionnaire before the interaction with the prototype the results have to be looked at as critical. The measurement is highly subjective and results can be quite different for each participant. To be precise, we would have to look at the results from each participant individually. As this would be too much for this deliverable we are only presenting the overall results.

The following figure shows the results for the UNeeQ before the interaction with the prototype.

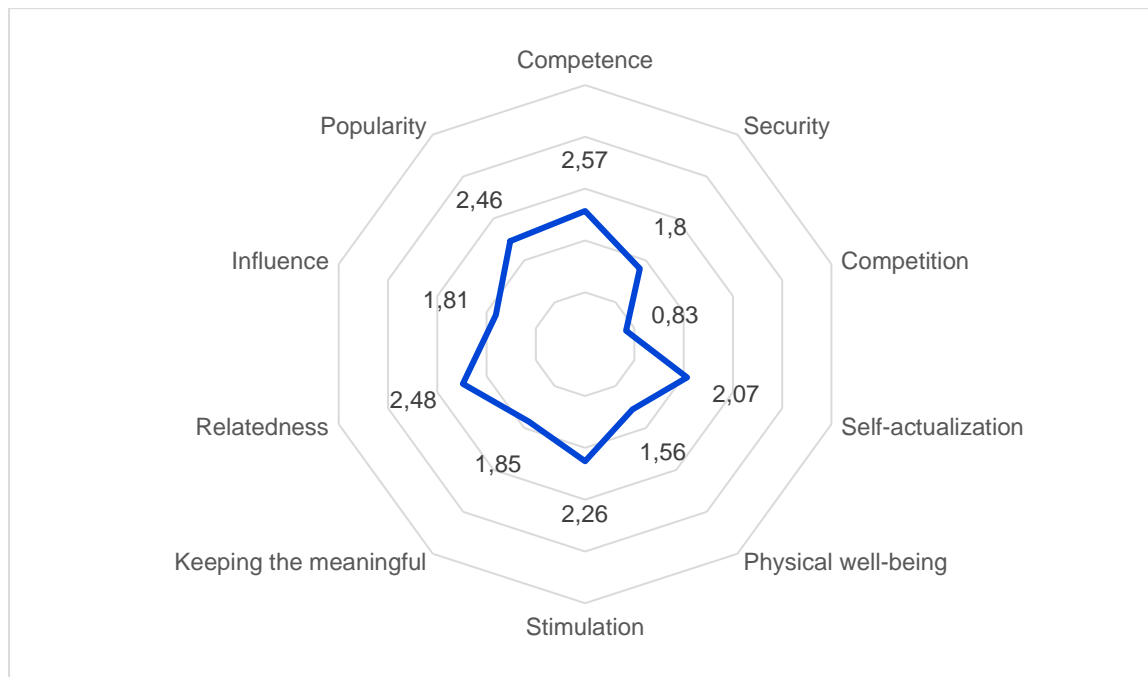


Figure 6: results from the UNeeQ before the interaction

The next figure shows the results from the UNeeQ after the interaction.

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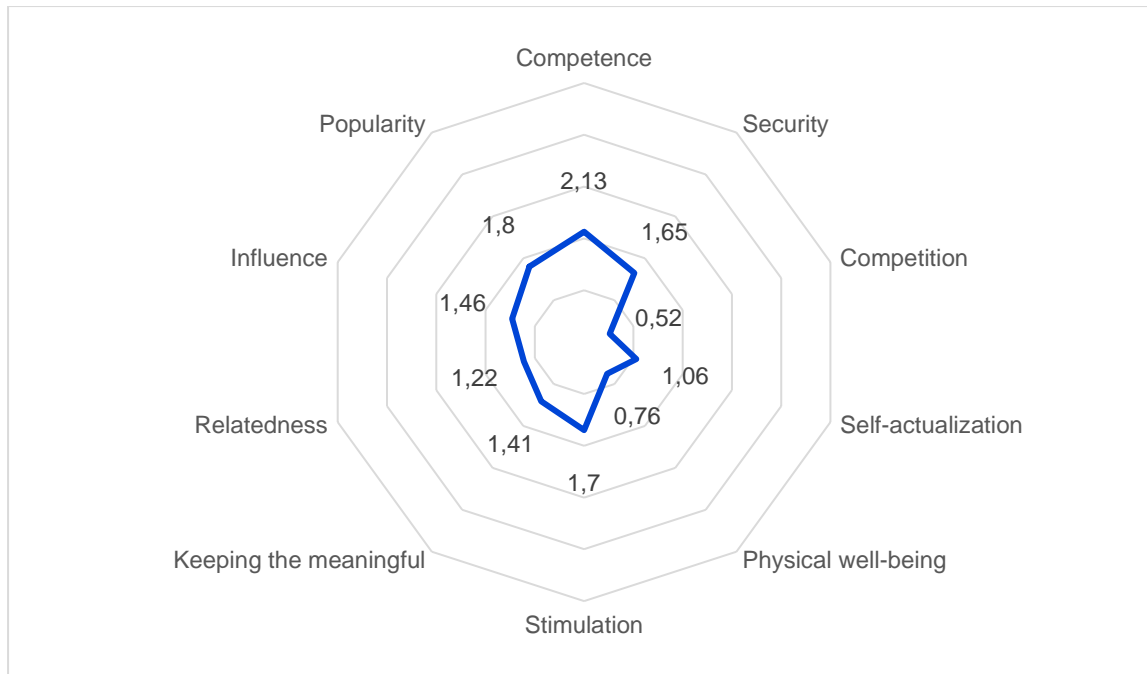


Figure 7: results from the UNeeQ after the interaction

And the last figure considering the UNeeQ show the results in comparison.

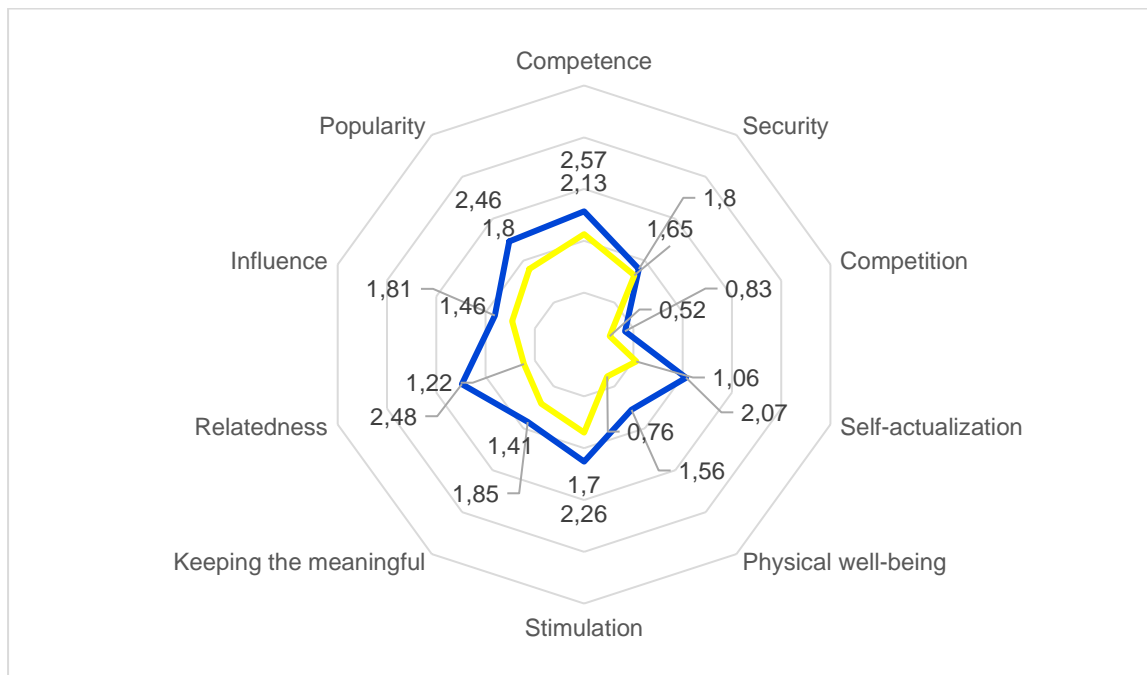


Figure 8: results from the UNeeQ in comparison

As seen in Figure 8 the value for each basic human need dropped after the interaction. As these results are not easy to interpret, we can only make assumptions:

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- The usability issues decreased the addressing of the needs
- Measurements did not work for that setting
- Participants were focusing on the functionality and achieving the tasks, so an experience could not develop.

For future evaluations these aspects have to be considered.

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7. Final concept

The concept presented in this chapter is by no means the only possible solution or really final. It simply is the final concept within the project duration that we worked on.

We argue that it is a good starting point for further development and usability studies, as already two user evaluations were conducted during different project stages and therefore the concept has an overall good usability.

7.1 Interaction flow and design

Figure 3 shows how the start screen would look like when first using the trust policy authoring tool. The left sidebar does not contain a trust policy yet. By clicking on the “+” button (either in the sidebar or in the middle part) the user is able to create a new trust policy.

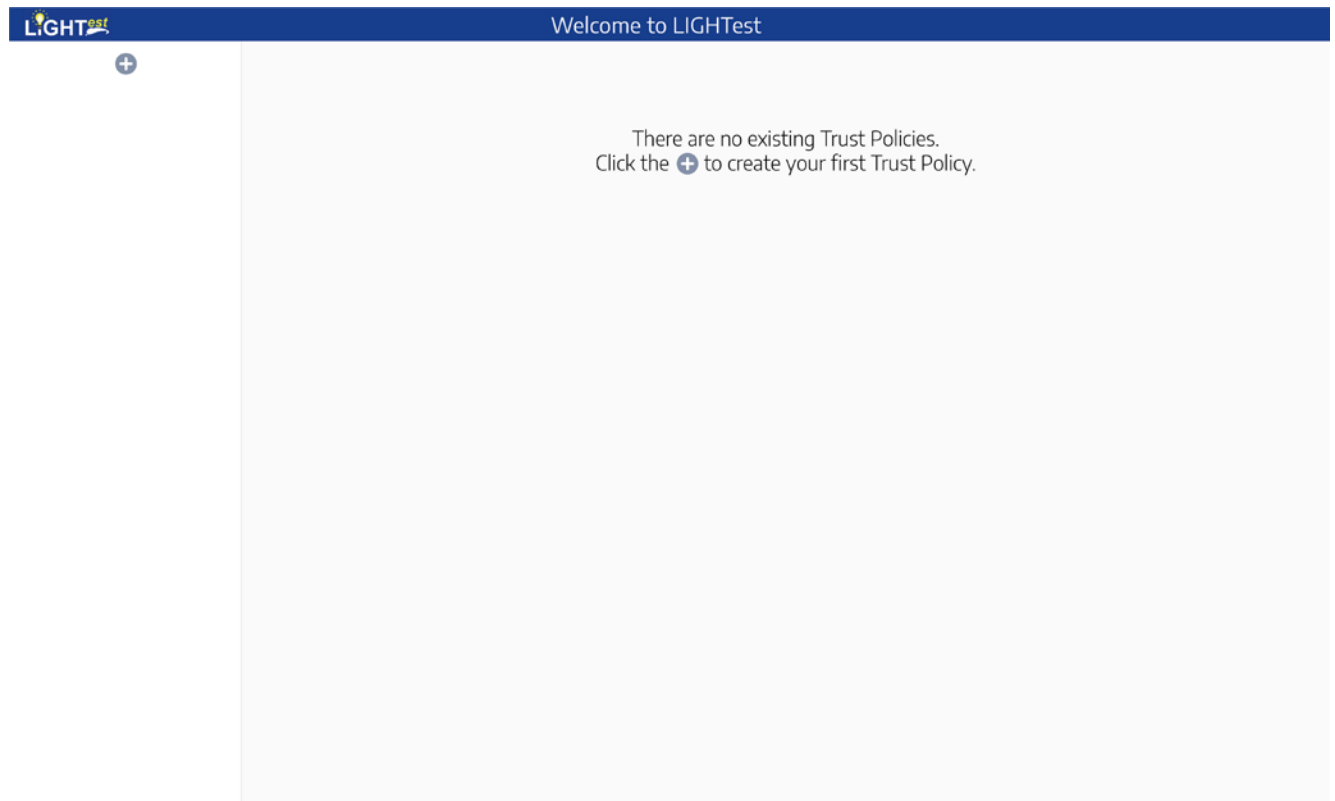


Figure 9: Start screen with no existing policies.

As soon as the user has clicked on the “+” – button a command link dialogue opens. This dialogue offers the user the possibility to either create a new trust policy in the “Graphical Editor”, “Natural Language Layer” or “Trust Policy Language Layer”.

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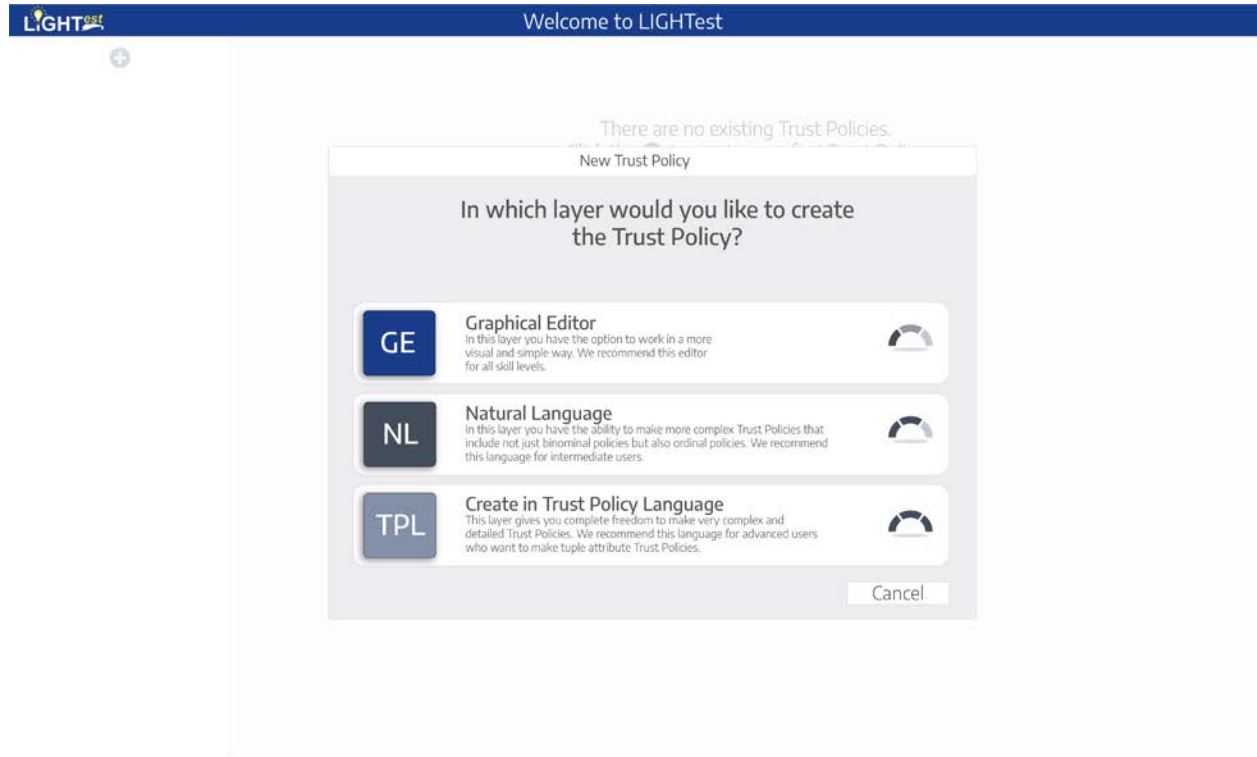


Figure 10: Command Link Dialogue with different Layers

After selecting one of the possible layers, the dialogue closes and a new one pops up that asks the users to enter a name. This makes identifying the different policies easier.

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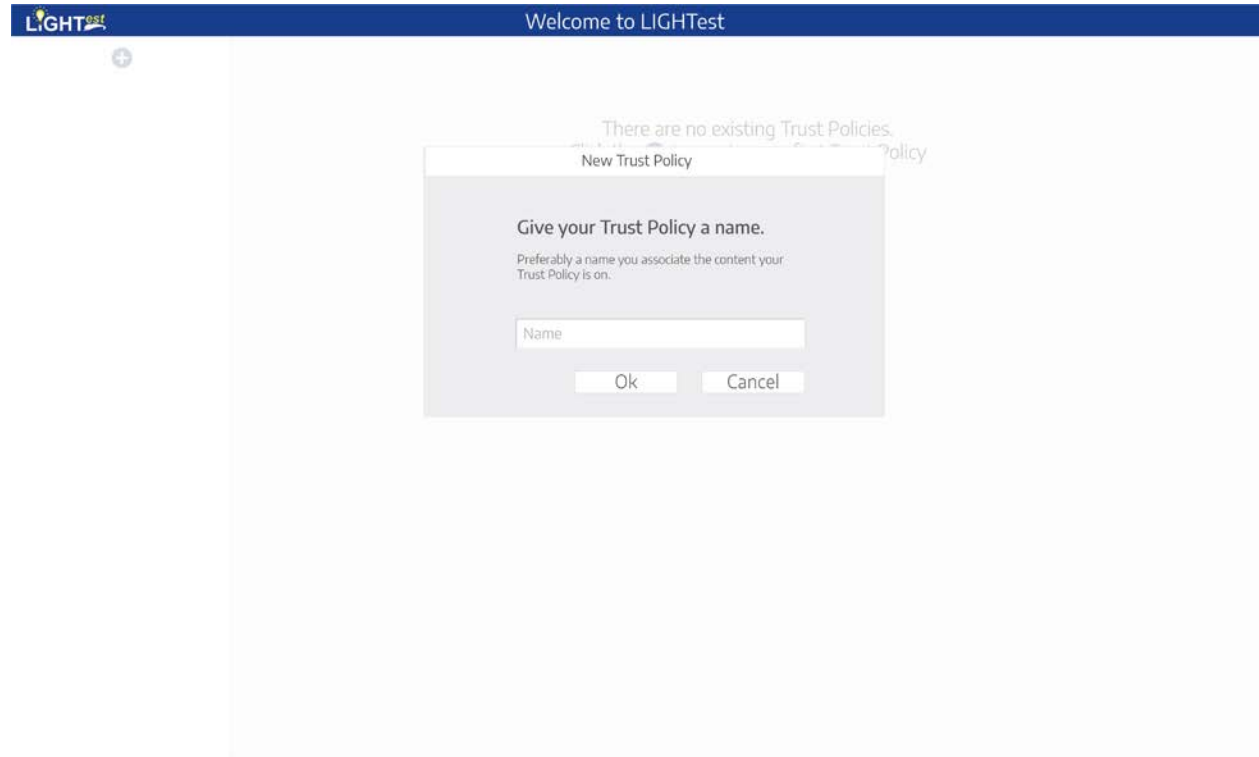


Figure 11: Giving Trust Policy a name

7.1.1 Graphical layer

Figure 5 shows how a newly created Trust Policy in the Graphical Editor.

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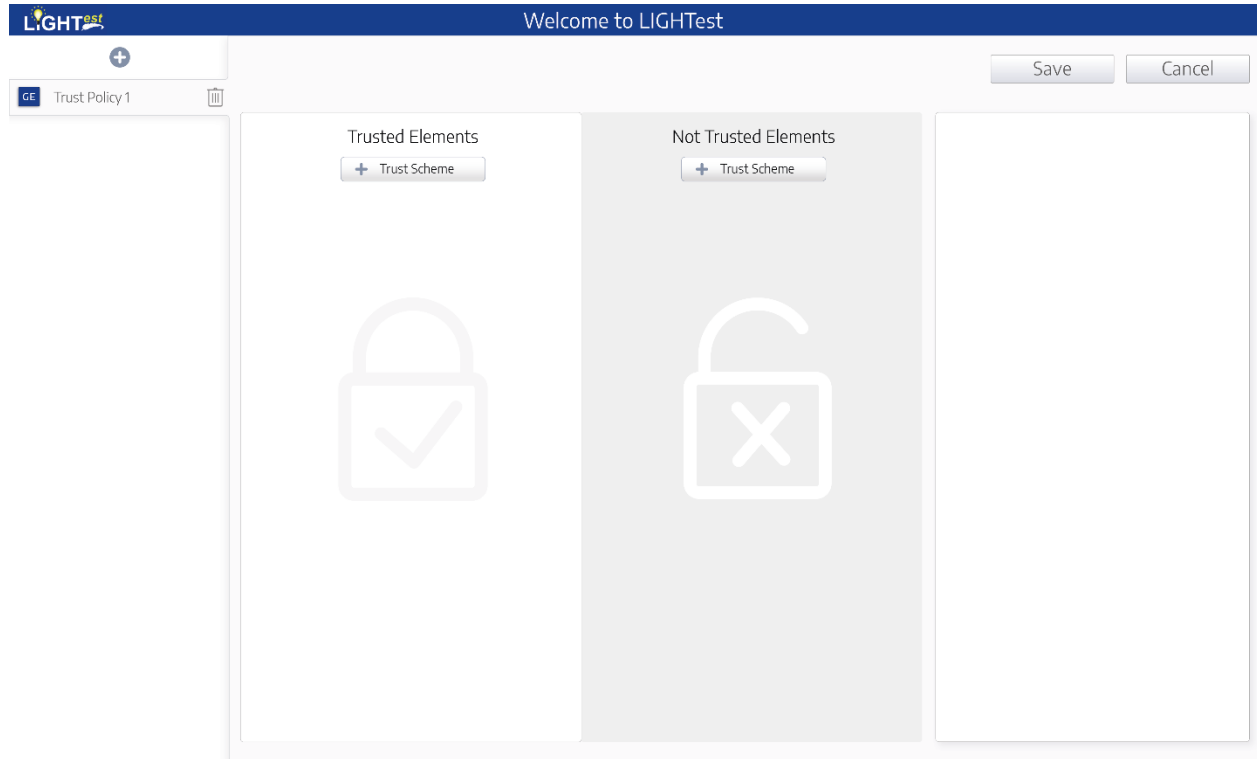


Figure 12: newly created Trust Policy in the Graphical Layer

The newly created Trust Policy is displayed on the left sidebar. The icon left to the name gives an indication to what layer the policy was created. With the bin icon on the right to the name, the users can delete the policy. If the users delete a policy a dialogue appears that will ask the users if they are sure they want to delete the policy. This will prevent the users from accidentally deleting policies. The main part – in the middle of the screen – is divided into two areas. The left area is for Trust Schemes that users want to trust. The right side it for Trust Schemes the users do not trust. To add a trust scheme to one of the areas the users have to click on the “+ Trust Scheme” – button in the upper area of the screen.

Figure 6 shows how the user interface looks, as soon as the users have added a trust scheme.

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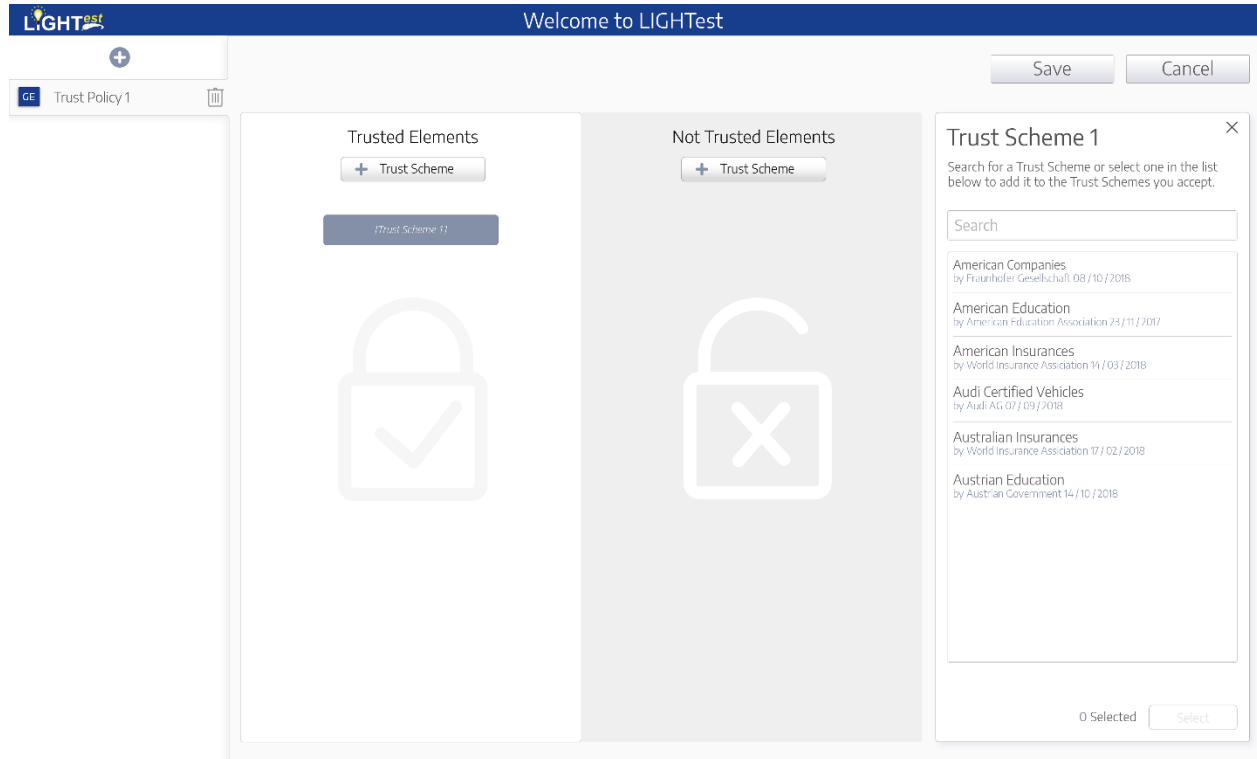


Figure 13: Adding a Trust Scheme to the trusted side of the policy

A placeholder item inside the area appears that is symboling the trust scheme that was added to that side. The users are able to search in two different ways for the trust scheme, displayed in the right sidebar. One possibility is to have a search-as-you-type field. As soon as the user starts typing within the field the list beneath it will be filtered according to what was typed in the search field - see Figure 7.

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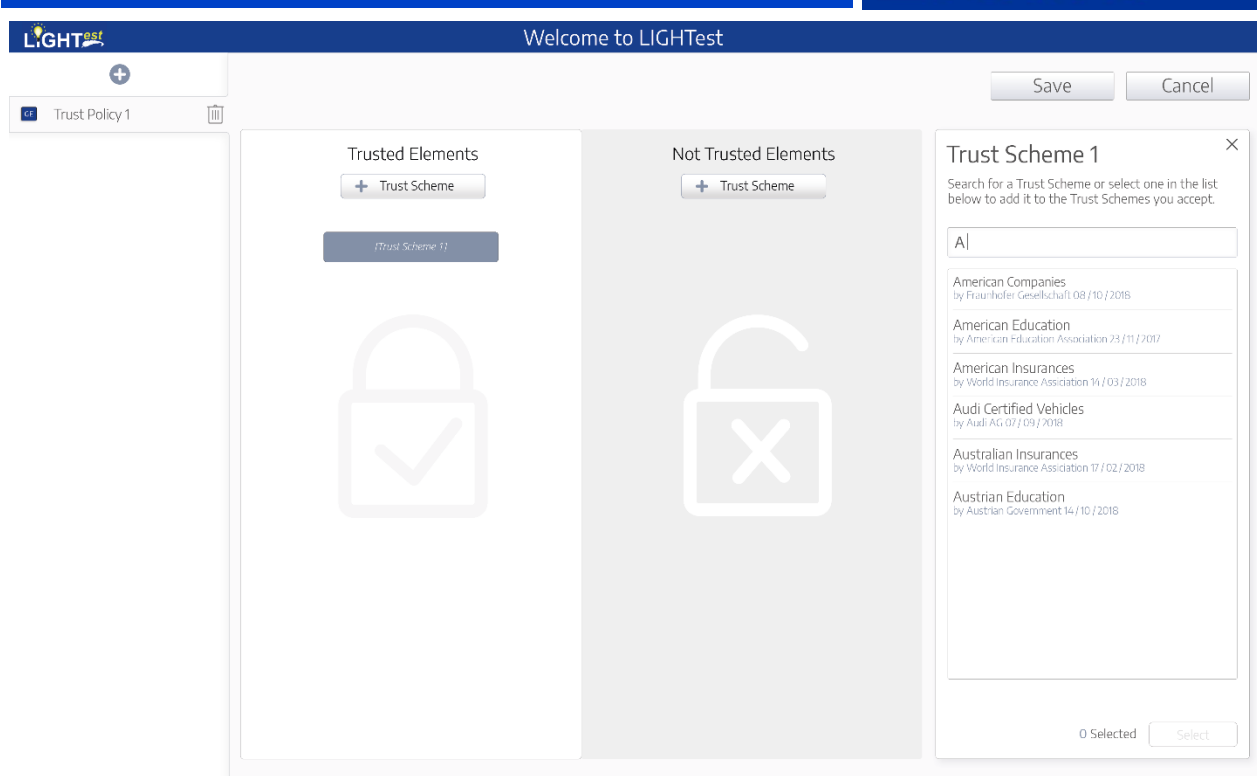


Figure 14: adding a trust scheme via search-as-you-type

The users can either keep typing and filtering the list, or they can directly chose a trust scheme from the list.

The other possible way to select a trust scheme is to just scroll the list below the search-as-you-type field and directly select one – see Figure 8.

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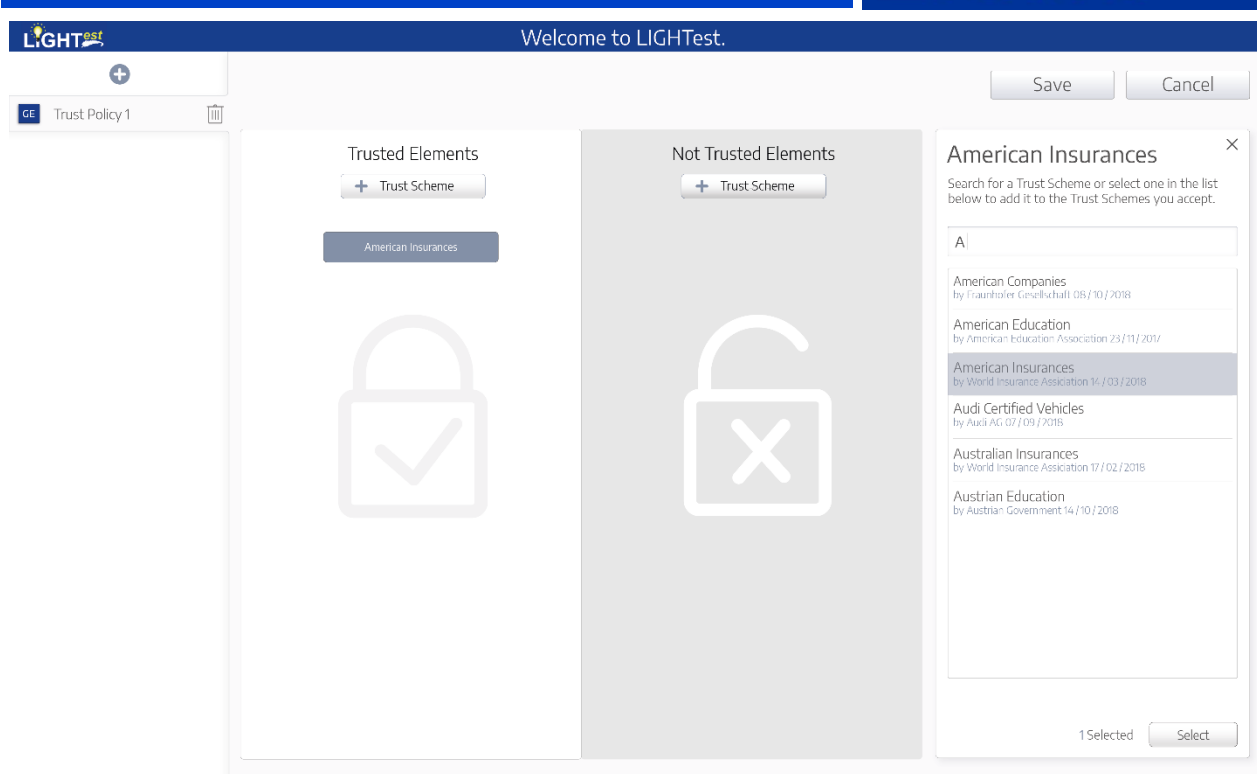


Figure 15: adding a trust scheme via the selection list

As soon as the users select a trust scheme the default name in the placeholder in the middle and also the placeholder heading will change to what was selected. This makes it easier for the users to later identify the trust schemes.

The users are also able to select several trust schemes at a time. This is achieved by marking more than one trust scheme either with holding “STRG” and clicking or marking more than one trust scheme with the mouse.

7.1.2 Natural Language layer

If the users select „Natural Language“ in Figure 10 they are able to create a Trust Policy using the natural language.

The following figure shows a Trust Policy with two added building blocks.

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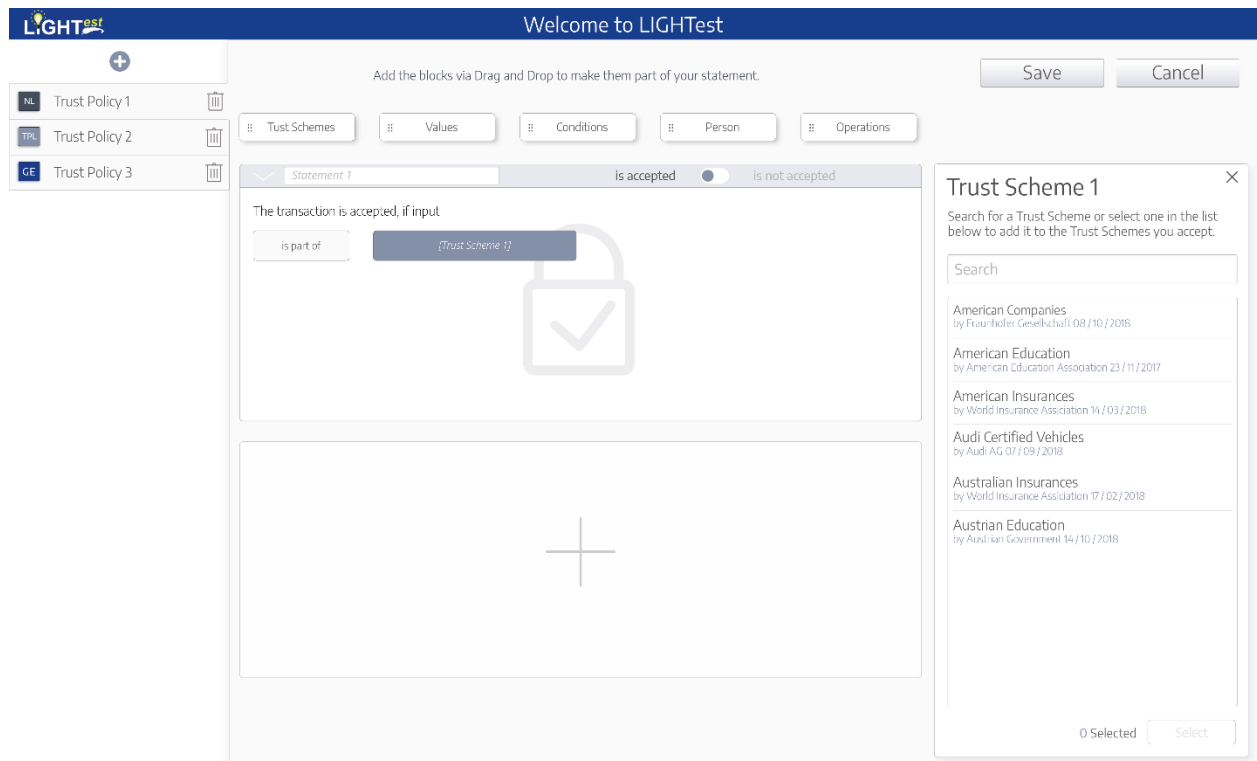


Figure 16: Trust Policy in Natural Language

The structure of the page itself stays the same as in the Graphical Editor.

On the left the existing Trust Policies are listed, as well as the possibility to create a new one.

In the middle the content of the selected trust policy is shown. On the top the users see the available building blocks with which they can create a trust policy. Beneath the users are able to formulate one or several statements. The building blocks need to be added to a statement to work with them. There are two possible ways to add a building block to a statement. One is to drag and drop the needed building block into a statement, another is to click on the building block. By clicking on the building block, the content of the building block appears in the right sidebar and the users are able to edit it to their wishes and then add it with a click on the button in the right bottom corner. Depending on the building block there is different content displayed.

Each statement can be given a name, as well as defined if the users want to accept or not accept the condition they formulate within the statement. Users can add a statement by clicking on the “+” Icon underneath the first statement.

Chapter 7.1.2.1 will go into more detail about the building blocks.

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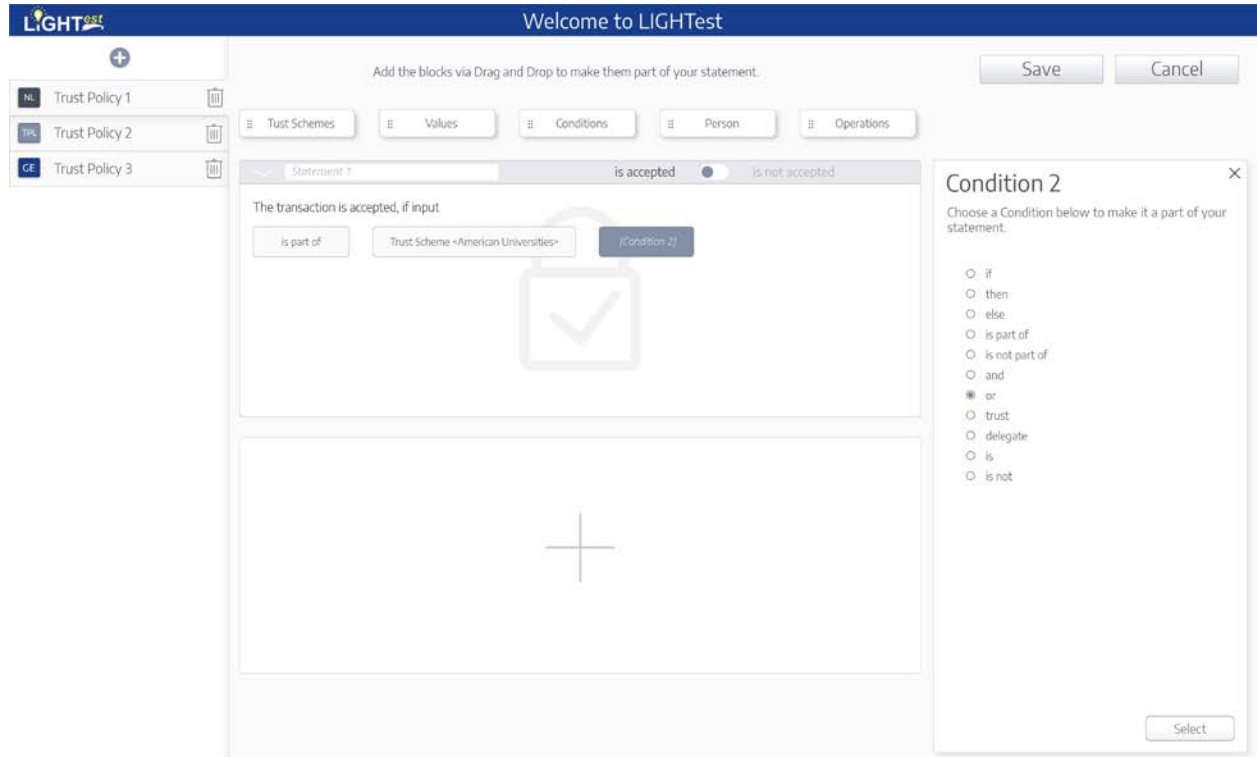


Figure 17: Trust Scheme added and new building block added

In Figure 16 you see a Trust Scheme added and also a new building block – a condition - was added to the first statement. In the right sidebar you see all possible values for a condition. The example shows that “or” is selected and with a click on the “Select”-Button the “or” – Condition is

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added to the building block and therefore to the statement.

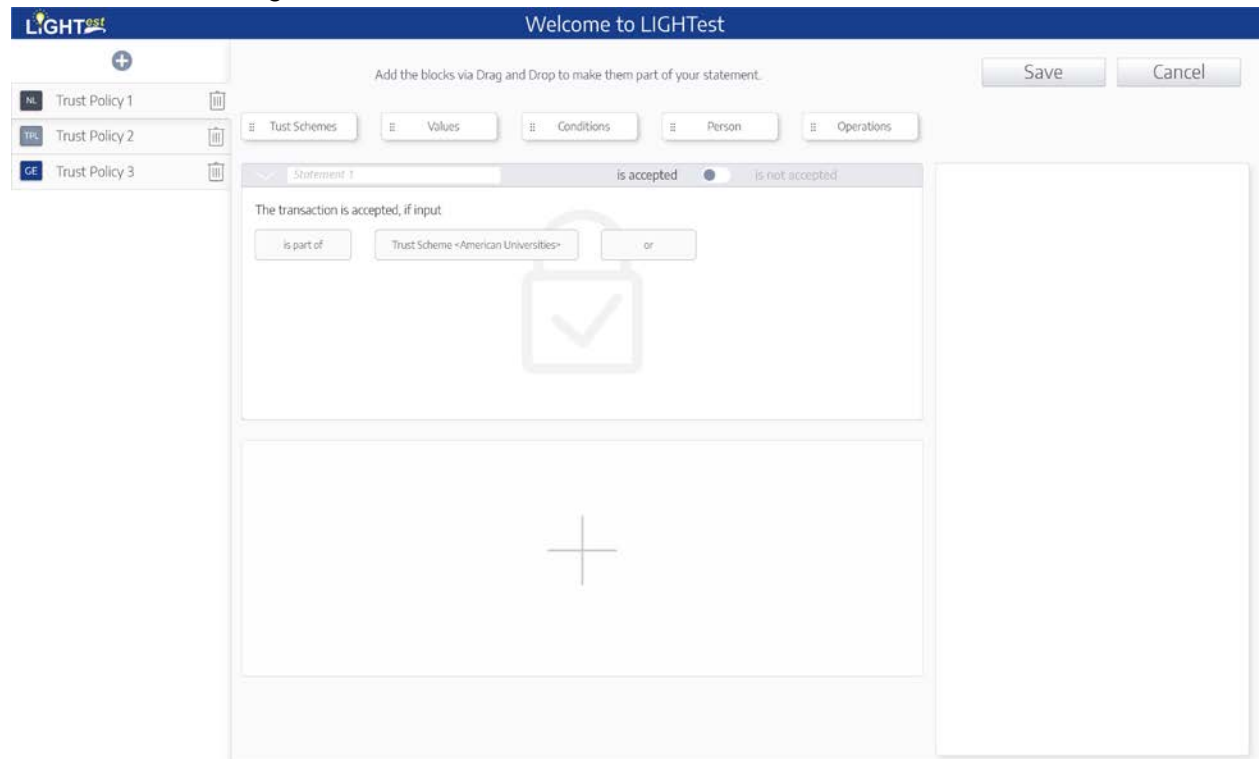


Figure 18: Condition Building Block added to the statement

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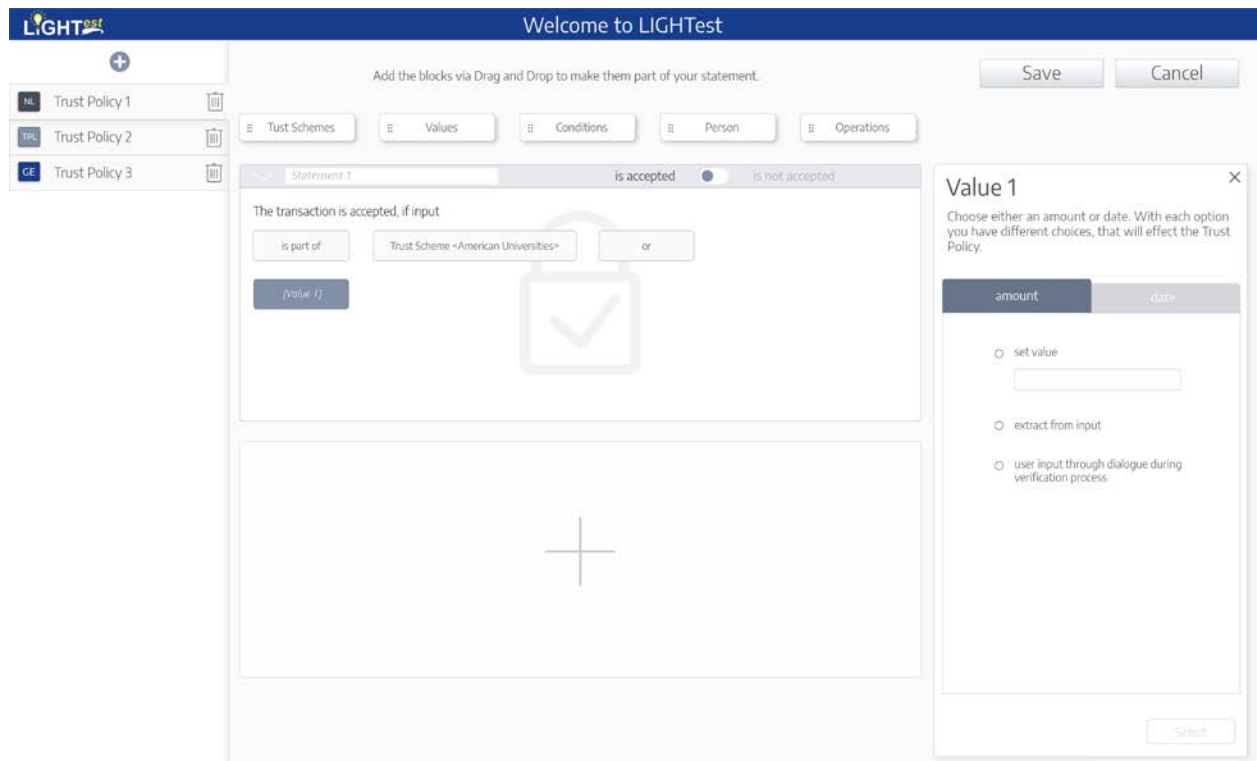


Figure 19: Value building block added to the statement

Figure 18 shows a value building block that has been added next to the statement. In the right sidebar the users can choose between “amount” and “date”. And within those two options the

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users again have different possibilities.

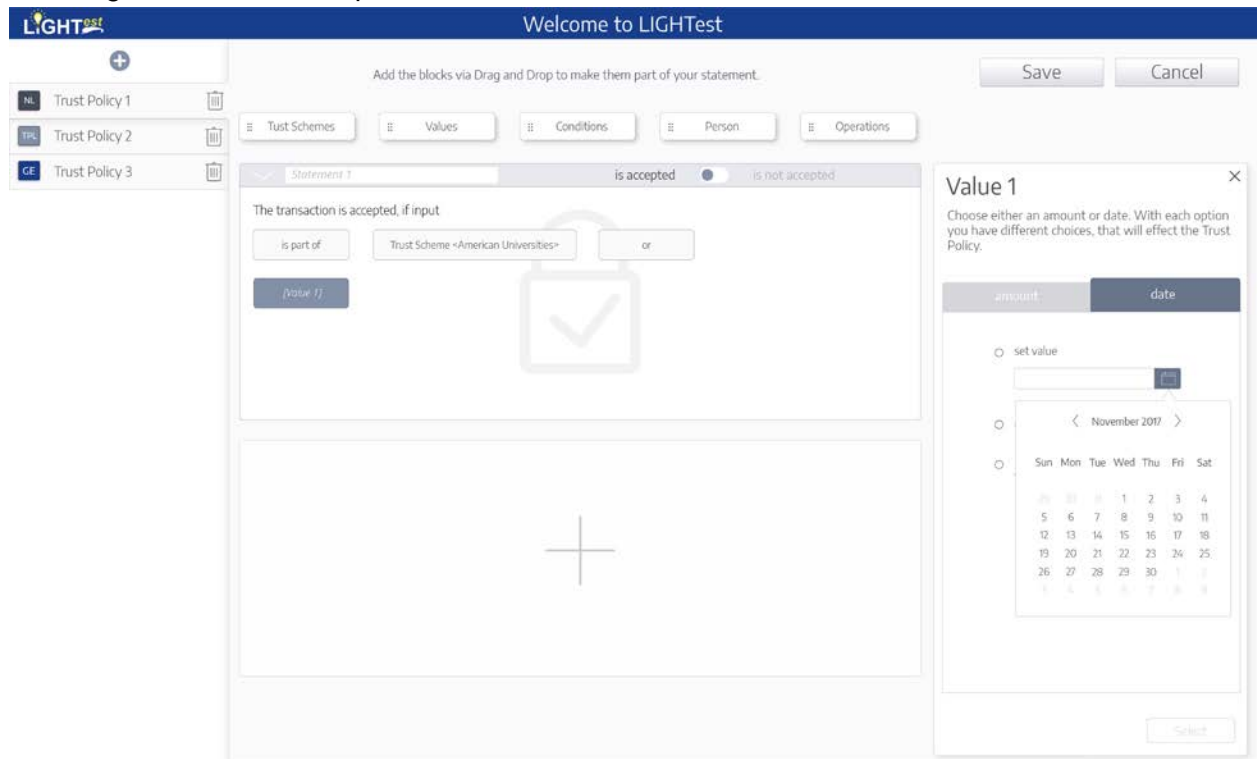


Figure 20: Value building block with the option to add a date

Figure 19 shows the possibility to add a date to a statement using the value building block.

7.1.2.1 Building blocks

There are 5 different building blocks. The following table lists them and gives some more detail.

Building Block	Description	values
Trust Schemes	It is possible to add one or several Trust Schemes to either searching for it or selecting it from a list	All published or downloaded Trust Schemes
Values	This building block enables the users to add values to their trust policies.	The values can either be fixed values or a date.
Conditions	This building block enables the users to add conditions to their trust policies. This building block is best combined with values, objects or other operations.	The values for this building block are typical conditions like: equal, greater, less, etc.
Objects	The users are able to define their own objects and to	The values of an object can be very diverse and different.

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	integrate them into a trust policy.	One example ist to have employees as stated in the LDAP.
Operation	This building block is enabling the users to add operations to their trust policies.	Operations can be: plus, minus, multiply, translate, delegate etc.

7.1.3 Trust Policy Language Layer

The Trust Policy Language Layer was not implemented in the prototype as the concept was going for a well-known concept within that layer – a coding environment like most expert users are used to.

Although this layer was not implemented in the prototype, it is implemented in the implementation.

The following shows screens to have an overview over it.

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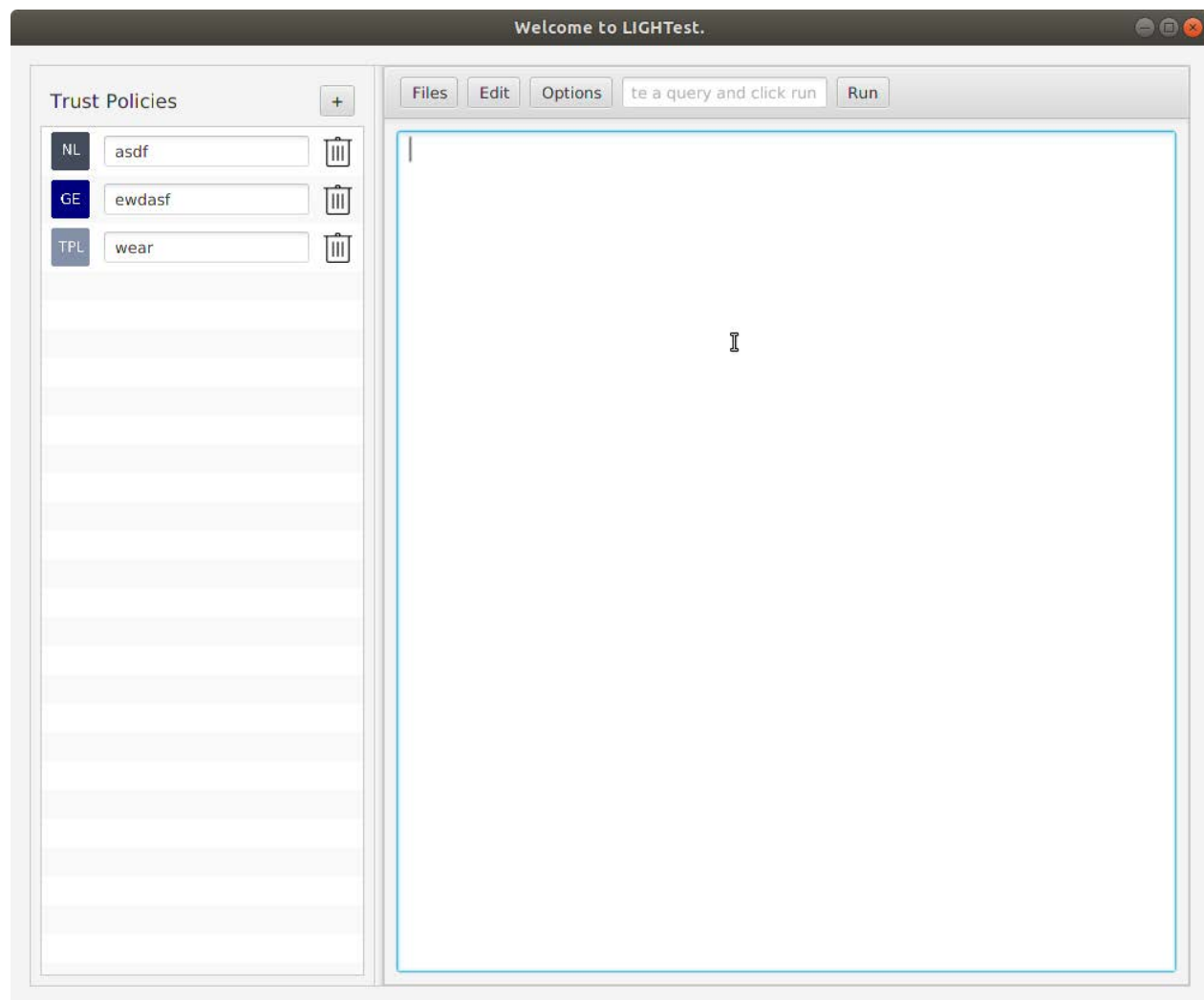


Figure 21: Trust Policy Language layer example 1

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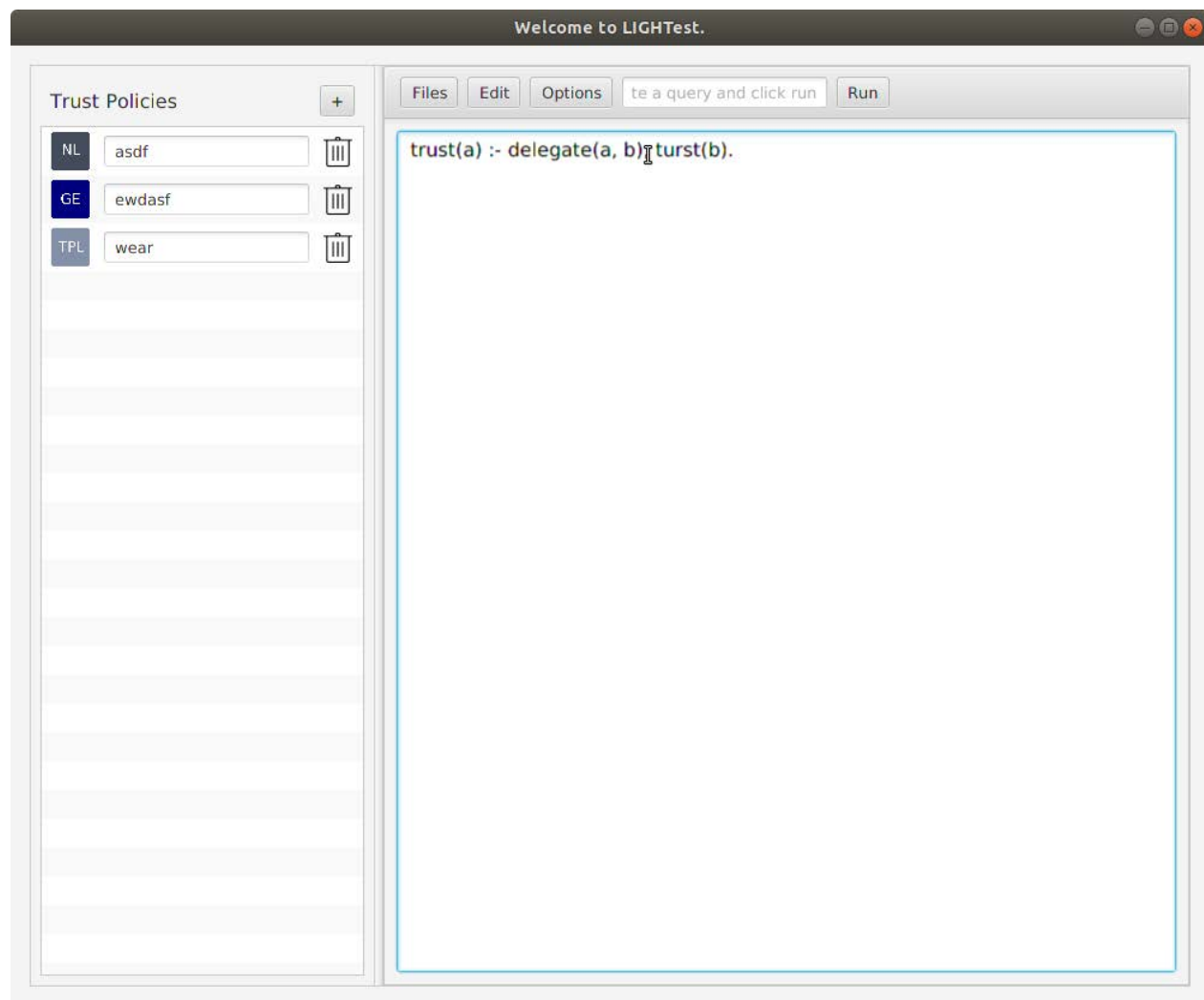


Figure 22: Trust Policy Language Layer example 2

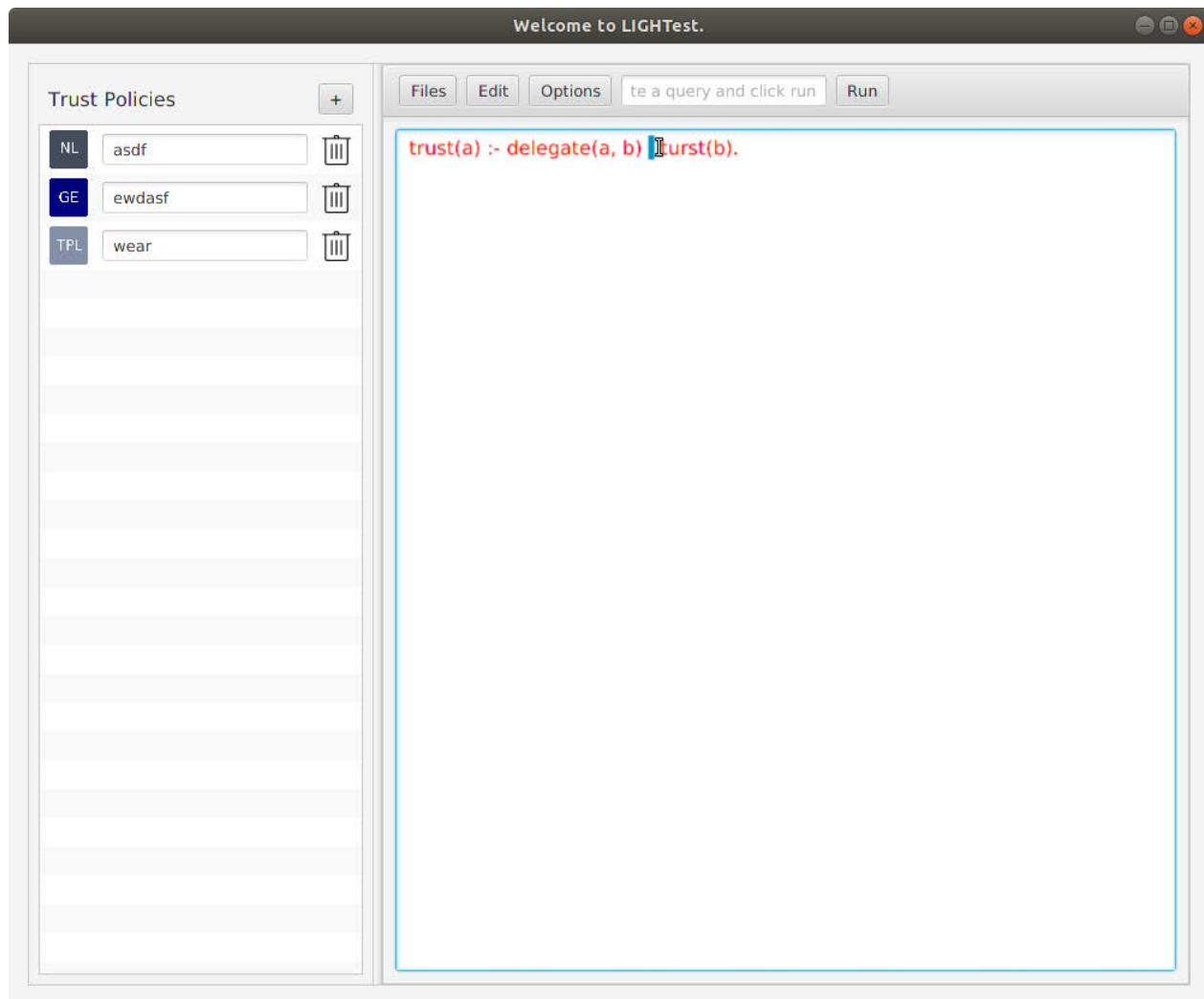


Figure 23: Trust Policy Language Layer example 3

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9. Project Description

LIGHTest project to build a global trust infrastructure that enables electronic transactions in a wide variety of applications

An ever increasing number of transactions are conducted virtually over the Internet. How can you be sure that the person making the transaction is who they say they are? The EU-funded project LIGHTest addresses this issue by creating a global trust infrastructure. It will provide a solution that allows one to distinguish legitimate identities from frauds. This is key in being able to bring an efficiency of electronic transactions to a wide application field ranging from simple verification of electronic signatures, over eProcurement, eJustice, eHealth, and law enforcement, up to the verification of trust in sensors and devices in the Internet of Things.

Traditionally, we often knew our business partners personally, which meant that impersonation and fraud were uncommon. Whether regarding the single European market place or on a Global scale, there is an increasing amount of electronic transactions that are becoming a part of peoples everyday lives, where decisions on establishing who is on the other end of the transaction is important. Clearly, it is necessary to have assistance from authorities to certify trustworthy electronic identities. This has already been done. For example, the EC and Member States have legally binding electronic signatures. But how can we query such authorities in a secure manner? With the current lack of a worldwide standard for publishing and querying trust information, this would be a prohibitively complex leading to verifiers having to deal with a high number of formats and protocols.

The EU-funded LIGHTest project attempts to solve this problem by building a global trust infrastructure where arbitrary authorities can publish their trust information. Setting up a global infrastructure is an ambitious objective; however, given the already existing infrastructure, organization, governance and security standards of the Internet Domain Name System, it is with confidence that this is possible. The EC and Member States can use this to publish lists of qualified trust services, as business registrars and authorities can in health, law enforcement and justice. In the private sector, this can be used to establish trust in inter-banking, international trade, shipping, business reputation and credit rating. Companies, administrations, and citizens can then use LIGHTest open source software to easily query this trust information to verify trust in simple signed documents or multi-faceted complex transactions.

The three-year LIGHTest project starts on September 1st and has an estimated cost of almost 9 Million Euros. It is partially funded by the European Union's Horizon 2020 research and innovation programme under G.A. No. 700321. The LIGHTest consortium consists of 14 partners from 9 European countries and is coordinated by Fraunhofer-Gesellschaft. To reach out beyond Europe, LIGHTest attempts to build up a global community based on international standards and open source software.

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Usability and Interaction Design



The partners are ATOS (ES), Time Lex (BE), Technische Universität Graz (AT), EEMA (BE), G&D (DE), Danmarks tekniske Universitet (DK), TUBITAK (TR), Universität Stuttgart (DE), Open Identity Exchange (GB), NLNet Labs (NL), CORREOS (ES), IBM Danmark (DK) and Globalsign (FI). The Fraunhofer IAO provides the vision and architecture for the project and is responsible for both, its management and the technical coordination.

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10. Appendix

10.1 Evaluation documents

10.1.1 Introduction and welcome

Welcome and thank you very much for participating in the evaluation of the project LIGHTest.

My name is ----- and I am here to guide you through the evaluation today.

Please feel free to ask questions or to comment at any given moment – we are thankful for every bit of feedback we get.

LIGHTest is a project substituted by the EU. 14 partners from 9 different countries are involved in the project.

LIGHTest deals with the question, how trust via the internet can be build. Nowadays a lot of transactions and communication take place over the internet, without knowing who or what is on the other side and who to trust.

Therefore LIGHTest offers the possibility to use so called Trust Policies to perform verifications to make trust decisions easier.

Here's an example:

You want to order a product via internet. On a foreign company's website you find the apparently best ratio for money. But because it is a foreign company, you are unsure if you can trust the website.

With LIGHTest you are able to define Trust Policies, that simply are a set of rules. These Trust Policies can be integrated in so called Trust Schemes. Trust Schemes are lists, that contain trustworthy elements.

For example the German government would be able to publish a Trust Scheme which contains a list of international companies the German government trusts. You as a final consumer can use the Trust Schemes of the German government to be part of your own personal Trust Policy to verify an online order and check whether you can trust the provider or not.

With your help today we would like to evaluate the tool that will give users the opportunity to create these Trust Policies.

At first we would like to ask you a few questions to gain an insight into your prior experiences. After that I will give you a scenario on which basis you can interact with the prototype.

10.1.2 Preliminary Interview

1. <input type="checkbox"/> male	<input type="checkbox"/> female
----------------------------------	---------------------------------

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2. age:
3. Did you ever create a Trust or access policy before? <input type="checkbox"/> no <input type="checkbox"/> yes, _____
3.1. If yes, in which tool did you create them? _____ _____
4. How would you describe your programming skills? <input type="checkbox"/> non existing <input type="checkbox"/> fundamental knowledge <input type="checkbox"/> advanced Knowledge <input type="checkbox"/> expert
4.1 Name the programming languages you did work with already: _____ _____
5. What is your job title? _____
6. Do you have any physical limitations? _____
7. Would you consider yourself technophil? <input type="checkbox"/> no <input type="checkbox"/> partly <input type="checkbox"/> yes

10.1.3 User Needs Questionnaire (UNeeQ)

Your Experience!

Please put yourself into the described situation.

Please describe your feelings and thoughts within this situation so that we can get a differentiated idea of your experience. Please read carefully through the statements and judge to which extent this describes your experience.

While using the product, I felt

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	not at all	a bit	more or less	significantly	highly
... that I could get along without anybody's help.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I surpassed others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was satisfying my curiosity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... better compared to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I stood up for other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was collecting something significant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... connected with people who care for me, and whom I care for.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was physically active.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was taking on and mastering hard challenges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was keeping hold of important issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... like someone who has a sense of duty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was getting into a daily routine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... superior to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... surrounded by people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was competent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was keeping meaningful things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... a strong sense of physical well-being.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	not at all	a bit	more or less	significantly	highly
... like someone who's opinion is valued by others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... in contact with the world.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... safe from threats and uncertainties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was acting according to my true interests and values.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... joy and pleasure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... like a role model for others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I was doing something good for my body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... like expressing my "true self".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I was effective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... that I was developing a deeper understanding of myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... my senses inspired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... like a person who strongly influences others' opinions and behaviors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... to not depend on others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

You have reported about your thoughts and feelings while using the product. Now please give a general rating. How did you experience the situation in general?

	not at all	a bit	more or less	significantly	highly
In this situation I felt positive emotions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In this situation I had a negative feeling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In this situation I had a positive experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In this situation I felt negative emotions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In this situation I had a positive feeling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In this situation I had a negative experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



10.1.4 Follow-up questionnaire

1. How did the tools appeal to you overall? <input type="checkbox"/> not at all <input type="checkbox"/> suboptimal <input type="checkbox"/> to some degree <input type="checkbox"/> good <input type="checkbox"/> outstanding
2. What did appeal to you the most?
3. What didn't appeal to you at all?
4. What was easy about the tools?
5. With what did you struggle?
6. At which points would you want more help?

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