# From Search to Trust: towards sustainable B2B matchmaking

IP5 – Semester project FS2024


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# 1. Abstract

This report addresses the common uncertainty of whether an online provider can be trusted, focusing on how businesses can efficiently assess potential partners' trustworthiness on a B2B matching platform. It investigates key factors that make an online shop trustworthy and explores how to link such a shop to sustainability effectively.
To simplify the process of finding suitable suppliers, this report has been developed.

Our goal is to create a template that specifies the necessary information for building trust and how it should be presented, while also highlighting the potential importance of sustainability information. Many of these insights were prototypically implemented in a React application. The individual pieces of information were each embedded in components and styled using Tailwind css. Developing a prototype and basing it on research facts, indicated that a trustworthy online shop requires a clean, organized, and professional user interface (UI). This entails an aesthetic layout, easy navigation, and clear labeling of important information. Essential UI elements identified include rotational product displays, straightforward navigation, and detailed information. It is important to establish a clear hierarchy in displayed information. To foster a trustful user experience, several key requirements must be met. These include transparency, accurate and updated information, third-party verifications, and robust security measures. Vendors should display customer reviews, clear contact information, physical location details, legal certifications, and sustainability credentials. Sustainability information has become essential and is expected from companies.

The react prototype and the underlying insights were developed through extensive research of existing papers, a comprehensive competitor analysis, expert discussion, and interview with industry representatives. Four interviews with industry professionals were done to understand the B2B landscape and potential uses for our online platform. The goals focused on key trust factors, sustainability, validation processes, and feedback on our platform.
The interviews highlighted the need for a tailored approach for each industry. There is no works-for-all solution. The platform will need to find its niche and be fitted for that specific purpose to be fully useful in the future, for which this project will be available to use as a template.

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# 2. Introduction

The 21st Century is being defined by globalization and digital connectivity. The demand for robust platforms that facilitate international business collaborations is sought after. This paper aims to make clear what is important for sustainable Business to Business (B2B) platforms, and how trust can be handled. By focusing on developing a minimal viable product (MVP), the emphasis lies in creating an innovative online platform, that aims to address trust and sustainable problems associated with the web and applications.
To preface, it needs to be mentioned that the project of this website is already in the third stage. The project was originally initiated by a business student under the mentorship of Professor Pieter Perrett. He had developed a business management summary, where the core objective was to analyze the necessity for a platform that facilitates international business collaboration, with a primary focus on bridging the gap between Switzerland and India. The platform is not meant to be exclusive to those two countries.
The project was then given to two computer science students. Their goal was to create an MVP that would bring new ways on how companies are connected and collaborate with each other. Developing accurate matchmaking methods were the goals. Various Information Retrieval Systems were compared in this process. As a result, there were three approaches developed and separately integrated. At the end of their project, a minimal B2B online shop existed, which has been fed with mocked data to simulate potential customers and products.
In this report, we will delve deeper into the nuances of UX and trust in digital platforms. At the start of the research, it was noticed, that there aren't any sources on how to implement a page that we sought after step by step. This means that there is no clear guide on how elements, components and design should actually look to gain the user's trust. So, through comprehensive analysis of papers, websites, interviews, and user-feedback, we aim to explore strategies for enhancing trust, thereby improving user engagement, while showing the importance of sustainability as a key selling point. This should spark a wider conversation on digital platform reliability and sustainability and should provide a basis where research of others in different fields is combined to fit this specific use case. By providing our findings in a structured way and mention specific design elements, this report should serve both academic and practical purposes.

## 2.2. Our Solution

The approach to developing a trustworthy and sustainable B2B platform is multi-faceted, including detailed research, comprehensive information gathering, and the creation of a React prototype. The work will proceed as follows:

**Extensive Research and Analysis**:
The research is conducted with thorough paper analyses, competitor evaluations, expert feedback, and interviews with industry professionals who frequently manage supplier relationships. This research will be documented, focusing on identifying the essential information required to build trust and the significance of sustainability in B2B interactions.

**Prototype Development**:
Alongside the documentation efforts, a prototype is developed using React. This prototype showcases the collected information, with a clear emphasis on user interface design and the presentation of data rather than on full functionality. The goal is to create an intuitive and visually appealing platform that effectively communicates the gathered insights.

**Industry Interviews and Evaluation of Prototype**:
Once the prototype reaches its final development phase, interviews are conducted with industry professionals. These interviews provide an opportunity to test the prototype and gather valuable feedback from users with real-world experience in supplier management. This feedback is crucial for refining and enhancing the platform.

Based on the research and the goal for the solution, we came up with the following questions:

## 2.2. What makes an online shop trustworthy?

1. Which design approach is needed for a serious and trustworthy UI?
2. Which requirements must be fulfilled for a trustful user experience?
3. How to show the trustworthiness of a vendor?
4. How users can be sure, shown vendor Data is real.

## 2.3. How are we able to link the online shop to sustainability?

1. How can a link between the products or vendors and their sustainability be displayed?
2. Which information would the user like to find out about the sustainability of products or vendors?
3. Does it need information about products and vendors at all, or is one of the two sufficient?
4. Which providers for calculating sustainability might be worth working with?

## 2.4. Methodology

This briefly describes the methodology used to achieve the goal regarding organization and support tools. This project is a group project of two and thus needs a clear organization.

### 2.4.1. Project Management

For the project, a sort of modified Scrum is used that fit the needs as a two-person team. To explain Scrum so that anybody understands, below is a simple example.

Scrum is a way to manage and organize work in software development, making it easier for teams to build complex projects by breaking them into smaller, manageable tasks. Imagine you and your friends are building a treehouse. Instead of everyone working randomly, you follow a structured plan.
First, there are specific roles. The Product Owner (PO) decides what features the treehouse needs, like a ladder or a window. The Scrum Master acts like a coach, ensuring everyone follows the plan and helping solve any problems. The Development Team does the actual building.
The work is divided into short, repeatable cycles called sprints, usually lasting 2-4 weeks. During each sprint, the team focuses on completing a specific set of tasks. At the start of each sprint, there's a planning meeting where the team decides which tasks to complete. Every day, the team has a quick meeting called a Daily Standup to discuss what they did yesterday, what they're doing today, and any obstacles they're facing. At the end of the sprint, there's a review meeting where the team shows what they've built. After that, they have a retrospective meeting to talk about what went well and what could be improved for the next sprint.

All the tasks and features needed for the project are listed in a backlog, which the PO prioritizes based on what's most important. After each sprint, you should have a small, working part of the project. For our treehouse example, this could mean having a sturdy floor or a ladder. Over time, these pieces come together to complete the project.
In essence, Scrum helps teams work together efficiently, adapt to changes quickly, and continuously improve the way they work, all while keeping the project moving forward in small, manageable steps (Schwaber K., 2020).

In a two-person team, using Scrum as it's typically designed for larger teams isn't practical. Scrum involves several specific roles and ceremonies that require multiple team members to function effectively. For instance, having separate roles as mentioned above. These roles don't make sense for two persons, as it would be redundant and overly complex.

Instead, Scrum was adapted and modified by first setting our milestones to 4 weeks instead of standard 2-week sprints. It is important to note that the milestones weren't always exactly 4 weeks in this case due to holidays and sometimes shifting due to exam sessions and other external factors affecting students. This set structure allows to focus on completing key objectives, as outlined in the project agreement, within a defined timeframe, like how Scrum's sprints work, but without the additional complexity.

To manage the work, a combination of user stories, tasks, and issues is used. By breaking down the work this way, we could stay organized and ensure nothing important was overlooked. This enabled us to not have the constant need to use user stories, as we had quite some things all the time which were not able to be named a user story.

### 2.4.2. Tools

The tools listed do cover everything from the documentation tools used to the development environment and more. Each tool is broken down into a short description of what it does in general and then into a section on how it is used for the project.

### 2.4.3. Teams

Teams makes it easy for coworkers to communicate in real-time, share documents, and hold virtual meetings, enhancing productivity and teamwork within organizations (Microsoft).
Teams was used to store all non-code documents, such as protocols of meetings, agreements, interview transcripts, research documents and so on. It allowed to keep the team communication up via chat and used it to communicate with our client, be it via update posts or team calls when a meet-up in person wasn't an option.

### 2.4.4. AI Tools

AI tools (think ChatGPT, Gemini, and similar) are software applications that use artificial intelligence to perform tasks that typically require human intelligence. These tasks can include recognizing speech, understanding natural language, making predictions, analyzing data, and more. AI tools help automate complex processes, provide insights, and enhance decision-making in various fields like healthcare, finance, marketing, and customer service (IBM).
AI tools are used on a couple of occasions. The most noteworthy one was generating AI Images. Dall-E is used to generate the images, as it is the easiest one. Further, ChatGPT is used to help with coding and code analysis. Another use case is to efficiently scan through the longer papers

to find specific relevant information faster. This method was suggested by our client as an efficient way in using modern tools. In the same sense ScholarAI is used to find sources in the web on specific topics. AI tools were also used for rephrasing sentences and translating.

# 3. Research

## 3.1. Research Methology

As each implemented feature and every little change needed to be backed up by a source, the research needed to be extensive. The research started with papers and on a more generalized basis. Papers on B2B trust in general, on B2B sustainability, on trust in the online world, and so on. There are no papers so far which combine our specific case, so the research needs to combine all those things into one. Many papers were published years ago from a UX / UI standpoint, so additional online sources, articles and personal inspiration were used, which are more recent.
The research was based on simple Google searching, using Google Scholar, and to the best of its abilities ScholarAI within ChatGPT.

## 3.2. Trust & Sustainability Research

The papers and web articles were analyzed with many different points listed below. For each point, if applicable, User Interface takeaways have been listed, which will hint at an implementation which is solely focused on the UI and not for the backend or a business case. A visual clue for trust is, for example, a https: link instead of a http link. This must be kept in mind on why these features has not been listed as UI takeaways. The UI takeaways serve as a summary for later implementation, providing a concise overview of the key insights of the text above for potential development briefly. A goal is set for each search, what should be achieved with this search and what knowledge should be gained.

### 3.2.1. Goal of Paper Research

The aim of the research was to get an impression of what leads to trust. We had various ideas about trust and already knew positive examples from other online platforms, but these ideas were based purely on feeling and had no scientific backing. So, we wanted to find out what is really behind this feeling of trust, what it is that makes users trust a site or a provider. The focus is on realizable indicators that can be implemented in a B2B prototype web shop. Following indicators have been discovered:

### 3.2.2. Aesthetics and Design

B2B website design should prioritize user experience, focusing on speed, simplicity, relevant content, a smooth user journey, personalization, and product clarity. Understanding that B2B customers are more deliberate, and research focused than B2C customers, with a purchase journey involving multiple stakeholders, is crucial. Fast load times are essential as delays can drive potential customers away. The user interface should be simple and intuitive since complex designs are less appealing and harder to navigate. Clear and straightforward navigation helps users quickly find what they need. Content should be targeted to the specific needs of the B2B audience to avoid unqualified leads, providing in-depth information like white papers to assist decision-making. The user journey should be frictionless, with easy-to-use menus and search functions enhancing the overall experience. Personalization, such as chatbots, can guide visitors through the sales funnel and still add a human touch to the site. Unlike Business to Customer (B2C) design, B2B websites need to support a longer decision-making process with more detailed information, higher price points that often require individual configurations and price negotiations, and a focus on developing relationships rather than immediate sales (MacDonald J., 2023).

Visually appealing websites significantly enhance perceived trustworthiness. While developers may consider aesthetic design as secondary, users often judge a site's trustworthiness based on its appearance. Implementing features like rotational product displays can highlight key products, making the site more engaging and reliable (Chinonye L., 2016).

Visual hierarchy is crucial in graphic design because it directs the viewer's attention through elements in a specific order, creating an organized and aesthetically pleasing experience. By effectively guiding attention, it enhances the perception of good design. This is achieved by manipulating size, color, position, typography, imagery, and whitespace. Larger and contrasting elements, strategic placement, varied fonts, and thoughtful use of images and whitespace can highlight important information. These techniques ensure a smooth visual flow, making the design intuitive and easy to navigate. Ultimately, a clear visual hierarchy enhances both the functionality and appeal of a design (Yoko U, 2019).

**UI takeaway:**
- Rotational, Slide show like product displays
- Clear and straightforward navigation
- Engaging UI
- Aesthetic Design
- Focus on detailed information
- Visual hierarchy

### 3.2.3. Development and Functionality

Involving users in the development process ensures their needs and preferences are addressed, leading to a more user-friendly and trusted website. Conducting thorough research helps in understanding user expectations and integrating those insights into the design. Websites that are easy to navigate and require minimal scrolling are preferred by users, as they facilitate smoother user experiences. Effective search functionalities help users find what they need quickly, enhancing their trust in the site's usability (Chinonye L., 2016).

**UI takeaway:**
- Easy navigation
- Minimal scrolling
- Effective search

### 3.2.4. Security and Privacy

Visible security measures, such as HTTPS and prominently displayed security certificates, reassure users about the safety of their data. Collecting only essential personal data reduces the risk of fraud and increases user confidence in the website's privacy practices (Chinonye L., 2016) Clearly stating how customer data is protected and used reinforces the website's commitment to security and privacy (Alhinho M., 2017).

**UI takeaway:**
- Website security certificate
- Statement on security and privacy

### 3.2.5. Content Trustworthiness

Providing accurate and relevant information, such as payment options and return policies, is crucial for building trust. Honest testimonials and direct feedback opportunities help authenticate the site's credibility (Chinonye L., 2016). Displaying customer logos and names serves as trust signals to new users. Detailed descriptions and testimonials from past project showcase successful deliveries and customer satisfaction. Visibility of relevant certifications (e.g., ISO standards) signals compliance with industry standards. Sharing information about production facilities, sales offices, or headquarters through photographs and maps can visually verify the business's physical presence. Detailed profiles of service personnel, including names, titles, contact details, and photos, build credibility. Presenting strategic partners and their roles in the value chain, along with logos and descriptions, demonstrates a robust network. Displaying legal information like VAT numbers and company registration numbers allows for verification. Making terms of service, delivery policies, and purchasing terms readily available and understandable is important. Displaying data like profile views and transactions counts demonstrates activity and reliability. Implementing rating systems for user reviews ensures authenticity and prevents fraud (Bauer W., 2020).

**UI takeaway:**

- Payment options
- Return policies.
- Testimonials and feedback for the site itself
- Customer logos and names
- Detailed testimonials and reviews from past transactions
- Relevant certifications
- Shared information of production facilities, sales offices, headquarters with photographs
- Detailed profiles of service personnel with name, title, contact detail and photo
- Legal information like VAT number and company license

### 3.2.6. Vendor and Brand Attributes

Brand reputation and market presence are highly rated for building trust. Providing clear contact information and verifiable physical locations of the vendor adds to the credibility (Chinonye L., 2016). Building a strong, positive reputation and a recognizable brand that stands for reliability and quality is essential (Alhinho M., 2017). A positive public image and reliability in dealings contribute significantly to trust (Ganser O., 2021).

**UI takeaway:**

- Clear contact information
- Physical location

### 3.2.7. Legal and Third-Party Verification

A strong legal framework in the supplier's country reassures buyers about engaging with suppliers. Verification services provided by B2B platforms confirm the authenticity and reliability of suppliers (Koh T., 2009).

**UI takeaway:**

- Display verification to user to spark authenticity and reliability

### 3.2.8. Customer Service and Relationship Management

Demonstrating expertise and the ability to perform tasks effectively and efficiently builds trust. Providing excellent customer service, including prompt responses and effective problem-solving capabilities is crucial (Alhinho M., 2017). Long-term relationships build trust through increased familiarity and reduces perceived risks. Regular, positive interactions between salespersons and clients foster a deeper understanding and trust (Ganser O., 2021). Utilizing positive feedback and reviews from customers enhances credibility (Alhinho M., 2017). Regular and transparent communication between buyers and suppliers reduces uncertainties and fosters trust (Koh T., 2009 & Ganser O., 2021).

**UI takeaway:**

- Customer reviews and feedback

### 3.2.9. Transparency and Ethical Behavior

Acting in an honest and transparent manner in all dealings and being clear about costs and transaction steps prevent misunderstandings (Alhinho M., 2017). Displaying legal identifiers like VAT numbers, company registration, and license information allows for verification purposes (Bauer W., 2020).

**UI takeaway:**

- Display identifiers (VAT, company registration, licenses)

### 3.2.10. Personalization and Customer Focus

Putting the customer's interests ahead of the organizations and tailoring services and communications to meet individual needs foster trust. Providing support beyond basic obligations and demonstrating flexibility and willingness to adapt to customer-specific needs are crucial for building trust (Alhinho M., 2017 & Ganser O., 2021).

**UI takeaway:**

- Individualizing results.

### 3.2.11. Product and Service Quality

Consistent delivery of high-quality products and services demonstrates reliability and reassures clients about their choices (Koh T., 2009 & Ganser O., 2021).

### 3.2.12. Sustainability and Ethical Standards

Displaying sustainability ratings on health, environmental impact, and social responsibility influences consumer behavior (O'Rourke D., 2015).

### 3.2.13. Additional Trust Features

Offering warranties and clear return policies reduces perceived risk. Computational trust algorithms that calculate trust scores based on available data and interactions provide an additional layer of reliability (Bauer W., 2020).

**UI takeaway:**

- Display trust score and algorithm.

### 3.2.14. Paper Research conclusion

The papers and websites were interesting reads. There are many points which are worth considering. Many of these features are taken for granted by most users, are however promoting trust on a subconscious level. As one can see however, there are only a few UI takeaways. These takeaways are very important, but not detailed. Let's take the easy navigation bullet point as an example. It clearly states that an easy navigation is an important part of a b2b website (any website in fact) according to Chinonye L's paper. There is no clear instruction what exactly is the easy navigation that is desired. How is it defined? How is it trustworthy? How is designed? Only general practices are mentioned when searching this, and nothing is coupled to trust or sustainability.

This is just one example of where a requirement is stated, but never clearly described how exactly it should look like or be implemented. This is still up to interpretation. This had us stuck for a moment on how to proceed further.

Another thing to consider is the age of many papers. There have not been many new papers published in the last few years on this specific topic, which include mentions of a User Interface. Some of the papers used above date back to 2008, with the most recent ones from 2021 and 2020. In the clearly ever-changing landscape of User Interface design, we needed additional sources to gather enough material and insights on how to design effectively.

When just looking for B2B Website design in Google, Trust and Sustainability isn't mentioned directly, however as every B2B platform strives for trust, we took this fact for granted. This enabled us to have more recent articles and clear guidelines on how to design specific elements, be it the home screen or navigation of a site.

As these websites are quite concise themselves and sometimes already an analysis of many different webpages (See MacDonald J. source article), we rendered it useless to copy it one to one into our paper. We will mention these sources when different bullet points and takeaways were used for specific elements in the implementation part of this paper, where we go into detail why and how something was implemented.

## 3.3. Competitor Analysis

As there are many competitors out there with different end users, we tried our best to break them down into attributes they use and the positive things we can take away from them and use them for our own good. We've used our "UI takeaways" here again as keywords to use for later and to have a clean overview of what was mentioned.

| Competitor | Alibaba | Wlw | Clutch | Upcity | Goodfirm | Crunchbase | TOTAL |
|---|---|---|---|---|---|---|---|
| Vendor Attribute | | | | | | | |
| Physical address, shown on map | | x | x | x | | | 3 |
| Physical address | x | x | x | x | x | x | 6 |
| Address verified | x | | x | | | | 2 |
| Founding Date | x | x | x | | x | x | 5 |
| Acquisition date | | | | | | x | 1 |
| Number of Employer | | x | x | x | x | x | 5 |
| Export destinations | x | x | | x | | | 3 |
| Export revenue | x | | | | | | 1 |
| revenue | | | | x | | | 1 |
| Company Logo | x | x | x | x | x | x | 6 |
| Suitable Product | x | x | x | | | | 3 |
| Whole Product portfolio | x | x | x | | | x | 4 |
| Usage of products (downloaded etc.) | | | | | | x | 1 |
| Website link | x | x | x | x | x | x | 6 |
| Phone number | x | x | | | | | 2 |
| email | | | | | | x | 1 |
| Producer or Distributer | | x | | | | | 1 |
| Short company description | x | x | x | x | x | x | 6 |
| Name of CEO | | x | | | | x | 2 |
| Contact date of CEO | | x | | | | | 1 |
| Contact of employer | x | | | | | x | 2 |
| Customer References | x | x | x | x | x | | 5 |
| Verified company | x | x | x | | x | | 4 |
| Fast replier icon/info | x | x | | | | | 2 |
| Clear contact option | x | x | x | x | | x | 5 |
| Rating / reviews | x | | x | x | x | | 4 |
| Factory capability | x | | | | | | 1 |
| Images/video of production | x | | | | | | 1 |
| certifications | x | | x | | | | 2 |
| Quality control | x | | | | | | 1 |
| products/service segmentation | | | x | x | | | 3 |
| Languages | x | | x | | | | 2 |
| Industry fields | | | x | | x | x | 3 |
| Usual customer size | | | x | | x | | 3 |
| Own ranking | | | | | | x | 1 |
| Funding type | | | | | | x | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Founders | | | | | | x | 1 |
| investors | | | | | | x | 1 |
| Board member | | | | | | x | 1 |
| news | | | | | | x | 1 |
| Product Attributes | | | | | | | |
| Clear image | x | x | | | | | 2 |
| product description | x | x | | x | | x | 4 |
| rating | x | | x | | | | 2 |
| prices | x | | x | x | | | 3 |
| Detailed Product information | x | | | | | | 1 |
| Product launch date | | | | | | x | 1 |
| Usability | | | | | | | |
| Aesthetic Design | | x | x | x | x | x | 5 |
| Home page | x | x | x | x | x | x | 6 |
| Separation between company and products | x | x | | x | | x | 4 |
| Clear navigation | | x | x | x | x | x | 5 |
| Company information at first sight | x | x | x | x | x | | 5 |
| Filter options | x | x | x | | x | | 4 |
| | | | | | | | |
| Sustainability | | | | | | | |
| Info if traceability of raw material is supported | x | | | | | | 1 |
| **TOTAL** | 32 | 26 | 26 | 20 | 16 | 26 | |

### 3.3.1. Wlw

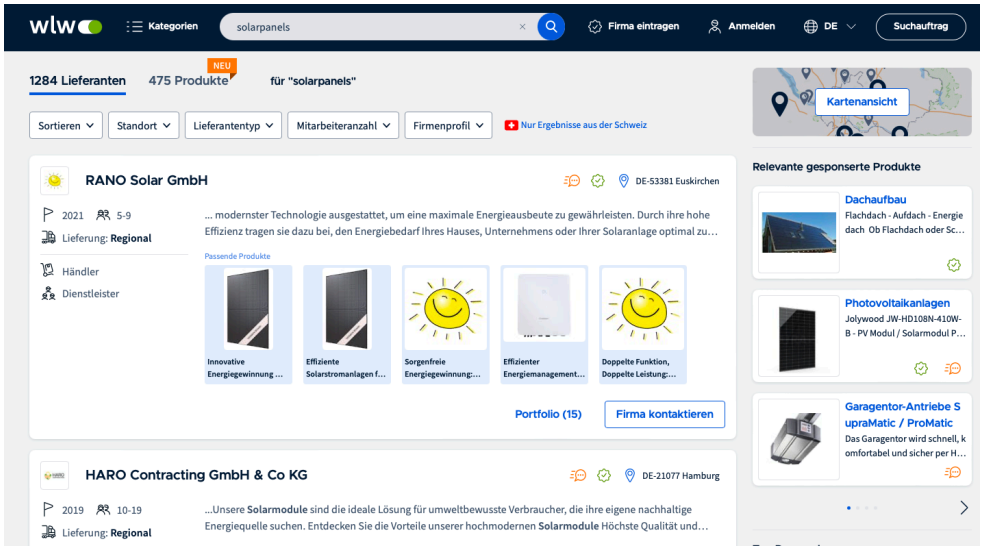



*Figure 1, Screenshot wlw solarpanel search results*

**What is wlw**
Wlw stand for “wer liefert was”. It is a b2b marketplace with a focus on regional coverage in German-speaking countries.

**Noticalble:**
The B2B platform of wlw is very self-explanatory and well-structured. The clear structure makes navigation very simple and easy. The platform impresses with its visual appearance. The design convinces with its aesthetics, appearing very tidy and professional. Additionally, the information about a company, which the user sees in the display of all search results, is noteworthy. This information already provides an important first impression of the company. Useful is the display of all products offered by a company, as well as the highlighting of products directly related to the search input.
Less favorable is the presentation of the products. Unlike with the companies, there is significantly less information about the product or the company behind it that is immediately visible. The user is forced to click on a product to learn more. However, even the detailed view does not always contain sufficient information about the product. The information is too undetailed and the presentation too general.

### 3.3.2. Alibaba

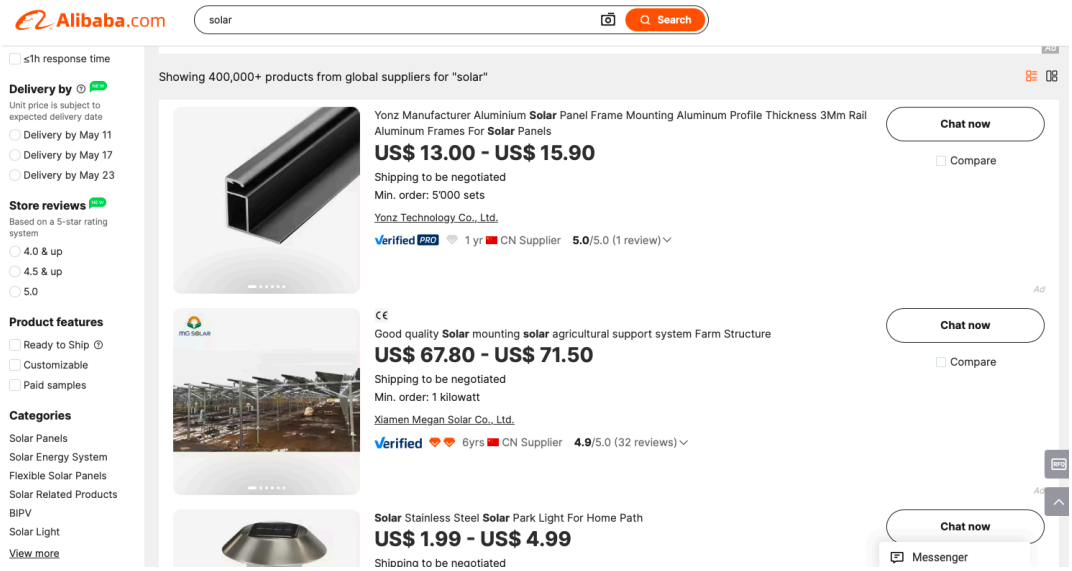



*Figure 2, Screenshot Alibaba of solar search results*

**What is Alibaba:**
Alibaba is a global e-commerce platform that connects businesses and consumers, offering a vast range of products and services from suppliers around the world.

**Noticeable**:
It is worth highlighting the extensive amount of information about a provider and their portfolio. Although the large amount of information is positive, the display of search results is overloaded with information. As a user, I lose track of what to look out for. However, the design of the platform comes across as chaotic and unorganized. It appears untidy and therefore does not convey a serious and professional impression. Consequently, the navigation is not always straightforward, especially when delving deeper into the platform, such as when selecting a provider for collecting more detailed information or using the chat function. Certain information is also difficult to verify. In combination with the unclear design, this quickly leads to questioning of the information displayed. For example, some products support the traceability of their raw material. How exactly this is checked and how it can be confirmed is not specified.

### 3.3.3. Clutch

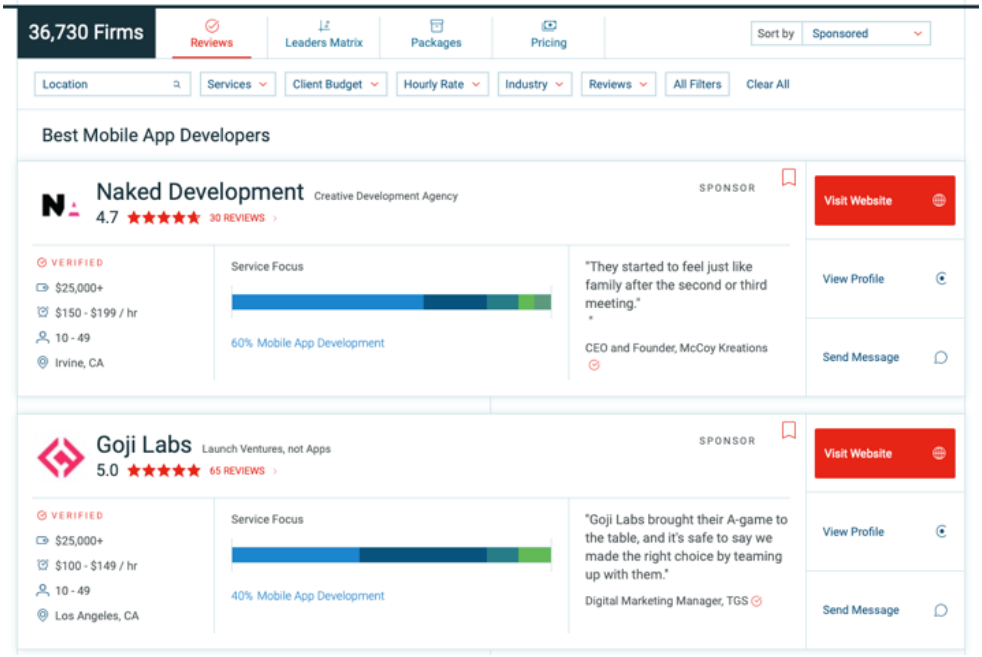



*Figure 3, Clutch Screenshot of Result Section*

**What is Clutch**
Clutch is a platform that connects businesses with service providers. It is primarily focused on B2B services such as IT, marketing, and business consulting.

**Noticeable:**
The presentation of the companies is very convincing. There is enough information about the company on the search results page. If you select a company for closer observation, you will receive a lot of useful information about the provider. The whole site also has a very attractive design and a well-structured layout.
However, there is a lack of contact details for a company, as well as possibly a little more information about the services to be offered or services already sold.
The presentation of the review of a company should also be emphasized. This contains a great deal of information and indicates exactly who wrote the review.

### 3.3.4. Upcity

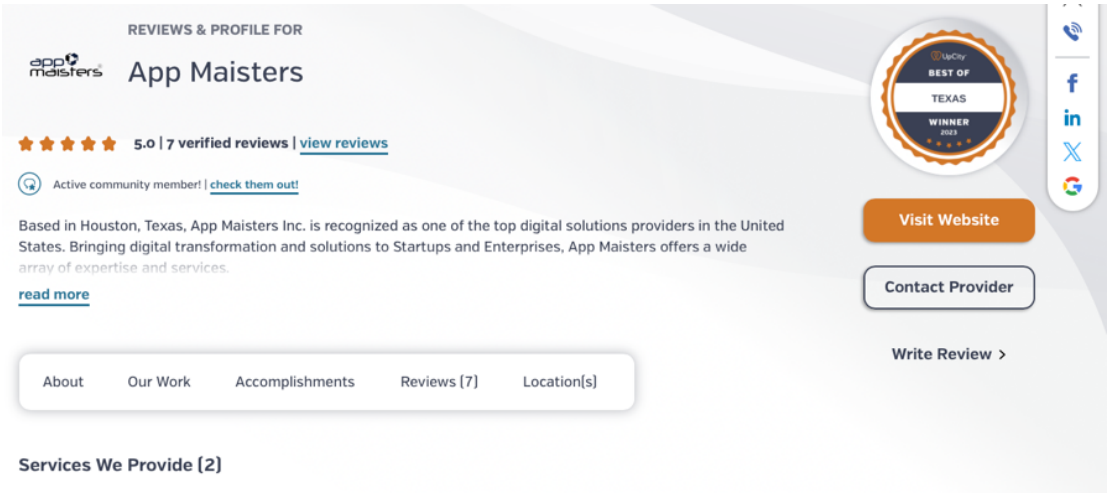



*Figure 4, Upcity Screenshot of a Company Profile*

**What ist Upcity:**
The main service allows you to look up a company and get trustworthy information about it, focusing on ratings and reviews. It's also notable that people who review a company can be verified by the platform.

**Noticeable:**
Otherwise, the site is not extraordinary and does not contain special trust features that are not commonly found elsewhere.

### 3.3.5. Goodfirm

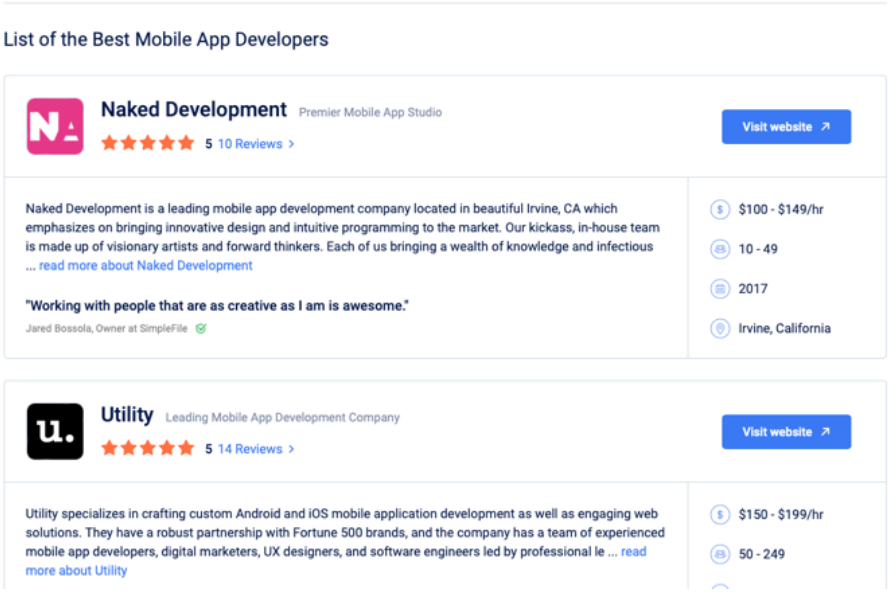



*Figure 5, Goodfirm Screenshot of Result Section*

**What is Goodfirm:**
Goodfirm has a business concept very similar to UpCity. The idea is that you can read reviews about a company and get some insight information about it.

**Noticeable:**
They provide clear information about their product and service segmentation

### 3.3.6. Crunchbase

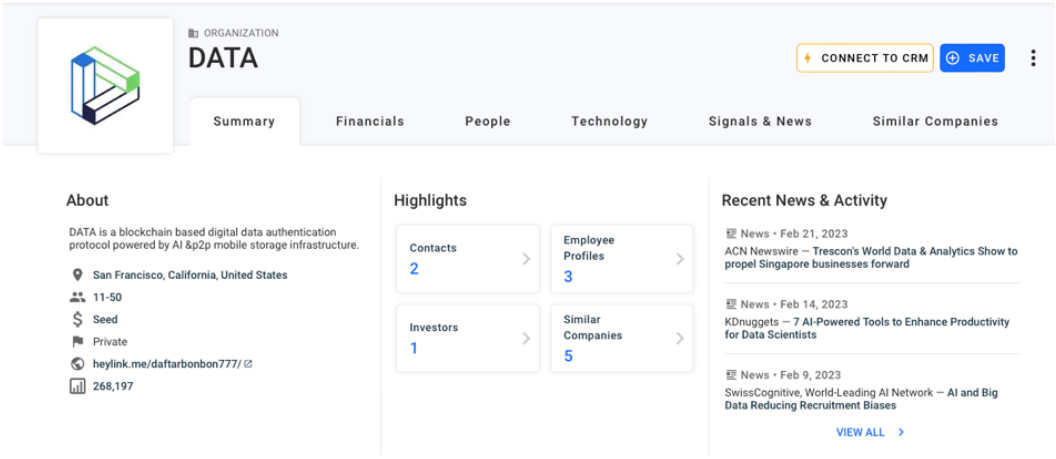



*Figure 6, Crunchbase Screenshot of a Company Profile*

**What is Crunchbase:**
Crunchbase is a platform that provides information about companies, particularly startups, including their funding, investments, and key personnel

**Noticeable:**
particularly noteworthy are the details about employees, including their LinkedIn profiles, and the positions of the board of directors. The platform presents many interesting aspects for potential investors, offering valuable capital-related key figures. While the product descriptions are somewhat sparse, it is positive that the number of product users is indicated, with references to metrics such as download numbers and website accesses.

## 3.4. Personal Experience

In the realm of B2B platforms, we have some personal experience. For a personal project, one of us had to order custom-made professional lighting fixtures for various events. With budget constraints, Alibaba seemed like the go-to option. However, the user interface was misleading, with search results often deviating from expectations. The site looked “sketchy”, raising concerns about potential scams or poor-quality products. The overall UI appeared outdated and unintuitive, leading to frustrating searches. Product images looked like they were taken with low-quality cameras, more suited to a second-hand online shop than a professional B2B platform. Additionally, the chat function was hidden behind a pop-up often blocked by Safari, contributing to a lack of trust.
Another issue was the ambiguity of the “Alibaba Guarantee”, which wasn’t clear on its coverage. Many factories and companies listed are based in countries like China, making it difficult to find them outside of Alibaba for additional reviews. Even addresses sometimes returned invalid results due to inaccessible data from China.
These experiences helped with the development of our solution. We prioritized professional images to build trust, recognizing that poor visuals were a major trust-destroyer on Alibaba. Although ensuring companies had a presence outside our platform was beyond our control, we focused on the aspects we could improve to gain user trust.

# 4. Implemented Prototype

As the implemented prototype was developed with code, the Tech Stack plays an important role in understanding the implementation and the results. Before getting into the features, the tech stack and the tools used are explained.

## 4.1. Tech Stack

### 4.1.1. Frontend tech stack

As the main work was in the frontend for this project and the backend has been documented in detail by the preliminary work, we will explain the frontend tech stack. This will be important for later step where the code is explained in the Features section.
A tech stack is used that utilizes ".tsx" files with React and Tailwind CSS, which is a modern and powerful approach to building web applications. This stack leverages the strengths of TypeScript, React, and Tailwind CSS to create a development environment that is both efficient and scalable.

### 4.1.2. TypeScript and .tsx Files

TypeScript is a statically typed superset of JavaScript that adds optional type checking. By using TypeScript, developers can catch errors early in the development process, leading to more reliable and maintainable code. This is particularly useful in large codebases where type safety can prevent many common runtime errors. ".tsx" files are a specific type of TypeScript file that allows the inclusion of JSX (JavaScript XML) syntax. JSX is a syntax extension for JavaScript that looks like HTML and is used with React to describe what the UI should look like. The combination of TypeScript and JSX in ".tsx" files provide a robust environment for building React components with enhanced code quality and development speed.

### 4.1.3. React

React is a widely used JavaScript library for building user interfaces, especially single-page applications. It enables developers to create reusable UI components that manage their own state, which simplifies the process of building complex user interfaces. React's component-based architecture promotes reusability and separation of concerns, making the code more modular and easier to manage. The declarative nature of React means that developers describe what the UI should look like and React handles the rendering and updating of the DOM, which leads to more predictable and easier-to-debug code.

### 4.1.4. Tailwind CSS

Tailwind CSS is a utility-first CSS framework that offers a different approach to styling web applications. Instead of writing custom CSS for each component, we can use predefined utility classes directly in the markup to style our components. This method promotes rapid development and ensures consistency across the application. Tailwind's utility classes cover a wide range of CSS properties, including layout, spacing, typography, colors, and more. This approach reduces the need for writing custom CSS, which can become cumbersome and hard to maintain over time. Tailwind also supports theming and customization, allowing us to extend the default design system to match our specific needs.

## 4.2. Backend tech stack

The backend tech stack didn't change during this project. It is thus up to date with the document from the preliminary work, which is why we won't go into detail here.

## 4.3. Tools

### 4.3.1. Docker

Docker is a tool that makes it easier to create, deploy, and run applications using containers. Containers are like lightweight, portable virtual machines that bundle an application and all its dependencies, so it can run consistently on any computer. This helps developers ensure that their software works the same way in different environments, from their own computers to servers in the cloud (Docker).
Docker was used for us to continuously work on our project and having it running while coding, so live changes could be seen in the UI.

### 4.3.2. Figma

Figma is a web-based design tool used for creating user interfaces, websites, and other digital graphics. It allows multiple people to work on the same design project simultaneously in real-time, making it great for collaboration. Designers use Figma to create and share their work seamlessly across teams and platforms, without the need for constant file exchanges (Figma).
Figma was used for many design versions and to plot down the ideas before implementing them into the code. It was also used to design necessary icons, retouch images, and having the design system stored.

Link to the Figma file.
https://www.figma.com/design/TCs5XwPmqw38Csz8R3FfA4/IP5?node-id=66-2&t=GpPPo6AWpVcjmYyf-1

### 4.3.3. GitHub

GitHub is an online platform that allows developers to store, manage, and share their code. It uses a system called Git for version control, which keeps track of changes made to the code over time. This helps developers collaborate on projects, track progress, and revert to earlier versions if needed. One can think of it like a Google Drive for code, where multiple people can work together and keep everything organized (GitHub).
GitHub is used for version control, repository management, and tracking milestones. Tasks and user stories are organized in the issues tab, assigning them to team members with labels like "bug," "in progress," and "backlog." Each issue was linked to a milestone for better progress tracking, with adjustments made for exams and holidays. This structured approach helped staying organized and goal oriented.

## 4.4. Implemented Features

In this section, the frontend features which have been implemented are explained. The development process is documented in chronological order, meaning the first feature discussed was the first one implemented. For clarity and to provide detailed insights, almost each feature is following the same structure: What and why, implementation, and result.

1. **What and why**: This segment described the feature in layman's terms, explaining what it is and what it aims to accomplish. We state the reasons why we believed the feature would be beneficial, supported by relevant sources and justifications.

2. **Implementation:** In this section, the path to the source code is given, if available. The thought process is explained while implementing the feature. The most relevant parts are highlighted, but also say what shortcomings or shortcuts had been taken due to the current state of the project or technical limitations. This means that design features which normally a business identity would dictate were done differently according to research.

3. **Result:** Finally, the results of the implemented feature are shown through images and screenshots from the site at that particular stage. This provides a visual overview of how the site progressed from the start to its current state. It effectively illustrates the iterations it went through, including moments of rethinking and revamping the code.

By following this structure, we aim to give a comprehensive and detailed account of the development process. This does not only clarify what each feature is and why it was implemented but also offers a transparent look at how these features are integrated into the code. The visual result will provide a clear understanding of the improvements and changes made over time.

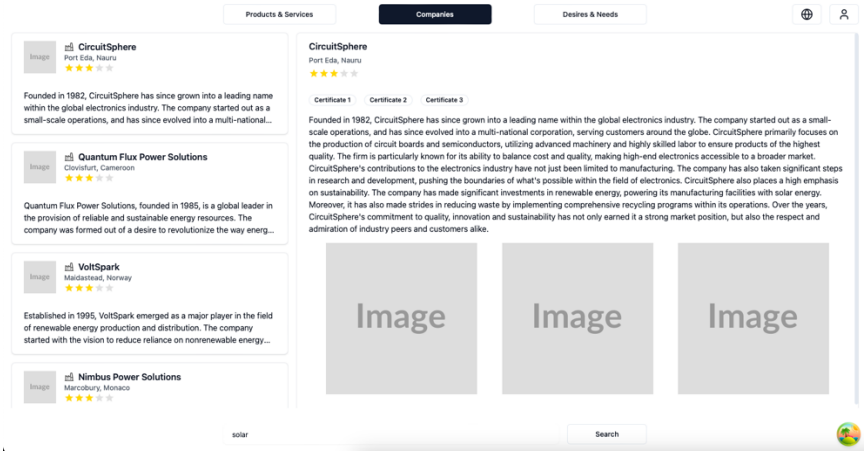
## 4.5. Star Rating

A star rating system can be essential for evaluating and showcasing the quality of products, services, or suppliers. Typically, it uses a five-star scale where one star indicates poor quality, and five stars indicate excellence. Users of the platform can sort and filter products, or results in general, based on their star ratings, making it easier to find highly rated results. The star rating system builds trust and credibility, helping customers make more informed decisions.
Implementing a star rating system on a B2B web shop is beneficial as it enhances social proof, influencing purchasing decisions by showing potential buyers the experiences of others. High star ratings attract more reviews, increasing product credibility and visibility. This system also boosts word-of-mouth marketing. Overall, star ratings build trust, encourage customer engagement, and lead to higher sales and customer satisfaction (Feldman B, 2017). This is also mentioned in the research of the ratings.
This is one source which gave the confidence to implement this feature. The personal experiences also played a big role in this feature, as we use it ever so often when leaving Google reviews or while shopping on B2C platforms.

**Implementation**
The star was implemented as an <svg> element. This method proved to be a good way in not using an image. This meant that there is a possibility with a rating number to just fill the star instead of using a different image. This also helps with code performance, as it is using less resources. The StarRating Component is linked to the Listings and as well to Companies.

The code can be found at:
frontend/src/components/ui/StarRating.tsx

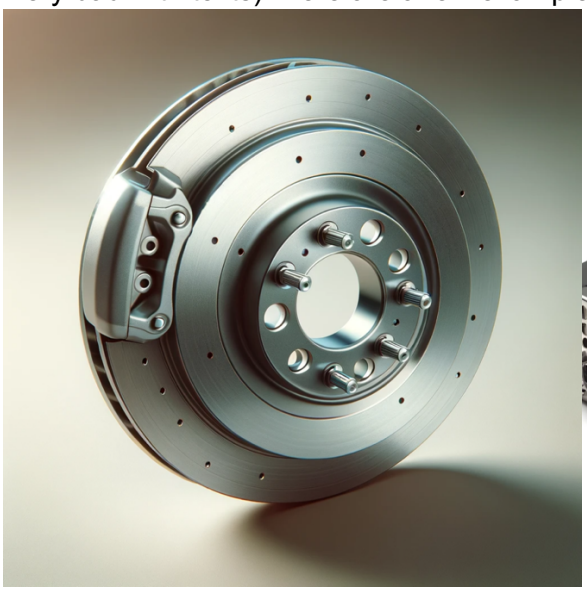
**Result**
As one can see, the Star ratings show up in a prominent way on the page. Their positioning is based on many competitors and B2C platforms that inspired us. It is easily visible when browsing through the results or looking at the selected item.



## 4.6. AI-Images

AI images are visuals generated by artificial intelligence algorithms, often using deep learning techniques. These images can be created from text descriptions, existing photos, or random noise. They range from realistic photos and artistic illustrations to abstract patterns, showcasing the AI's ability to mimic various styles and subjects. The technology behind AI images includes models like Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs), which learn from large datasets to produce new, unique images. This is GPT-4's own description for AI generated images.
This is sort of a middle step which was needed for following features, as they needed images. The current test data itself has been AI generated by preceding work, so it would fit if the images for the time being were also AI generated. Another reason was that the software can be used as an MVP in any setting without having copyright problems, as the ownership rights of AI images are with us. Images were generated for three sections: certificates, products, and companies. The reason to use images is their importance in relation to trust. The research clearly showed that customers want to know what they are buying and want to see what the company behind it looks like. Images provide important proof of the authenticity of statements and give a crucial first impression. This was evident not only in our research but also in later interviews, where it was mainly about knowing which company is behind a product and what it looks like at this company. Another reason for using images is their use on competing platforms.

**Result**
There is no code for this feature. The images were generated directly with Dall-E. The prompts used followed a basic structure. For the product we asked: "Create me a professional product image of a <product Type (e.g., screws, solar panels…)>". For companies and certificates, a similar principle was followed, however we had to experiment more with follow up prompts to get good looking results, as the first results were either to complex or had text in them (AI images are still very bad with texts). Here are a few examples of the resulting images:



The images turned out quite ok and are usable in the project. They are detailed enough to have a professional look to them and do give life to our platform, however if one would look to closely at the connections on the "GPU" up top, one would quickly notice the AI behind the images. The lighting in them is well done by the AI so that it looks like actual product photos.

## 4.7. Selection of Result Item

This feature enables the user to see which result he has selected. This can be achieved by changing the colour, highlighting it, adding effects or similar.
It is quite important for the overall User Experience on the site that the user can see the currently selected result. It could get confusing without it fast if there were more than 10 results in the column, as always scrolling through it and checking item by item is time consuming and unnerving. This design is supported by insights regarding aesthetic design, which requires a clear hierarchy and clear presentation of functionality. This can be achieved through a clearly discernible selection of elements. It is a small quality of life feature that will not be noticed by the user directly, it will however be quickly noticed if it was missing from the website.

**Implementation**
The implementation of the selection was rather straightforward. It needed a “isSelected” Boolean which is passed to the component. In the return, it checks the Boolean and changes the colour, accordingly, using the tailwindcss classes.

The code can be found under: frontend/src/components/search/ResultItemProduct.tsx

**Result**
The result is a subtle one, that turns the selected field to a slight grey instead of a white. We decided to go for a subtle tone instead of a hefty one, to fit the rest of the UI and make the UI not to gimmicky.

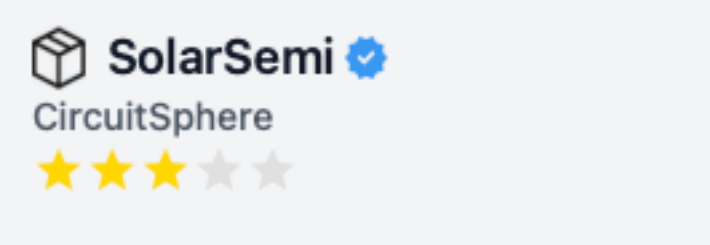
## 4.8. Verification Icon

A “Verified” Icon in an application is a visual symbol that signifies the authenticity and credibility of a user’s profile, account, or content. Commonly seen on social media platforms, messaging apps, and other online services, examples include the blue checkmarks on Instagram, X, or LinkedIn. We implemented this feature for several reasons, primarily focusing on the authentication aspect. The icon indicates that the company has been authenticated by the platform.
A well-known checkmark icon helps users quickly identify authentic and credible sources, reducing their cognitive load and allowing them to navigate and make decisions more efficiently (Roberts A, 2019). At present, it is important to note that this is merely a frontend change. As we are still working with dummy data, there are no actual checks being performed to verify authenticity.
The significance of third-party verification cannot be overstated here as a future feature. It adds an extra layer of trust and security, ensuring that users can rely on the information presented to them.

**Implementation**
The base of the “Verified” icon is again a html construct of a path within a svg tag. This then gets rendered as its own component. It has a Boolean that can later be used to display it when necessary. It is then called in the DetailItem (both Product and Company Detail Item later on).

The code can be found under: frontend/src/components/ui/VerifiedIcon.tsx and frontend/src/components/search/CompanyDetailItem.tsx & ProductDetailItem.tsx

**Result**
One can see the result items here with the Verified icon displayed prominently next to the company name.

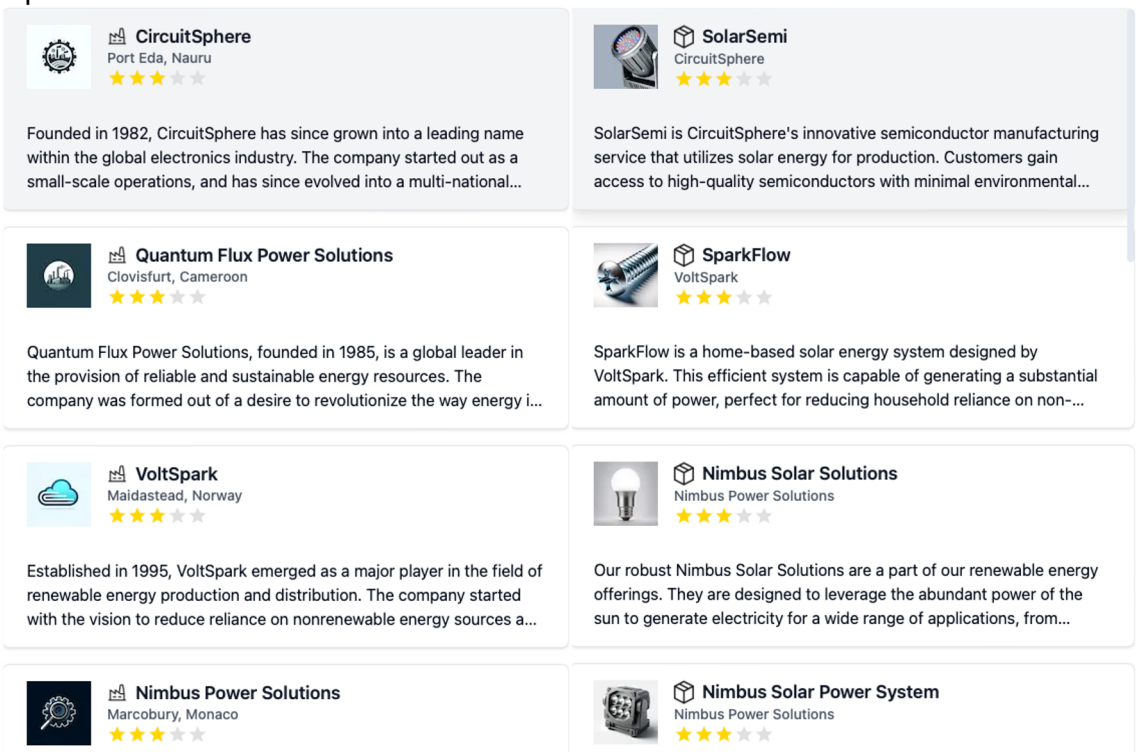


## 4.9. Random display images for certificates, products, companies

To make the site look better and more modern, we are now using our AI Images, as mentioned in this part.
The images add another level to the webpage through its appearance. As the images are also very clean looking, the site gives off a more professional touch and gives the user a reason to stay on the website to look through everything. A professional product display also helps with trust (Chinonye L., 2016).

**Implementation**
This is the function that gets the images from a directory and takes one at random. The images are stored in the code in a directory, as there aren't many images to occupy the software for the time being. The code for this can be found in all elements that need images. This goes for the Result Items and the Detail Items.

**Result**
Here you can see the random pictures being displayed. You can also see where the "case" switch comes into play. The left image is the company results, which display company logos, on the right is the product search result, directly displaying product pictures instead of logos. Especially for the products and their results it makes a huge difference, as one can see and compare the products. A web shop without images would fail very quickly, as imagining a product from a description is difficult.

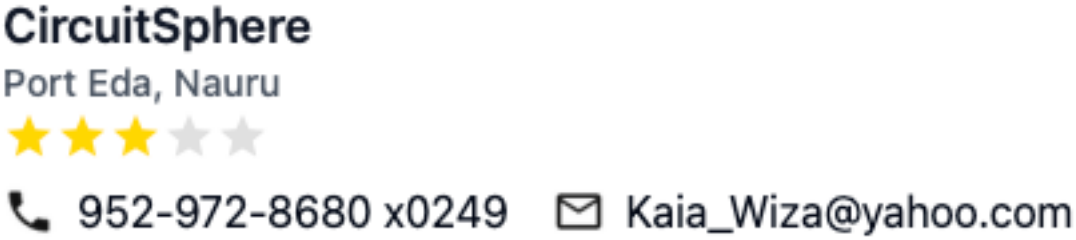


## 4.10. Contact Label

A contact label enables the user to quickly get in contact with the desired business partner, be it through phone or email.
Contact Information provides a clear feeling of trust. Seeing that a phone number is displayed, which is open for anybody to see and call, makes a vendor more reachable and real. It also makes the process of asking for specific details, custom orders, or general questions that much faster. Contact information can be seen on all competing platforms, and clear contact information is also documented as important in scientific papers.

**Implementation**
New parameters for the Detail Items have been set up, which cover the phone number and email addresses. As there isn't real data, these emails and phone numbers are being generated by the faker.js library. This is being called via props. The code can be found in the Detail Items.

**Result**
Here you can see the phone number and the email being displayed beneath the company name.



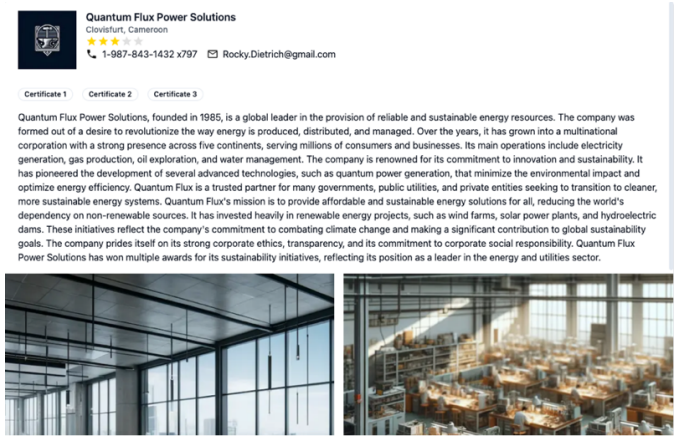
## 4.11.Create Different Detail Items

This was a feature that had to be done at some point. This is due product details and company details having different requirements on what needs to be displayed. There is no need to display a phone number and email directly on a product detail page. However there need to be details such as measurements, specific product images and so on. This also means that we already could get rid of a few previous solutions, e.g., the switch function when loading images.

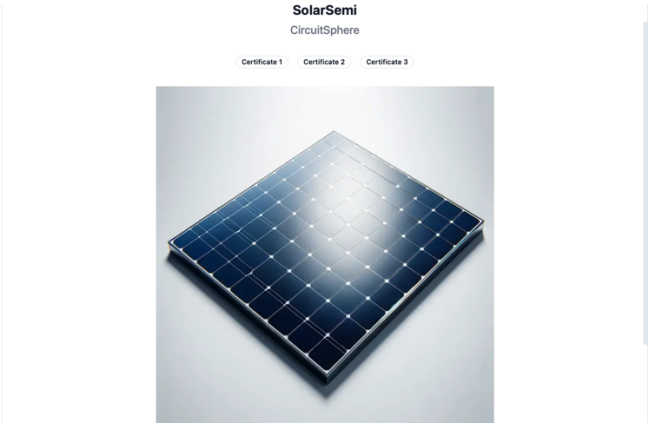
This step was a stepping stone for the future features in 6.10, 6.12, 6.15.

**Implementation**
The code didn't change that much between the previous existing single detail item. The few changes are especially in the html code, which are cosmetic. This is one of the cases where the results will speak for itself.

**Result**
Here is the for now reworked company detail page. It features much more text to read through at once, and (cropped due to page being scrollable) specific company images, which could be the headquarters or the factory.




This is the product detail page for now, displaying the images quite large to see everything. There isn't fake data at this point in the timeline to display measurements or similar for the products. This will be added in a later feature.

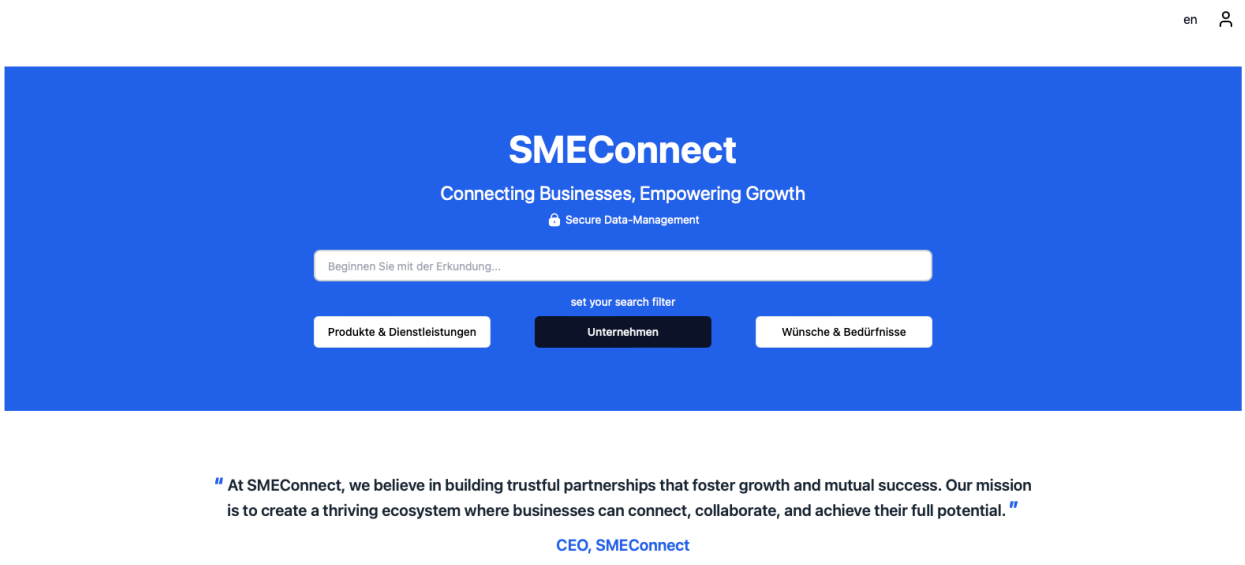


## 4.12. Implement a homepage

A homepage is the landing page when opening the website for the first time. It is crucial for several reasons.
The first reason being the first impression and branding. The homepage often serves as the first point of contact between a potential client and the business. A well-designed homepage can effectively convey the brand's values, offerings, and professionalism, which are vital for establishing trust and credibility with B2B customers. Integrating elements such as a clear logo, consistent colour scheme, and engaging UI helps in reinforcing the value proposition (Max, 2023).
At this point it must be noted that our implementation is quite basic. There isn't a branding yet, the platform doesn't have a defined name yet. At that stage we left the colour scheme up for grabs and didn't include any branding.
Moving on to the second reason why a homepage is crucial. This would be the overall UX and Navigation. A user-friendly homepage enhances the overall user experience by providing intuitive navigation, easy access to product categories, and prominent search functionalities. This is particularly important for B2B customers who often look for specific products or services quickly. Features like detailed site search, faceted filtering, and responsive design ensure that users can find what they need efficiently, leading to higher conversion rates (Cox D., 2024).

**Implementation**
The implementation of the homepage took longer than expected. It was covered in the end by three separate issues, which were always a rework again and changing certain things. It was also difficult to stick to some things, as there is no real business identity and branding yet, which could be follow per se and display on the homepage. The current solution is the best that could be done without having those requirements. The most essential thing according to the research was to keep the navigation and thus the UX top notch. This was achieved by having a nice overview over the platform while still having an intuitive and easily available search field, so that a user can start searching immediately.

**Result**




The result has some generic placeholders, which has been tried to be filled out with possible features and data.

## 4.13. Show Result Amount

This update to the page is an important one from the usability standpoint. It isn't necessarily a trust factor for the product itself, but it will show the user how many results there are for his search. Therefore, it generates a useful impact to the functionality of the platform, which leads to more trust in the platform itself. It was decided to implement it due to feedback from the customer Nitish and as it is a common feature across all purchasing sites.

**Implementation**
This was a straightforward implementation, as one could just print the length of the results. This was implemented directly in the return code from Search.tsx file.

**Result**
As one can see, the Amount is posted in the top left corner above all the result items. This is an example when searching for solar in the company category.

## 4.14. Tabs For Detail Item

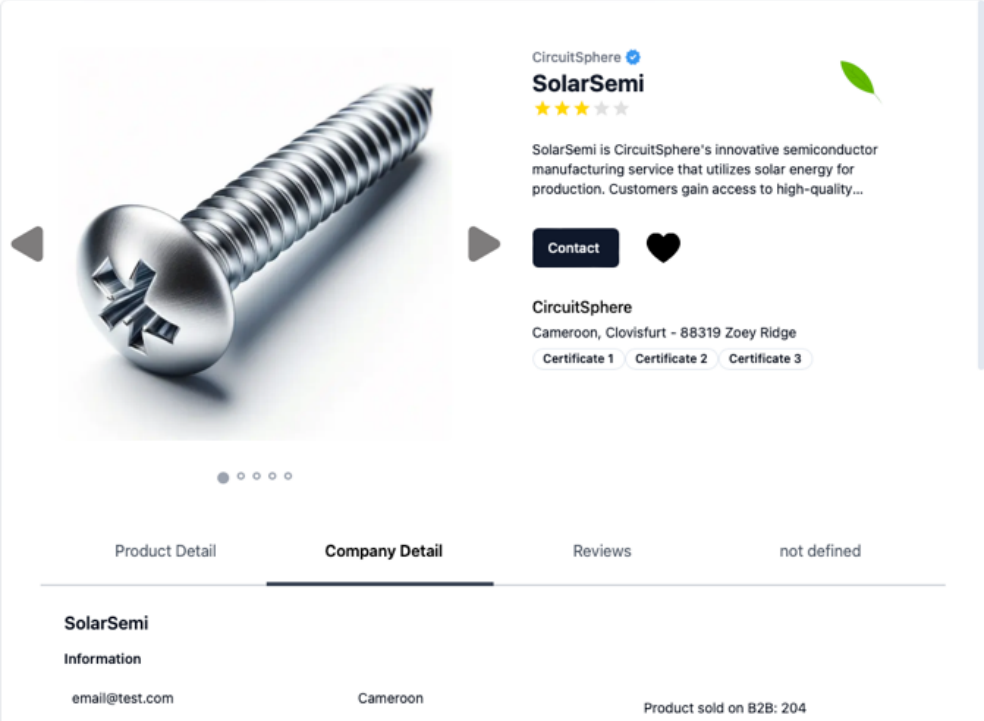
The details of a company or a product matter. Everything a user of the platform needs to know about a product, or a company is in the detail section. To expand on the previous detail implementation, tabs were added to the bottom. These tabs show different important things, where the user can browse through depending on what he wants to see. The user is now able to see the following information about a company:

- Clear physical address with the location placed on a map
- Contact information and link to the website
- Certification of a vendor.
- Client References of selected vendor
- Product offered by a company. A product has already a short description and Image. A user can click on it and will be navigated directly to the detail page of this product.

Besides this, the whole design of the detail items was also updated. The images are now in a slide show, the description and the contact button are to its side. This guarantees that no matter which tab is selected, the basic most necessary information is always viewable while an item is selected. It also provides a clear page hierarchy for the shown information and leads to less scrolling. A sustainable icon was also added to each company. The idea, which was discussed with the client, is a cooperation with sustainability agencies and that this icon is displayed when a company has been audited by such an agency.

**Implementation**
This was a feature that had very much new code. There was a need to implement a good number of new components. The most notable component is the tab itself, which then again consists of more components. This was done to make the code reusable across many use cases while maintaining the design. The implementation of the tabs can be found in the repository under the path of /frontend/src/components/ui/tabs.tsx. These tabs were then used in the ProductDetailItem.tsx.

**Result**
This is how it looks so far. There is a 4$^{th}$ tab that wasn't implemented at stage and left intentionally empty for future content as soon as the need arises.




**Description**

SolarSemi is CircuitSphere's innovative semiconductor manufacturing service that utilizes solar energy for production. Customers gain access to high-quality semiconductors with minimal environmental impact, as manufacturing runs on renewable energy. With customization options that cover a range of technical specifications, customers can tailor their orders to fit their precise needs. Priced competitively, SolarSemi provides exceptional value for money. Delivery options are flexible, with international shipping available. The standard waiting time is 14-21 days but can be expedited for an additional charge. Customers can monitor their order's progress through a dedicated customer portal.

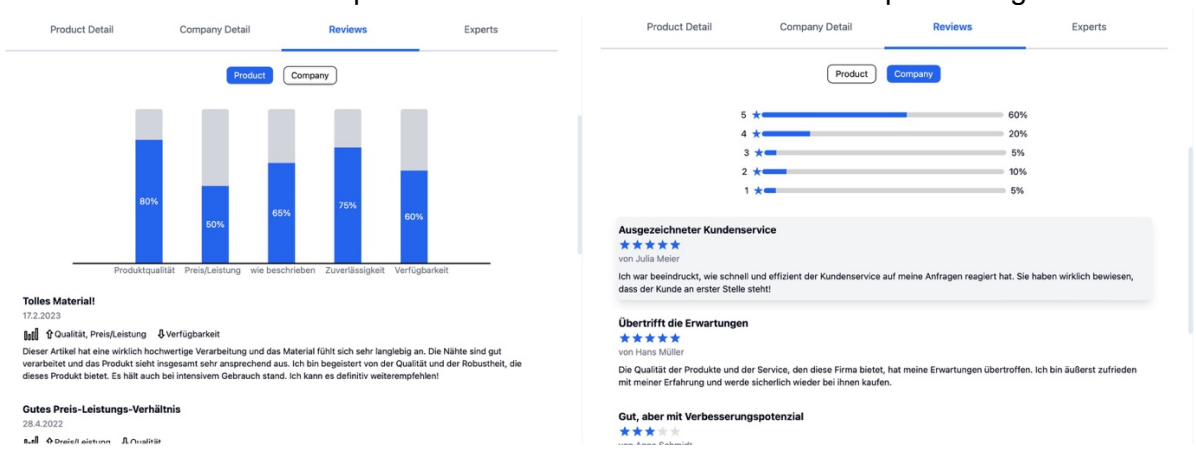
**Specification**

| | |
|---|---|
| material | Material 1, Material 2 |
| weight | 123 cm |
| height | 25.5kg |
| length | 2.54m |

## 4.15. Review Tab

In the previous feature tabs were implemented. To represent the Star Rating better, it was added to the new reviews section. Reviews were mentioned in a few articles and papers as enabling trust. Two review sections were added in the tab, one for the products and one for the company.

**Implementation**
We have added various new comments in a json file. The comments are loaded randomly into two different comments components and transferred to the tabs after processing.




As one can tell, there are two systems visible. For the products it's a graph and for the company it's the Star rating. While developing this tab, the first interview with Thekla Müller was held. An imidiate feedback was that the star rating reminded her of a vacation booking site and not of a professional B2B site. As this was just one feedback, a second alternative was added, on which other users could choose to what looks and feels better. This was done as there hasn't been specific research for those two ratings compared.
The code can be found here:
frontend/src/components/ui/commentCompany.tsx
frontend/src/components/ui/commentProduct.tsx
frontend/src/components/ui/tabs.tsx

## 4.16. Add new data to Products and Companies

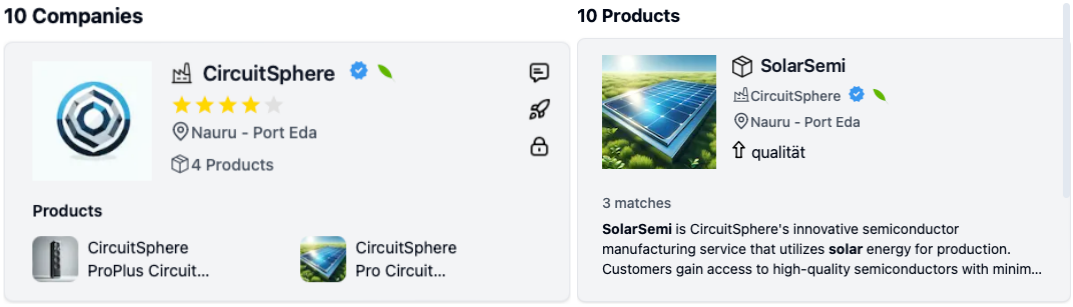
This feature was implemented simultaneously as the previous feature. The current available data was getting fairly limited for what we are trying to visualize. So, to do that, further additional calls to the faker.js API were made where possible. Additional data that wasn't available through there was generated by AI and put into a separate JSON-File to access it. This data is not coupled with the existing data. This means that on a reload / refresh of the site, the data might have changed. For the current demo case, which is the objective, this was a workaround that is sufficient, as it has been discussed during one of the meetings with the client.

## 4.17. Differentiate between Result Items

The display of products versus companies in a result item has different requirements. A product needs to display different things compared to a company when browsing through the result. Different things have different importance. While browsing a company, you want to be able to see the certificates of the company, a quick overview over the products and how many products they have. Meanwhile on the product, already a small glimpse at the details and the description is better and to have the most crucial rating of the product displayed.
The presentation of all this information is related, on the one hand, to the display of important content for trust formation, such as certification, verification, sustainability, or location. More importantly, it emphasizes the flawless UX and navigation of the web page, which in turn has been discussed as a key factor in building trust (Chinonye L., 2016). This allows the user to make a quick decision at first glance. It also made future implementations of other features easier.

**Implementation**
The code itself didn't differ much from before, except that now there's a CompanyResultItem.tsx and a ProductResultItem. It is the same difference as before with the feature of having different detail items.

**Result**
Here one can see the side-by-side difference between the two result items which has been achieved by the change.

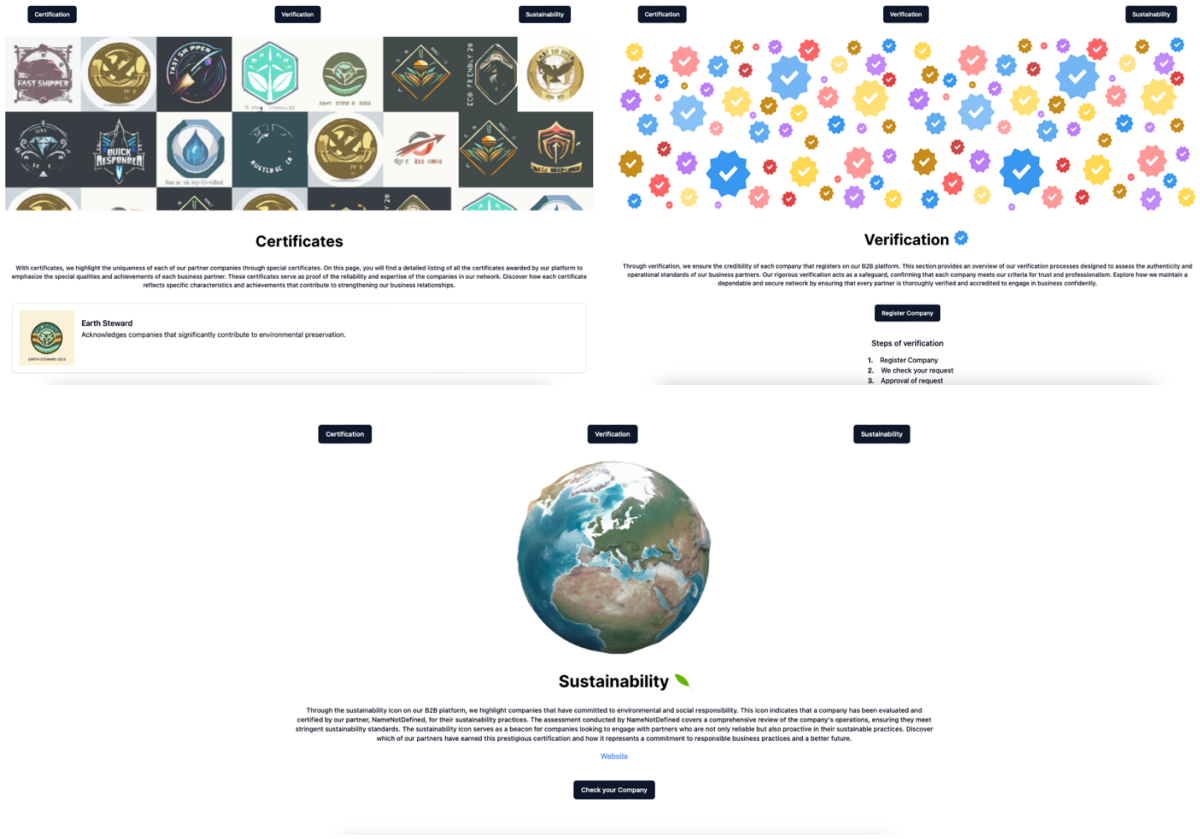


## 4.18. Verification / Certificate / Sustainability Pages

As transparency has proven to be a major factor in building trust, we've decided to add a page that is dedicated to being fully transparent with the user. For the certificates, sustainability icons and the verification icons, we've added a link to this page for the curious users, which are interested in learning what's behind these icons. This should give every user a full oversight over everything that is going on the webpage and on how these icons are gained by the companies. This page is purely fictional now and much of the texts are placeholders. It should however convince as an MVP that the possibility is there to display that information at ease for future easy implementation.

**Implementation**
There was again a need for many new components or old components formed together into new ones. Many new files had to be added and new routings had to be developed for this to work, as these pages and navigations didn't exist yet.
The code for the files used can be found under this path: "frontend/src/components/ui"

**Result**
These are the three pages Certificates, Verification and Sustainability laid over each other to compare.



## 4.19. Show matches in Result Item

It is important that the user can trust the results that he is shown upon a search result. To properly display that, we've chosen to implement a feature which directly shows the user in the Result Item how many matches his search keywords and phrases had. This is primarily also used to make the search transparent. For this feature we've oriented ourselves to the standard Google search which everybody is used to.

**Implementation**
This was achieved with a method called highlighted description. This method is linked to the search text and has been used in several places in the code. It can be found in the following file, among others:

frontend/src/components/custom/search/ResultItemProduct.tsx

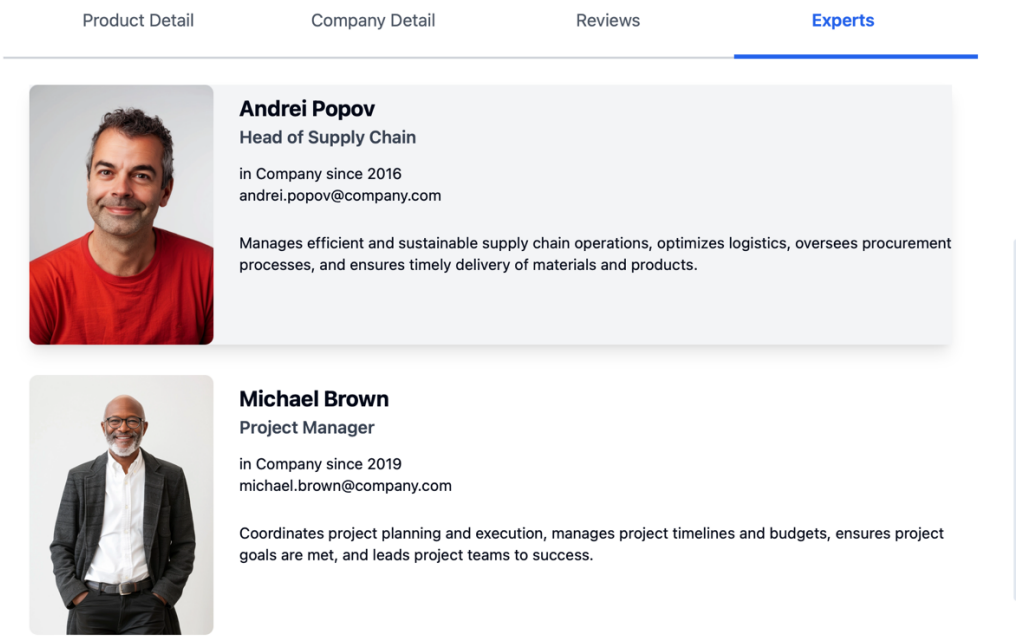
**Result**
Here you can see that the search result for the entered search "solar" is returned three times from this product. The words which match are themselves also highlighted to quickly show it to the user.

## 4.20. Add Expert Tab

Having experts from a company represented and displayed on a B2B platform is crucial for several reasons. Firstly, it establishes credibility and trust. When potential business partners see that a company has knowledgeable and experienced professionals, they are more likely to trust that the company can deliver high-quality products or services. Experts serve as a testament to the company's expertise and reliability, which is a key factor in B2B transactions where trust and long-term relationships are paramount.
Additionally, showcasing experts on a B2B platform enhances the company's reputation and brand image. It demonstrates a commitment to industry and thought leadership.
Having visible experts helps in the decision-making process for potential clients. B2B transactions often involve significant investments, and decision-makers want to be assured they are working with the best. Access to experts can provide the necessary reassurance, as it allows potential clients to see the human side of the company, ask questions, and gain deeper insights into the company's capabilities and solutions.

**Implementation**
For the implementation of the experts, a Json file was created and filled with data. This Json file is loaded in the Expert component and displayed correctly. The request is random. The loaded display is transferred into the tabs component afterward.
The code can be found here:
frontend/src/components/ui/expersts.tsx
frontend/src/components/data/experts.json

**Result**
The result shows that for one, now all tabs are filled. The previous fourth placeholder tab is now perfectly filled with expert information. These experts are displayed in a simple fashion as to showcase the most important information about them.



## 4.21. Use of blue

Blue is often viewed as professional on websites and applications due to a combination of psychological, cultural, and practical reasons. Blue is commonly associated with trust and reliability as well. It has a calming effect and is perceived as stable and non-threatening. This makes it a popular choice for corporate branding and professional environments (Ciotti G, 2024).

The color has a big cultural significance. In many cultures, blue is seen as a symbol of wisdom and stability. This cultural perception reinforces its use in professional contexts (Jordan W, 2015).

It is a universally liked color, often ranking high in favorite color surveys across various demographics. Its widespread appeal makes it a safe choice for designers aiming to reach a broad audience (Jordan W, 2015).

Blue, especially in its darker shades, provides good contrast against white backgrounds, which are common in web and application design. This enhances readability and user experience (Chapman C, 2021).

Lastly, the color is important for branding and industry standards. Many successful companies, particularly in the technology and finance sectors, use blue in their branding. This has set a precedent and influenced design trends in professional settings. Some of the companies that come to mind are Microsoft, IBM, and Intel (Bytyci S, 2020).

As there is currently no branding of the website, it was decided to make a generic branding which can be adapted later. Due to the research on this topic and the things learned during the UI lectures at FHNW, it is recommended to also use blue in the future, as it is actively improving trust in a platform through professionalism. The companies branding can focus on this color, especially since it’s color widely accepted by many demographics and cultures, which is important for a platform that plans to be in an international segment.

### 4.21.1. Grayscale considerations

Using grayscale (everything from black to white) to accompany blue is a professional and trusting choice. These colors are neutral, meaning they do not evoke strong emotions. This neutrality provides a balanced backdrop that allows the blue to stand out as the primary color, enhancing its impact and reinforcing the feeling of trust and professionalism. They provide excellent contrast against blue, improving readability and ensuring that content is easy to read. This is especially important on a platform where clarity of information and communication are key. It gives a clean, sleek, and modern design to any website (Manaher S, 2023).

To complement the blue that has been chosen, it was agreed to keep the rest minimalistic and stick with tones on the grayscale. Except for the Star Rating, Sustainability Icon and the images, everything else is kept in gray tones ranging from black to white. We recommend keeping that in the future as well and thus provide a base for the company identity which could be developed around the current UI.

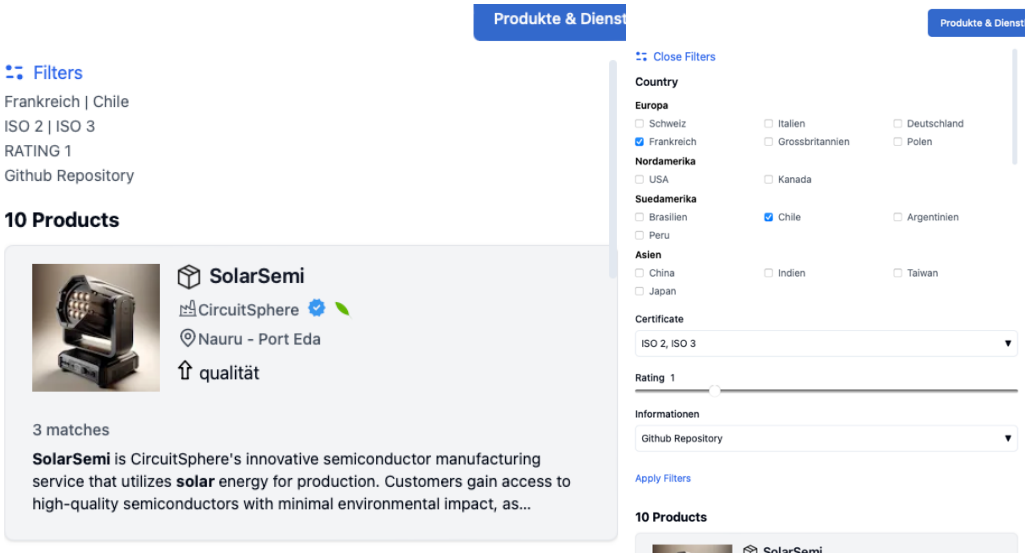
## 4.22. Filter

Adding a filter goes in the same direction as highlighting the search text when displaying results. The user wants to know why something is being displayed and be able to customize the display to their individual needs. Furthermore, this feature was already discussed with Mrs. Thekla Müller, who encouraged to implement it.

**Implementation**
A separate component has been developed which represents the filter function. This component was then embedded in the display of the main view (search).

frontend/src/components/custom/search/Search.tsx
frontend/src/components/ui/filter.tsx

**Result**



# 5. Interviews

We were able to conduct interviews with four persons from different industries and additionally also with a lecturer. With their different backgrounds, they proved to be valuable assets to gain more insight in how the B2B world operates, who uses it, and how they would use our online platform. We were able to cover major industries during the interviews, ranging from computer science over electronics, manufacturing, and automotive industry.
Four interview partners were very open to talk about any points brought up and could share many insights, sources and were even enthusiastic to show us documents and processes of their company. There was one interviewee who sadly was unable to provide detailed answers and could only share his knowledge in general terms, as he was put under NDAs with his company. He also felt uncomfortable that the name of the company or his name would be shared. He is thus referenced only by his initials, and we are only able to say that he works at a car company, not much more. This is also noted in the Appendix with the notes to his interview.

In addition to gaining important insight into the practical perception of trust, another important focus of the interview was the evaluation of the developed solution.

## 5.1. Goals

It is important that the interviews follow a clear structure, so that they are able to be compared side by side.
The following goals for the interviews have been set beforehand:

**Goal 1**
What are the key Trust Factors when searching for a new Business Partner?

**Goal 2**
How does the validation of new Business Partners look like?

**Goal 3**
Where to get in touch with new Business Partners today?

**Goal 4**
What is the Interview Partner's opinion on our approach and current solution?

## 5.2. Goal 1 Findings

**Location**
The physical address is always checked and must therefore always be provided.

**Year of Operations**
The time a company has been in business is considered a key factor. Lars Müller, the CEO of libracore AG, mentioned that they faced significant challenges during the first five years while still in the startup phase, as other companies couldn’t be sure that the company would still be around for a longer relationship.

**Certification**
Certifications are playing a big role in validating a possible new supplier. They provide information about their practices which are given from a third party and not from the supplier itself. The

following certificates are checked by at least one of the interview partners, as he was able to mention them:

- ISO9001
- IATF16949
- ISO14001
- ISO17025

Generally, certificates in areas of quality, production capability, experience or financial situation are looked at.

In the automotive industry, suppliers must have certificates such as ISO and IATF ones; without them, customers will not be interested in establishing contact at all.

The possibility of faked certificates has been mentioned. Especially in Asian countries where it is more difficult for them to check a company.

**Business Licenses**
Business license, particularly important in Asia, to ensure the company is authorized. Checking business numbers in Asian countries can sometimes be tricky. For example, there is no accessible tool for information in China, so they rely on local contacts to provide the business numbers they need. This cannot be simply implemented on a platform without a serious partner in each of the countries.

**Updated Information**
The information's are only trustworthy if they are up to date. It is suggested that one should indicate when, for example, the page was last updated.

**Sustainability**
There are many important factors regarding sustainability that matter when evaluating a supplier. Key aspects include the CO2 footprint, working conditions, anti-corruption measures, and compliance with laws. The data concerning emissions are specified and compared in the various scopes from one to three.
To capture this information, external platforms like IntegrityNext are used. These platforms are particularly useful for companies that are difficult to audit directly, such as those based in Asia. Another useful platform which they are using for checking information regarding sustainability is EcoVadis.

**Customer/Product Reference**
References are crucial, especially in the IT world. They help build trust and showcase a company's capabilities. When a company can list the clients it has worked for and the products it has already done, it demonstrates experience and reliability, making it easier for potential clients to trust their services.

**Cybersecurity**
Information regarding cybersecurity is required. This is done because a cyberattack on a supplier can disrupt the entire supply chain, resulting in the company no longer receiving products.

**Conflict Minerals**
Information about the origin of materials like gold, tungsten, tin, or tantalum need to be checked if they come from conflict regions. These regions are Angola, Burundi, Central African Republic, Congo, Rwanda, South Sudan, Zimbabwe, Uganda, and Zambia.

If they are sourced from any of the mentioned countries, many additional checks need to be made to ensure sustainable practices.

**Supply Chain Transparency**
Maintaining a transparent supply chain is crucial because of the inherent complexity involved. Distributors often purchase from producers or factories, and sometimes even from other distributors. This multilayered structure can significantly obscure the sourcing process, making it challenging to ensure transparency. By promoting a transparent supply chain, organizations can better track the origin of their products, ensure compliance with standards, and minimize risks associated with hidden or unethical practices.

**Ratings**
Ratings can be important for decision-making and can play a role in whether a new potential customer can be trusted. For this purpose, the rating at Dan & Bradstreet, a well-known international rating company, is looked at.

**GitHub access**
For development projects in the field of information technology, access to a provider's GitHub account is very important. This involves paying attention to the structure used in the code, commit messages, variable declaration as well as insight into the technologies used.

**User Interface**
A well-designed user interface is crucial for an B2B shop. User acceptance hinges on the quality of the UI. An outdated design, even if professional, will result in a lower response rate. It makes a platform not feel up to date.

## 5.3. Goal 2 Findings

The validating of a customer can take some time. It can take up to a year before the first products are delivered and more years until those products are being actively used. The procedure for validating a new supplier can be as follows:

**Internal Dataset**
First, the company's own internal supplier network is searched for possible suppliers.

**Initial Contact**
Potential new partners are identified through desktop research and participation in industry summits and conferences. This initial stage involves gathering preliminary information and establishing a list of possible suppliers (Franz Birrer).

**Validate key Trust Indicator**
- Certification Validation
- Business Licenses
- Sustainability assessment
  A comprehensive sustainability assessment is conducted using platforms like IntegrityNext or EcoVadis. The company follows a structured process for tracking CO2 emissions, including Scope 3 emissions. Scope 1 and Scope 2 emissions are controlled internally, and specialized software is used to handle the numerous data points required.

Suppliers are gradually added to this software and are requested to provide all necessary data points. This approach offers a better overview of Scope 3 emissions, enabling quicker identification and resolution of issues.

Additionally, there are regulatory requirements such as the EU's emissions trading system and the Carbon Border Adjustment Mechanism, which will require companies and suppliers in the EU to measure and report the carbon footprint of their products starting in 2026.

- Cyber Security

**Detailed Questioner,**
Suppliers are invited to fill out detailed questionnaires covering various aspects such as address, bank connection, contact persons, owners, company size, and sources of materials. They must also complete a corporate responsibility check, including signing a code of conduct that covers sustainability, working conditions, security, and human rights. This is done to get more Information and get a Feedback about the previously collected information.

**Final Review**
Once all information is gathered and assessed, a final review is conducted. This includes:
Verifying the supplier's commercial viability. Ensuring they meet all required standards and are not prohibitively expensive. Conducting on-site visits to selected suppliers for additional verification and random checks to ensure compliance with signed agreements.

**Contractual Agreement**
Suppliers must sign a code of conduct that outlines their commitments to sustainability, ethical practices, and compliance with relevant laws. Any detected non-compliance can result in the termination of the business relationship.

## 5.4. Goal 3 Findings

**Summit**
Attending industry summits and conferences is a primary method for discovering new business partners. These events provide opportunities to meet potential suppliers face-to-face, learn about their offerings, and establish initial contact.

**Network**
Leveraging our existing network and seeking referrals from trusted contacts within the industry helps us identify reliable new partners.

**Desktop Research**
Conducting thorough online research is another crucial method. We use various online resources, databases, and industry-specific platforms to identify potential suppliers.

Suitable suppliers are most often found in the company's own supplier network or through visits to trade fairs. The desktop search is mostly used when there are no suitable suppliers in the company and there are no suitable contacts that have been made at trade fairs or through recommendations from business partners.

In general, companies often have the strategy of establishing as few new business relationships with new suppliers as possible. Instead, the focus is on strengthening business relationships with existing suppliers and expanding them where possible.

## 5.5. Goal 4 Findings

Our product has been positively received, particularly for its design and structured layout. The information provided and the integrated trust features are appreciated. However, it was quickly noted that these elements are too general and need to be tailored more specifically to the exact needs of the industry.
According to our interview partners' review, the following points were identified as areas of strength and improvement:

*Positive Feedback:*

**Aesthetic Design**:
The overall design is pleasing and effective.

**Clear Display**:
The clear display of search results by product and company is well-liked. The way the information is presented in these search results was appreciated.

**Informative Search Results**
The search results, including details such as name, location, descriptions, matches, product quantities, and specific products, were appreciated.

**Structured Information**:
The structured presentation of selected products or companies is well-regarded.

**Useful Tabs**:
Although the information in the tabs is currently general, the layout and content are very goal oriented and valuable.

**Certificate Description Idea**:
The concept of describing certificates is appreciated.

**Sustainable Icon Explanation**:
There is positive feedback on explaining what the sustainable icon signifies and how it is determined, though it requires more detailed description.

**Verification Explanation**:
Explaining what it means when a company is verified is well-received.

*Areas of Improvements*

**Trade Fair Information**:
Information on which trade fairs a provider can be found at and when and where they take place.

**ISO Certification**:
Include ISO certification and other industry specific certifications.

**GitHub Access**:
Provide links or access information to GitHub repositories.

**On-Site Visit Information**:
All interview partners confirmed the importance of local visits to a provider. As a result, they requested that information regarding on-site visits be included.

**Project Details**:
Offer more details about completed projects.

**Third-Party Sustainable Information**:
Integrate sustainability information from third parties (e.g., IntegrityNext, EcoVadis).

**Third-Party Ratings**:
Incorporate ratings from third-party sources.

**Business Number Verification**:
Add and verify business numbers.

**Data Update Information**:
Include information on the last update to ensure data accuracy.

**Product Display Rationale**:
Provide more information on why specific products are shown.

**Professional Homepage**:
A professional homepage is desired to establish trust and convey professionalism effectively. This provides a valuable opportunity to make a strong first impression and immediately instill trust in users.

## 5.6. Interview Conclusion

**Industry Specific**
The interview partners all showed interest in a B2B platform that would facilitate the search for new business partners. However, it became clear that such a platform would only be used if it is specifically developed to their needs. During all the interviews, the significant differences in their internal workflows when it comes to the validation of new suppliers became evident. These differences are apparent across companies and industries. This was particularly evident in the automotive industry. Erich Ronacher, who is responsible for the procurement of raw materials to produce auto components, pointed out that the quality requirements of car manufacturers are so high that there are only a few suppliers on the market whose raw materials meet these requirements. These suppliers are often well known in the market and are rarely changed due to their competence and unique position. Should the need for new suppliers arise for various reasons, the evaluation process can easily take several years. He underlined that it's not just about quickly finding new suppliers on an online platform, it requires thorough and detailed assessments before any decisions are made. New suppliers are usually found through contacts or personal meetings. In general, Mr. Ronacher showed great interest in the possibilities of a B2B shop, but the interview clearly indicated that such a shop only makes sense if it is tailored to his

market and needs. As it turned out, these needs are very product and industry-specific, especially in terms of certificates or quality requirements for example.

This perspective became even more evident in the subsequent interviews. SF, who manages new suppliers, also expressed interest in using a B2B platform for this purpose. However, he brought attention to that such a platform would only be viable if it is specifically tailored to the needs of the industry. During the interview, he emphasized the importance of trade fairs in the automotive industry. Many of his contacts are made at these trade fairs. Additionally, there are already competing products that cover many suppliers in the automotive sector. One such competing product is the platform Automotive Technology, which specifically lists only automotive suppliers, provides information on when and where trade fairs take place, and offers direct access to the websites of individual producers. He also highlighted the differentiated handling of ratings. While ratings generally lead to trust, they do not really exist in his environment. The reason is the confidentiality towards competing companies. If possible, a competitor is not informed about where his products come from and even less about which supplier is good or not.

SF expressed obvious concerns about a B2B platform that tries to cover all industries simultaneously and questioned this concept due to possible difficulties in covering specific information as well as its size.

The interview with Lars Müller also tended clearly towards this conclusion. Mr. Müller is involved in IT and often must find new partner companies for programming/development projects. When looking for companies that can technically implement projects, he often uses Google search and would therefore be interested in a platform that would take over the Google search for him. However, he pointed out that the development sector differs greatly from the automotive industry. For him, certificates are of lesser importance, whereas in the automotive industry, without certain certificates, there is no contact at all. Much more important to Mr. Müller in validating a business partner is access to their GitHub account and the associated analysis of their technical implementations. In addition to reviewing source code and technical solutions, he also places a great focus on already completed products. These are very decisive for him. Unlike in the automotive industry, he pays attention to ratings and would like to see such ratings in a possible implementation of the B2B shop.

All interviews made it clear how different the approaches of individual companies and industries are regarding the expansion of their business relationships. A B2B platform is only useful for all parties if it is specifically tailored to their needs and working methods. Every industry has its own characteristics that they use to assess a customer as trustworthy and competent.

**Integration of third-party verification**

All parties expressed the importance of trustworthiness, which can be achieved through verification by a well-known and professional third party. They voiced concerns about the accuracy of the displayed information. They see a potential risk of misuse if a company can publish information on the website without verification. This particularly affects trust in providers who are geographically or culturally distant, making verification challenging and time-consuming.

A key point was the verification of the business number. In Switzerland, for example, this is the UID number that locally based companies possess. The provision of a business number was central to all interview partners. They expressed the desire for this number to be officially verified, as this is the only way to ensure its authenticity. Particularly in the Asian region, it is sometimes difficult to verify this number with the available resources.

Internationally recognized certificates also provide a clear indication of a provider's trustworthiness. Own certificates are only partially useful, rather there needs to be the possibility to display industry-known and required certificates on the platform.

The publication of ratings was not deemed equally important by all parties. However, the opinion on the verification of ratings for authenticity was unanimous. Comments or ratings often have a reputation for being easily manipulated and therefore do not always positively impact trust. Therefore, collaboration with rating agencies was recommended to us. Internationally recognized agencies like Dun & Bradstreet are significantly more credible and inspire greater trust.

The same principle as with ratings is also desired for sustainability. Here too, there is a risk that, without control and verification, a company can publish any sustainability information and promises. As with ratings, a possible collaboration with already existing agencies that already verify companies for their sustainability and have recorded this data was suggested.

**Consistent Perspective on Sustainability**
A consistent perspective emerges from the analysis of the stance on sustainability. All emphasized the importance of sustainability. A few years ago, sustainability was treated as a secondary topic, more of a symbolic act than a truly relevant criterion for validating a new supplier. This has significantly changed. All partners now pay close attention to the sustainability values of potential new partners. It is almost inconceivable not to inquire about and consider these values in the selection process.

Crucially, sustainability is not limited to ecological aspects like CO2 emissions but extends to various focus areas such as working conditions, child labor, and more.

**Local Vendors are preferred**
Whenever possible, suppliers located nearby are preferred. This significantly simplifies the organization of the entire business process with that partner. The phrase "buy cheap, pay dear" was mentioned, indicating that price is not always the most relevant factor. The interview partners consistently prefer local companies, emphasizing that the overall convenience and reliability of working with nearby suppliers often outweigh cost considerations.

**On-site visit**
On-site visits are crucial in the evaluation of a new supplier. All interview partners conduct these visits and place significant importance on them. It would be useful if information about these visits could be directly available, along with general information about the production facilities, to help prepare for these visits.

# 6. Follow Up Research

## 6.1. Third-Party Certification

Certain topics were heavily emphasized, including the subject of certifications. Therefore, some topics were examined more closely to understand its importance and how it could be effectively presented.

**Trust Transfer through third party certifications**
Trust transfer occurs when consumers ascribe trustworthiness to an unfamiliar business based on its association with a trusted third party (Jiang P., 2008). A well-known third-party certificate on a website can significantly transfer trust to an unfamiliar retailer (Kyongseok K., 2011). Consumers willing to take a risk on an unfamiliar online merchant can be reassured by a third-party certification logo, leading to a purchase (Jiang P., 2008). These certificates act as signals of reliability and integrity for online retailers (Kyongseok K., 2011).

**Impact of Logo Validation and Exposure**
Validating a logo by clicking on it theoretically reduces uncertainties and increases trust. However, in practice, the significance of logo validation on trust transfer was less pronounced, possibly due to the aggregation of different logo types (privacy, security, reliability) (Jiang P., 2008). Frequent exposure to certification logos positively impacts consumers' perception of these logos as this exposure is processed as a peripheral cue, building positive associations. Placing a third-party seal on the order page of an unfamiliar website not only encourages initial trust but also increases purchase intent by alleviating privacy concerns (Kyongseok K., 2011).

**Consumer Behavior and Trust**
Consumers who prioritize trust factors such as privacy, security, and reliability tend to view third-party certifications more positively. Individuals predisposed to trust third parties are more likely to view certification logos favorably (Jiang P., 2008). Trust is mediated by perceived privacy empowerment and moderated by factors such as purchase-decision involvement, disposition to trust, and privacy-protection self-efficacy. For small online retailers, third-party certificates offer a cost-effective method to build consumer trust (Kyongseok K., 2011).

**Strategic Recommendations for E-Marketers**
E-marketers should participate in well-known and trustworthy third-party certification programs and educate consumers about the significance of certification logos. Customizing certificate display systems for different audiences based on their current trust levels in online shopping can also be beneficial (Jiang P., 2008). Strategically placing these certificates on order pages can significantly enhance initial trust and purchase intentions (Kyongseok K., 2011). Additionally, e-marketers should target consumers with higher experience and trust in online shopping and customize logo displays for different consumer segments. Displaying multiple identifying logos can enhance trust through mere exposure, making it important to consider the ease of processing and plausibility of certification logos (Jiang P., 2008).

## 6.2. Trade Fair

Due to the frequently emphasized importance of trade fairs, a closer look was taken at this topic. We delved deeper into the significance of these fairs and sought to understand why this information should be published on a B2B site. These were the findings:

Trade fairs play a crucial role in fostering business relationships by creating a unique environment where buyers and sellers can engage in meaningful interactions beyond mere transactions. Both informal and formal exchanges of information and social interactions at these events help build trust, satisfaction, and commitment between business partners. Socialization episodes at trade fairs are particularly effective in enhancing relationship quality, especially when the product is of high importance or the relationship is in its early stages. These events allow participants to break away from their usual professional routines, providing them with more time and space to deepen their connections. Additionally, trade fairs offer invaluable opportunities for both parties to understand each other's needs and business objectives better, leading to stronger, long-term relationships.
Exhibitors and visitors are encouraged to prepare strategically for these events to maximize their relational benefits. Trade fair organizers can enhance the relational aspect by creating spaces and events that promote networking and information sharing. This perspective highlights that trade fairs should be viewed not just as a platform for sales but as a strategic tool for relationship marketing. By adopting this approach, businesses can significantly improve the quality and longevity of their partnerships. (Sarmanto M, 2015)

## 6.3. AI Integration

In the interviews, we discussed a potential integration of AI in the web shop, which proved to be of significant interest. The client, Nitish, has also expressed interest in this direction. Therefore, the opportunity to research the possible areas for AI integration were taken and following results have been found.

**Personalized Product Recommendations**
AI-powered personalized product recommendations in Industry 5.0 significantly enhance user satisfaction by providing accurate, fair-priced, and high-quality suggestions tailored to individual preferences. These recommendations increase customer loyalty and drive repeat business. Businesses can leverage AI to create hyper-personalized shopping experiences, continuously refining algorithms based on user feedback. Improving recommendation systems' accuracy and quality is crucial for meeting and exceeding customer expectations in the digital marketplace. (Priyadarsini Patnaik)

**Automated Customer Support**
There are various providers of customer service tools (chatbots). Among them are well-known companies like IBM, which offer a comprehensive range of products in this area. (IBM)

**Demand Forecasting and Inventory Management**
AI and ML enable more accurate demand forecasting for both existing products and new SKUs. Historical data is leveraged to predict demand based on seasonality and purchasing patterns. AI integrates these forecasts into inventory and production planning. For new products, AI uses data from similar products to forecast demand and updates the predictions as new data becomes available. Additionally, AI solutions can predict supply chain disruptions by analyzing weather, financial trends, geopolitical issues, and recommend adjustments to mitigate their impact. (Dolan R, 2024)

**Fraud Detection**
This study focuses on detecting e-commerce fraud using big data mining (BDM) and information fusion technology (IFT). An e-commerce fraud detection model (FDM) based on IFT, incorporating computer technology, artificial intelligence (AI), and data mining (DM), has been developed. The

proposed FDM, which combines various information sources, demonstrates higher fraud detection accuracy compared to support vector machines (SVM) and logistic regression models (LRM). Experimental results show that the FDM can accurately analyze financial and credit data to predict fraudulent behaviors. Overall, the IFT-based FDM offers significant advancements in identifying and mitigating e-commerce fraud risks. (JiaoLong Li, 2022)

# 7. Future Work / Requirements

To be able to continue this project in the future, the research, the interview findings, and additional considerations were summarized into a guide. This guide should be a basis to make the platform viable if a business case, brand identity or any other motivations have been found. It doesn't have to be followed step by step but can be used as a starter guide.

First, the biggest takeaway gained is to have a specific use case. The platform should not try to be everything at once but should instead focus on a specific industry or specific users. This could help the platform that it will not be overcrowded with random information, companies, and products, but instead have a particular sector of an industry it is covering. To reference the interviews, the automotive industry has a specific website already covering this sector. If a car company wants to search something fast without going to a trade fair, they'll use this platform, as all the suppliers which are producing for this niche are already on there.
The platform should thus seek such a niche to have a competitive advantage.

The platform should then be quickly validated with users in this niche. These can be users of any caliber. Thorough interviews should be conducted so that key takeaways can be gained and changes to the use case can be implemented into the software.

To use the available resources more efficiently, mockups should be made, as to save time with user research instead of developing. Figma is a great tool for click dummies or designing the web page / software. Start a constant feedback loop of the design with some end users to be sure with the design direction you are taking.

Make sure to have a great brand identity or a good core concept. With competitors like Alibaba, Wlw, or a particular car platform like automotive-technology.com, they all have a strong brand identity for their sector. This can mean several things, from finding a suitable title for the webpage, signature design colors, and a slogan.

To guarantee sustainable operations of all suppliers and businesses, one must find a definition of sustainability for the chosen sector. Then a suitable partner organization should be scouted which can handle the sustainability certification, as an own solution can take up to much time.

Another important part is the verification process. This again should be industry specific, as each industry has different requirements on what should be verified. This could be a business number, certain certificates as prerequisites among other things. For some industries it could even just be a link to a Github account.

# 8. Discussion

Based on the information gathered from the research, the experiences shared in the interviews, and the evaluation of the prototype by industry experts, we can now proceed to answer the questions that were originally posed.
To answer the problem statements, we'll go through them one by one, as each deserve a discussion on their own.

## 8.1. What makes an online shop trustworthy?

### 8.1.1. Which design approach is needed for a serious and trustworthy UI?

A serious and trustworthy UI requires a clean, organized, and professional design. This entails an aesthetic layout, easy navigation, and clear labeling of important information. A well-structured UI not only enhances usability but also imparts a serious and trustworthy impression to users. Through meticulous analysis using research papers, competitive analysis, and expert consultations, we were able to plan, implement, and validate our chosen design approach. This comprehensive process revealed several key focus areas crucial for establishing a credible and user-friendly interface.

- Establishing a clear hierarchy in the displayed information.
- Ensuring intuitive and self-explanatory navigation.
- Making functionalities easily understandable at a glance.
- Utilizing shades of blue throughout the design, leveraging its association with trustworthiness.
- Developing an appealing landing page to create a strong first impression.

It is important to note that the design of the web application is of great significance. In the interviews, it was clearly communicated that users will immediately leave an application if the design is not appealing, does not inspire trust, and if the navigation and functionality are not intuitive and logical.

### 8.1.2. Which requirements must be fulfilled for a trustful user experience?

**Transparent detailed Information:**
Clear and detailed information about products and vendors. The information must be kept up-to-date and clearly marked as current. However, the information is only useful if it is tailored to the specific needs of individual industries. Therefore, we strongly recommend thoroughly identifying and documenting the precise requirements of each industry. If the information is not customized to the needs of specific companies and industries, the platform will not be utilized by them.
The UI of an B2B websites need to support a longer decision-making process with more detailed information.

**Verification Indicator**
Users seek assurance that the provided information has been verified and is accurate, rather than being fabricated by the platform or the provider. This assurance is achieved through the integration of third-party verifications, certificates, or detailed descriptions of how the information has been validated.

**Individualize Result**

The platform's own interests must be set aside. Customers want to see offers tailored to their needs, not products highlighted by the platform due to perceived importance or sponsorship. Displaying individualized results goes hand in hand with the previously mentioned criterion of industry and company-specific results. It is essential to proactively engage with users and identify their needs. The search must feel effective and accurate.

**Product Quality**
The products and services offered on the platform must be of high quality. They reinforce the image of reliability and encourage and assure customers in their decision-making processes.

**Security**
Users of the platform would appreciate understanding what happens to their data when they use it. It is important to transparently show that their data is securely stored and explain how this security is maintained, thereby providing a sense of data protection. Furthermore, it would be advisable to request only the most essential data.

### 8.1.3. How to show the trustworthiness of a vendor?

Customer reviews and feedback are often mentioned in research papers as significant trust factors. However, in the B2B world, this is not always applicable. Anonymity is frequently preferred as companies do not want to disclose their suppliers or highlight which ones are particularly good. When ratings are used, they are typically from well-known agencies rather than direct reviews on the platform. This was emphasized by our interview partners.
Customer service and prompt responses are critical. Information on cybersecurity is also important, as it ensures the safety of business interactions on the platform.
Although payment options and return policies are mentioned as trust factors in research papers, our discussions revealed they are of secondary importance in the B2B context. This platform primarily facilitates contact, with specific product details and prices usually negotiated at a later stage.
Providing the physical address and shared information about production facilities, sales offices, and headquarters enhances transparency. Details about service personnel, including their names, titles, contact information, and photos, contribute to a sense of reliability. Legal information, such as company licenses and business numbers, is essential.
Certifications relevant and recognized within the specific industry are crucial. Sustainability information, encompassing not only environmental aspects but also social responsibility, is increasingly important. The years of operation, indicating how long the company has been in business, also add to its credibility. Keeping the information up to date is vital.
Transparency about supply chains, including the sources of materials, is essential. Providing product references and details about completed projects is particularly significant in the IT sector, where linking directly to a GitHub repository is beneficial.

### 8.1.4. How users can be sure, shown vendor Data is real.

**Third Party Usage**
Ensuring the authenticity and reliability of vendor data on a B2B platform necessitates leveraging established verification services and forming strategic partnerships. As our interviews revealed, many companies already work with providers like IntegrityNext and EcoVadis for sustainability and social responsibility assessments. Integrating these trusted services into our platform would significantly enhance its credibility and offer substantial value to users.

For ratings, a collaboration with renowned agencies such as Dun & Bradstreet would be highly advantageous. These ratings play a crucial role in the validation process for many businesses. Incorporating such ratings into our platform would greatly strengthen the trust factor and assure users of the reliability of vendor information.

Partnerships with local firms are particularly beneficial for verifying business numbers, a critical yet sometimes elusive piece of information in certain countries. These local partnerships can be expanded to verify addresses, company locations, and even conduct on-site inspections. This comprehensive approach ensures that all data presented on our platform is thoroughly vetted and trustworthy.It is also crucial to visually indicate that this information has been verified. Users should have the ability to read detailed explanations of what this verification entails, including the processes involved and the partners we collaborate with.

Utilizing certifications from third-party and independent organizations is also vital in demonstrating the quality and operational standards of companies. Industry-specific certifications are especially important in sectors where such endorsements are key indicators of reliability. By showcasing recognized certificates, our platform can effectively validate the credibility and excellence of the vendors listed, further enhancing user confidence.

**Hard-to-fake Data**
To enhance the trustworthiness of our platform, we prioritize the use of data that is difficult to falsify. This includes providing contact details of key personnel, such as email addresses, names, and photographs. Additionally, we incorporate images of the company and its production facilities to give a clear and authentic view of their operations. Precise addresses are also included to ensure users can verify the physical location of the business.

Furthermore, linking to GitHub repositories allows potential clients to review the technical capabilities and past work of the company. We also highlight previously completed projects, providing references to firms that have utilized these services or products, accompanied by images and descriptions of where and how they are being used today. This comprehensive and transparent approach not only bolsters the credibility of the vendor but also gives users a concrete basis to trust the information presented on our platform.

## 8.2. How are we able to link the online shop to sustainability?

### 8.2.1. How can a link between the products or vendors and their sustainability be displayed?

Based on our insights from interviews with experts across various industries, collaboration with trusted partner firms is crucial. These firms, already widely trusted and used, have gathered extensive data on numerous companies, particularly in sustainability. A significant advantage of partnering with these firms is their comprehensive coverage of diverse sustainability topics and their ability to provide vast amounts of data. Moreover, their information, themes, and visualizations are familiar to users, making it easier for them to interpret the data without much effort.
The integration of these sustainability links can be implemented in various ways. One option is to include a simple link on the B2B platform that redirects users to the partner firms' websites. Alternatively, the information and visualizations from these partner firms could be directly embedded into the B2B platform. This approach would enhance navigation by providing faster and more straightforward access to the necessary data.

Regardless of the chosen method of linking and integration, it is essential to signal the existence of such a collaboration clearly and promptly. Users should easily identify whether a company provides these verified data. This transparency ensures users are aware of the partnership and can trust the data presented.

### 8.2.2. Which information would the user like to find out about the sustainability of products or vendors?

Users are increasingly demanding comprehensive information about the sustainability practices of companies. This includes environmental impacts, such as CO2 emissions across Scope 1, 2, and 3, energy usage, waste management, and water usage. But also extends to social responsibility, working conditions, and anti-corruption measures. Detailed transparency in the supply chain is also crucial, including insights into the sources of raw materials and the overall lifecycle of products. Understanding the origins of materials and the sustainability practices of suppliers is particularly important in complex supply chains where transparency can be challenging.

### 8.2.3. Does it need information about products and vendors at all, or is one of the two sufficient?

Information about the company is sufficient. The focus extends beyond the sustainability of materials used in products, encompassing the overall business practices of the company. It is essential to understand how a company operates, including its commitment to sustainability and ethical practices. This comprehensive view of the company's operations is more valuable than just product-specific details. Thus, detailed information about the company provides a complete picture of its commitment to sustainable and responsible practices.

### 8.2.4. Which providers for calculating sustainability might be worth working with?

**IntegrityNext**
IntegrityNext is a platform designed to help businesses ensure compliance and sustainability in their supply chains. The platform offers various services including supplier assessments, risk management, and sustainability performance tracking. It collects and analyzes data on various aspects of corporate responsibility, including environmental impact, human rights, labor conditions, and anti-corruption measures. IntegrityNext provides a comprehensive overview of supplier practices, allowing companies to monitor and improve their supply chain sustainability and compliance.

**EcoVadis**
EcoVadis is a platform that provides sustainability ratings for businesses. It assesses companies' environmental, social, and ethical performance across their supply chains. EcoVadis evaluates data on various sustainability criteria, including labor practices, human rights, fair business practices, and sustainable procurement.

## 8.3. Final words

By answering the questions that we asked ourselves at the beginning of the project and whose answers were our goal, we gained a clear picture of how trust can be represented in a user interface. We not only gained knowledge about how trust can be represented, but also about the relationship between the information presented and why it is important for companies. We became aware of this importance not only in trust but also around sustainability. We were able to clearly recognize the importance of sustainability and see it as very closely linked to trust.
However, we must also admit that by answering the questions we realized that our implemented solution is probably not yet needed in the industry and still needs some adjustments and deepening. We are convinced that the answers to our question clearly show what is still missing and what steps and developments need to be taken to achieve this.

# 9. Deployment

We used Digital Ocean for deployment. With Digital Ocean, deploying an already “dockerized” application is very easy. The following steps must be taken during deployment:

- Create an account
- Add a payment method
- Create a new project
- Select the Docker option when creating a project
- Switch to the terminal
- Navigate to your SSH directory
- Connect using `root@ipAddressofServer`
- Build your Docker image of the desired application

The website can be accessed via the following link.
https://smeconnect.aarone.name/en

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# 11. Glossary

| Word | Description |
|---|---|
| B2B | Business to Business |
| B2C | Business to Customer |
| GitHub | Code hosting platform for version control |
| IDE | Integrated Developer Environment |
| MVP | Minimal Viable Product |
| NDA | Non-Disclosure Agreement |
| UI | User Interface |
| UX | User Experience |

# 12. Declaration of Authenticity

We the undersigned declare that all material presented in this project report is our own work and written independently only using the indicated sources. We declare that all statements and information contained herein are true, correct, and accurate to the best of our knowledge and belief. This report or part of it have not been published to date. It has thus not been made available to other interested parties or examination boards.

**Location Date:** 4056 Basel, 13.06.2024

**Name:** Yves Hunziker

**Signature:**

**Name:** Marc Föry

**Signature:**

# 13. Appendix

## 13.1. Interview Questions

**Interview Preparation Document**

**Goals**

**Goal 1**
What are the key Trust Factors when searching for a new Business Partner?

**Goal 2**
How does your validation of new Business Partners look like?

**Goal 3**
Where do you get in touch with new Business Partners today?

**Goal 4**
What is the Interview Partner's opinion on our approach?

*The questionnaire should serve as a guide. However, we intentionally do not want to pack the interview with planned questions, but rather have time for discussions and unplanned questions in between.*

Section 1: Trust

**How do you ensure that you can trust a supplier?**

- What steps do you take to verify the trustworthiness of a new supplier?
- Are there any key features that directly lead to trust (certification etc.) ?
- Do you associate sustainability with trust or are they two different things for you?
- How do you verify the authenticity of the provided information?

Section 2: Validation Process of new Supplier

**How do you find new suppliers?**

- What methods and strategies do you use to identify new suppliers?
- How often do you search online for new suppliers, how often do you use the help of existing b2b stores? How do you use desktop research and online platforms to find potential suppliers? (which one)
- What internal processes do you follow to integrate new suppliers into your supply chain?
- Where do most suppliers come from?
- What does the validation of a foreign supplier look like, what are the challenges, especially in the Asian region? (India)

Section 3: Sustainability

**How important is sustainability in the search for new suppliers?**

- What sustainability criteria are particularly important to you when selecting new suppliers?
- What specific data points and information do you require from suppliers regarding sustainability?
- How do you ensure that suppliers meet your sustainability goals and standards?
- How do you measure and monitor the sustainability performance of your suppliers over time?
- How important are information about sustainability for the company? How much priority is given to it when selecting new suppliers?

Section 4: Our Plattform

**What is you impression of our Platform design?**

- Show experts our application
- Ask for improvements / wishes / recommendation / open needs

## 13.2. Franz Birrer Interview

Transkript 15.05.2024 at 10:00, SFS Rotkreuz, Franz Birrer

- Franz Birrer started the interview with a presentation of the organization, company goals and sustainability strategy, as well as his role in the company.
- Franz: It is important to know first of all that we as a company are 24/7 working on products with the consumers or users. There are for example screws in the phones (points at phone on table), 30 to 40 of them, that we produce, but we are as well in the automotive industry (MB, Audi), there are products from us in airplanes, in buildings, in refrigerators, in roofing, and home appliances. Products at the SBB for maintenance. At this point we can make the connection to procurement of these products. We are looking at what the customer needs, either as raw materials or products. India is one of the sources for products, however not a very important one at that.
Our approach might be of importance, our value proposal, where we can provide a cost benefit for the customer with improved product quality. This is because we can save cost as we can handle all the steps in house ourselves, which makes this part much cheaper for our customers.
We at SFS are organized in three segments. To the left we have the engineering, where we design products together with the customer, for example precision engineering for components in cars. Here we are also talking about products which we produce ourselves, meaning we get the raw materials. These will be sourced locally, where the factories are located. This is to have a short as possible supply chain and reduce supply chain issues, as well as be more sustainable. The CO2 footprint of transportation is a big consideration.
The next segment is fastening systems, which is a product which we ourselves design and produce and sell to customers.
The third part of SFS is distribution & logistics, which is where I am working, and this building is specifically for that. We from logistics are working together with many different distributors, which handle over 300'000 different positions. These distributors also help us to find customers again to sell these products. E-Shops are new channels that are also getting more and more important in our logistics department as well. In this segment we are also presented under two names, for one SFS and as Hoffmann Group. Hoffmann is more for the European market, in Switzerland we are always as SFS. So, these are three segments, which gives 6 divisions (2 each), in which we are dealing at SFS.
Concerning sustainable growth, we've made over 3 billion in sales volume last year, this is also due to acquisitions. We are over 13'000 employees split across Europe, USA, and Asia. Our main market is still mainly Europe, however Asia and the US are catching up in our segments. Asia is at 13% and US at 16%. We have 130 workplaces in 35 countries. So yes, that's it, the basic information's about our company. Do you have any questions thus far?
- Marc: Yes, thank you for the presentation. Two to three questions have now already been answered which we were going to ask, e.g., the sustainability concept. Best we start in general with your person, we've done some stalking on LinkedIn, Head of Supply Chain Management, is that in the automotive industry or over all industries?
- Franz: I am in the D&L Switzerland, I rapport to Iso Ranjac. For each division there is an own Supply chain head manager. In addition to that, it is worth noting that each division has its own organisation and its own finance part, purchasing, distribution.
- Marc: Ok, to get more specific, what are your day-to-day activities, how does the

supply chain work and where exactly is your connection to B2B?
- Yves: Exactly and how does the supply chain work, how is the effective contact with a supplier?
- Franz: We have internal and external stakeholders. I report weekly to the internal stakeholders. It is important in the supply chain to know if everything is working with the products or not, are there issues that need to be addressed. For that it is important that there is constant exchange happening with the people of the logistics. They are receiving everything and are the first to notice anything from the suppliers. Then we are in constant contact with the people from purchasing, so that there's an estimate on how much is asked for. Also, the contact with the product management must be there, it is important if there are new products that need to be had. The division leader also gives his information which is important considering strategy, it can be that we try according to risk management that we want to get out of certain supply chains. This is a routine that we go through weekly or even daily. With these information's we go to our suppliers and plan our yearly talks, which is also where we rate our suppliers. This is also where we check if the supplier is good in the overall competition and is worth it. It will also be checked how the product of the supplier is in the overall Lifecycle, is it still developing or is it stagnant.
To check on things, we go to visit chosen suppliers every year and there's also a platform where we go to summits / fairs. If we need urgent contact with a supplier, we make a video call, be it via Teams or like discuss these points.
- Yves: Ok and the suppliers are then more local or from where, if you're saying that you are going to visit them?
- Franz: Our suppliers in logistics (D&L), has about 2200 suppliers, thereof 90% in Europe and 10% in Asia. When we're talking about suppliers from Europe, we are talking about Switzerland, which is the biggest, then Germany, then Italy, then France, then Benelux and then a few east European countries. When talking about Asia, I am always talking about amount by the way and not about the worth of the supplier, then the biggest is Taiwan, then China, then Vietnam, then Malaysia, Philippines and India in this order.
- Marc: Can we ask specifically due to our project, what is sourced from India?
- Franz: From India we have products which are mechanically worked on with CNC machines, which have a high "second operations" of metals. This is for example used for screws. India is in this market very competitive, especially also for sanding of these products. With other segments, even in the metal industry, our experience is that they are not as competitive as other markets. Mainland China and Taiwan are in other aspects more competitive, quicker, and better. What might also be important to note, there are suppliers that are producers themselves and then the suppliers that are distributors. The distributors themselves are then buying from producers / factories or they themselves are buying from distributors, which makes the supply chain very complex. This makes it quite difficult to have good transparency with the sourcing.
- Marc: I just wanted to ask considering sustainability, we've seen that SFS Group is promoting its sustainability, with its reducing carbon footprint by 58.5%. How can you guarantee these number with those complex supply chains? How can you control this?
- Yves: When a supplier comes from India how can you effectively check the facts that they provide?
- Franz: We have a structured process, called Scope3 emissions. The CO2 emissions which are mentioned are from Scope1 and Scope2 emissions, which we can control and check ourselves. Those scopes are everything we are doing internally. We are working with a software due to the many datapoints that are being asked, as excel is not suited. We are adding our suppliers step by step to this software and asking them

to answer all data points to have a good overview. This gives us more overview about our Scope3 emissions and thus we see problems much quicker, have more datapoints and can start to handle the problems directly. This is one of the aspects, the other is all the laws and regulatory prerequisites. The EU has an emissions trading system. So that it can't be surpassed, we have a new regulatory, called Carbon Board Adjustment Mechanism, this has a result that every supplier in the EU area with certain products must measure the whole CO2 footprint of these products and submit these. From 2026 this will not be free, from then on companies and suppliers must start to pay according to the carbon footprint.
So, the sustainability goals are enforced from two sides, one side our company and the other from the countries.
- Marc: What specific datapoints are being asked from the suppliers? What should they give concerning sustainability or similar?
- Franz: Concerning sustainability, this is a wide topic, as it isn't just carbon footprint but also working conditions, how they handle the direct environment, how corruption is handled and prevented, if laws are being followed. We are asking a broad spectrum of questions to our suppliers in all these fields.
- Marc: Laws, are these the local laws or internationally accepted ones? Sustainability is defined differently in countries, working conditions in India, or Mainland China are surely different compared to Switzerland / Europe?
- Franz: I can show you 2-3 examples, wait a second, I'll have to change my screen here. We are using this software (on screen he shows the software integrityNext), it's a software developed in Munich, maybe you've seen them, they are doing so called sustainability assessments and SFS checks all 10'000 suppliers (also catching up) with it. We are specifically inviting our suppliers to take these assessments, this will also help us with an abstract risk analysis. This is nothing different than telling the software what the supplier is producing and in which country they are working. This will give findings about how human rights and the sustainability are handled. It will give us ratings from green yellow and red. When it's red, there needs to be something done, as the risk is high. The second approach is that those critical suppliers are invited to further assessments directly over the software. The supplier becomes a notification also in the software which will state "SFS wants to know this and that, please fill out". The supplier is then asked to answer these questions truthfully and has to accept with a disclaimer that it is truthfully. This will give us a good image about our supply chain. Where are we in the green, where are we in the red. For the time being, the yellow rating is not urgent, but it wouldn't hurt to investigate it if the time is there.
- Yves: I have to ask again, you said you are collecting internal data, was that just the CO2 footprint?
- Franz: Yes, that what we are doing internally, wait I'll show you on the website. Here you have our sustainability report (on sfs.ch available), which you've apparently already seen in preparation. As said, these are the Scope1 and Scope2 emissions. Sustainability is a wider concept where we look at the supplier more detailed. Of course, we also look at the quality of the product and on the price, which is always an important factor. With Scope3 there are so many subcategories that it is difficult to have the right perspective. Good. But yeah, our suppliers are asked for these assessments, we specifically ask for corruption and bribing, and why are we asking this? This is a topic which concerns supply chain laws in Germany which are mandatory. We ask about environment protection, working conditions, work security, we ask about accountability for the supply chain. It doesn't help if the supplier is doing everything good, but his suppliers are doing everything wrong. Finance informations however aren't important to us. However, Cybersecurity is also a big topic nowadays,

this is not directly linked to sustainability, but that information security is provided. If he is hacked then his production is on a standstill, which will then of course affect the supply chain and harm the sustainability of it. He can also have weak security and thus be a portal to our systems and cause harm to us directly.
- Yves: (Looking at the integrityNext Chart (green, yellow, red, gray)) If it is grey is there no data yet?
- Grey is no data yet. We still have suppliers that need to catch up with all their questionnaires. Another topic which is important are the conflict minerals, the 3tg. These are important since the vote “Konzernverantwortungsinitiative”.
- Marc: What minerals are under these 3tg’s?
- Franz: Conflict materials, the 3tg’s are Gold, Tungsten, Tin and Tantalum. These can be sourced out of conflict countries, such as Congo, then the company has a due diligence to look closer at this situation. This doesn’t affect us, as we don’t trade or use gold, but Rolex has a big issue with these materials for example.
So yes, these are all the points we ask our suppliers. If there are problems, our product and supply managers will investigate those. If we discover that there’s a serious problem, often, instead of changing suppliers, we try to work on the relationship and develop the current supplier to match our standards.
- Yves: Thanks, I think that gives us a good bigger image on what is important concerning sustainability for your company. The question we now want to ask is how exactly do you find another business?
- Marc: Where is the initial point of contact and exchange of information? What is important at first glance?
- Franz: There are many ways to scout a supplier. Our sector of D&L is a more conservative sector like the tech sector. There are long product life cycles. Some screw models are 50 years old, there is not a big change happening due to industry standards. This has the effect that we maintain long relationships with the same suppliers. We have products in our portfolio that have faster lifecycles, for example tools. However, we ourselves buy those products from other distributors instead of a business.
- Yves: So sometimes you aren’t even searching for the producers / suppliers themselves, so instead go for distributors which already have a bigger product range due to purchasing from different companies?
- Franz: Yes exactly. With fastening things (screws), that’s where we go to suppliers / producers directly. Those producers we’ll find in our existing portfolio which already exists, the general idea is to reuse suppliers we’ve worked with. If we need a new supplier, the first step will be desktop research, and go to summits on a regular basis. The summits are always good to see which new suppliers and businesses are presenting themselves with which portfolio. When we reached to point to contact a supplier, we have a standardized workflow, which is documented in our business management. It is important for us to look at many things. These are the informations about many certificates (on screen: ISO9001, IATF16949, ISO14001, ISO17025, Business License, Code of Conduct, RFI, INX Link). Then we send them a link to register on our platforms, especially integrityNext, where he fills out the forms we’ve mentioned. Then he has to do a corporate responsibility check. When all of these are completed, we check everything finally. This will give the green light to work with the customer. But even then, he has to be commercially viable. He can fulfill all these steps until that point but might be too expensive then.
- Yves: I think our focus is on the first steps, how is the contact established, how is it possible to visually design and show everything. To visually display all these certificates and business licenses directly. So when you are searching for a company,

does this supplier fulfill everything.
- Franz: So that it is possible to filter by these certificates.
- Yves: Yes, that's our approach to build trust without having a contact. To have some transparency already available at a glance. This should shorten the effort to search for suppliers.
- Franz: This could help us, but keep in mind all these questions we are asking our company specific, other companies can have different standards compared to us. For example, when we are at a summit, we gather business cards, enter these into our tool and then its zack zack zack and we see what is missing.
- Yves: So you have a tool of your own to enter this?
- Franz: No, we do not, however this is in development. Considering your IP5 Project, that could be an approach on how I see things.
- Yves: Do you know what in detail is asked in the business license / vendor information, what is looked at there?
- Franz: Depends, for the business license, is one available? This is especially important in Asia so that it is an authorized company that we're dealing with and not with child labor or similar.
- Marc: Is that one license?
- Franz: For example, in China there's an official business number, it is similar to our VAT-Number.
- Marc: How transparent is China concerning business numbers? Is there a tool to check this?
- Franz: Yes. It can be checked. However not with a tool, but instead with people of our company that are working in China. This data cannot be accessed from here.
- Yves: What is the code of conduct and the RFI exactly?
- Franz: The code of conduct is a codex on how to deal with each other. This looks like this (shows on screen, has many pages). The elementary topics are as already mentioned sustainability, working conditions and security, human rights. All of this has to be signed by the supplier. We are checking on location at random, if we discover that the supplier has signed and is not fulfilling the codex, we are canceling the relationship with him.
- Yves: Thanks for the insight. What about the RFI?
- Franz: The RFI is a general data collection. It includes the address, bank connection, contact persons, owners, size of the company, where does he buy his materials. Many big companies also have a registration form on their website, where they can apply to be a supplier and have to provide this information at the get go.
- Marc: I've wrote down during our talk, you've mentioned summits a lot along with desktop research. Can you give a percentage on how many suppliers are found via a summit and how many via internet?
- Franz: That's difficult to say. If I have to give an answer, I'd say 50 / 50.
- Yves: Are you often in contact with searching for suppliers?
- Franz: At the moment we are actually looking to reduce our suppliers, as we have a broad arrangement and think we can make the portfolio leaner. This will also go into sustainability if we are able to source some materials and products from the same source. However, it has to go through a risk analysis, as a bottleneck risk is rising then. As our company is expanding, we still have 50 to 60 new suppliers every year on top of our 2200 at the moment.
- Marc: I wanted to ask what is the timeframe of this process?
- Franz: Until we get the first delivery from the supplier?
- Marc: Yes, let's take that as the benchmark.
- Franz: It depends on the product. If it is a new series, a pilot series, it will of course

take longer, also if it is from Asia, you have to account for shipping. In those cases, we are talking about a year minimum. In Europe it will go quicker, especially if a supplier or distributor has a proven track record. But even in Europe we had cases where it took up to 1.5 or even 2 years.
- Yves: We've gained some insight on what we must display and show on the platform to bring key points forward.
- Marc: The information about the certificates is especially important to us, as we've set our sights on those from the get-go while developing our UI.
- Franz: The certificates are very important. They give a good first impression about the supplier. However, it does not replace the professional due diligence we have to do. A User Interface is very important. The user acceptance will stand and fall with the UI. If it looks old, a professional GUI will get a lower response rate.
- Yves: Do you check ratings if you're searching online?
- Marc: We're thinking about platforms like Alibaba or wlw.
- Franz: We are not using this really, as we are not in involved in this business / market. If we are checking a rating, we are looking at Dan & Bradstreet (Danz number), which is an internationally known. I would recommend that you enable this in your platform, that a supplier can give this number. We also check if the supplier had already filled out an integrityNext assessment, be it for another company. There's also a sustainability rating from EcoVadis, which we can check up on. EcoVadis is working with trophies, there's silver gold platin etc.
- Marc: Are these trustworthy?
- Franz: Yes, these are very trustworthy and an industry standard. Keep in mind though that these ratings are still a general indication. The due diligence can't be neglected to get more details. You can't get a full picture of a supplier just through a few ratings or certificates. There's always so much more behind the scenes that's important to know.
I'd like to see a platform which uses AI to check irregularities with a company and its certificates and its assessments. This would make our job easier than a more detailed search, as the search for now in the industry is quite good.
- Marc: Yes, that'd be very interesting, as for now the platform has advanced matchmaking but nothing like this.
- Yves: Thanks for the super information.
- Franz: To add, I think it's important that you will build AI into the platform in someway or another, machine learning would also be an interesting approach. It could check a companies data against millions of datasets to check if it is feasible or not.
- Yves: This is interesting to know. It will certainly be too much for our IP5, but we will sure write it down for future work on the project that this is a request.

2. Key Findings
- Platform exists for summits and meetings with suppliers or distributors
- Cybersecurity, working conditions, Work security important. Finance factors not.
- There are many distributors in a supply chain, which have a high value. These are yet not represented in the Web shop.
- IntegrityNext has individual questionnaires which each company can customize.
- Regular summits to explore suppliers
- Countries business licenses not publicly available.
- Some big companies have listings and application forms for suppliers directly on their website
- Suppliers found via summit are 50%.
- Up to a year from initial contact to first delivery.

- Ratings via internationally known Danz Number. EcoVadis sustainability rating.
- AI for checking irregularities.

## 13.3. Interview with SF

**SF, Supply Chain Manager at an EV Company**

Preface:
As SF works at a very big company, this interview should be handled according to his Non-Disclosure Agreement. He thus refused that the interview shall be recorded or documented word by word. We will not name the company nor his name in this document and just provide the notes we took which apply in general terms.

Notes from the Interview:
His job mainly deals with finding suppliers globally. He handles all suppliers, from raw materials such as plastic and aluminum to already processed parts such as screws. The company's suppliers are around the world, from North America and Mexico over Europe to Asia. If possible, local suppliers are preferred, even if the product itself might be more expensive, the two-month shipping time and import fees from far away might make it more expensive and higher risk.
On how they find suppliers at their company: They have a big internal supplier database, that they will use as a first approach. A personal exchange between employees is done, as many still have contacts or references to previous suppliers at other jobs. Only then will a Google search be conducted. These Google searches happen maybe once a week or less. Instead of searching products or companies, the Google Search focuses on finding trade fairs (summits), which are specifically for the automotive industry. At a trade fair, he will meet and exchange information with up to 30 suppliers. If the need arises, they will contact them. They contact many businesses with their needs and go through a selection process between these businesses to find the most suitable one.
When looking at a supplier at first, certificates matter (he couldn't disclose which ones). They look at certificates for quality, production capability, experience, financial situation. They also look at the location and production methods. Sustainability of the supplier will be evaluated in a second step, once all initial criteria are met. They will then visit the supplier and have a detailed audit for two days minimum on location. He noted that the automotive industry is very organized with standards and suppliers are very big, thus well-known and shared between many different car companies (E.g. SFS for example provides airbags for many different car companies such as Mercedes Benz, Audi and more1). There also exists a specific platform for automotive parts2. He has used wlw.de once or twice in his past and stated that they don't use such platforms as the information of the companies are outdated very quickly, because those companies register on many different platforms and forget to update their relevant information.
1 This is a personal input, this data is public on the sfs.ch website. The interviewee here has no affiliation with SFS
2 He wouldn't name us the platform, not sure if he didn't remember or couldn't say due to his NDA. On a quick search we found the following page, which could be the site he meant: https://www.automotive-technology.com
There needs to be an incentive to update the company information on a platform so it stays up to date, or else companies as his will get frustrated quickly and stop using platforms. He mentioned that it might be difficult to make a B2B platform which serves all sectors of businesses, as there are huge differences in standards and what a company might look for. That is why in his sector there are specific trade fairs and the specific website he hinted at. Reviews and ratings like on a B2C platform are not relevant in his industry. No big company will state publicly or anonymous of using a certain supplier, as this is all under an NDA. They don't use distributors at their company, they only have direct connections with their suppliers. They aspire to have long relationships with their suppliers and maintain the relationship.

## 13.4. Interview with Lars Müller

**Lars Müller, CEO at libracore AG**

Preface:
This interview wasn't recorded, but notes were taken. The notes were taken in German, due to the language of our paper, it was translated into English.

Notes from the Interview:
At libracore, they develop an ERP system with different customers. This is a system analog to an SAP system but more modern. They are using Open Source tools and code to develop and maintain their system, as this is their company's philosophy. At their company they work with B2B shop integrations and solutions. These web shops are very tailored to the customer of theirs. However, these B2B shops are similar to the B2C web shops we all know and use. It uses the "Push" platform approach, which means that the supplier showcases their products on their site and another business visits their site to look through what they can deliver and contact them if they're interested.
He was confused at first and thought we were also just developing a B2B shop for a single business to present themselves. He then asked what our platform facilitates if it would only show companies or products. After our answer he noted that he thinks in a B2B environment the products aren't that important, especially as an example looking at the construction sector.
He also thinks a B2B platform that wants to be there for every market is unrealistic and thinks it should focus on one or 2 sectors. This is due to the many different things which are asked by each industry specifically. As he had specific knowledge of the Medtech industry, he said the requirements for products and parts are very different and way more specific than for the food industry. To find a standard will be hard to achieve. He mentioned that even to display a tax number is very hard to check or verify, as there is no international standard, a tax number and its system can be very different between countries.
The time a company has been in business is a key factor for him. He told us that he faced challenges with his company, especially the first 5 years while still in the startup phase, as many other businesses didn't have the confidence to work with them due to higher risk of failure.
Libracore has worked with Indian IT companies a few times. Certificates are hard to check in India and can very easily be faked by companies. When they are searching for partner IT companies to develop a web shop for one of their clients, they first use normal Google search. After finding a few listings, instead of checking certificates, in the IT world they check the GitHub. Does the company have a GitHub account? Is it used? How many projects are there? What languages do they use? How many commits? Are the commits meaningful?
How detailed are commit messages? These are their criteria for choosing a company to work with.
He thinks that references are a quite important part, in the IT world specifically. It makes sense to say that a company worked for this and this company, as it builds trust and showcases what the company can do and achieve.

## 13.5. Interview with Erich Ronacher

**Erich Ronacher, Head of Purchasing Automotive at SFS**

Preface:
Mr Ronacher wished that the interview wasn't recorded, however we were able to take notes of our meeting with him. These notes are summarized. The interview was conducted in Swiss German, the notes are translated into English for our paper.

Notes from the Interview:
Mr Ronacher is responsible to purchase the raw materials which are then worked on to develop automotive parts. Everything in the automotive industry is heavily regulated. All suppliers must be audited. This is always on location without any exemptions. Such an audit from SFS will take up to two weeks, before the supplier is cleared to deliver items.
For the sourcing of their materials, they thus have no need for and don't use B2B platforms or web shops. This is due to regulations and a preferred personal contact from the get-go. They find their suppliers on trade fairs which are specific tailored to the automotive industry. Even then, the trade fairs are further divided into material groups.
As the supply for raw materials is very niche, there aren't that many suppliers out in the world. The suppliers that are already known in the industry, so a B2B shop won't even work as these companies don't have a need for it. At SFS they have supplier relationships that are already existing over 50 years. This is so that the quality of their products can be kept at the same standards over all these years. SFS uses upwards of 0.1% of the worlds yearly available supply of steel to manufacture their products for the car industry. As these are safety critical parts, they need suppliers which are well known and have high standards, be it in sustainability or trust.
No materials at SFS Automotive are sourced from India, as they are not competitive in that sector. For the factory in Switzerland, almost all of their materials are sourced from Europe.
At a very first glance at a trade fair, certificates such as the ISO and IATF ones are a must, without them they aren't interested in establishing contact. The second way on how contact is established is when suppliers apply directly at SFS. This is quite common, as a supplier can quickly piece together what raw material SFS needs to make their parts.
The very first thing when establishing contact is that the supplier must sign an NDA. Only then will the auditing start.
At the Automotive section they are not using any software to assess the supplier. This is all done with their on-site audits and a questionnaire. Compared to the D&L of Franz Birrer, which is a dealer and thus has hundreds more suppliers, the production part is very different with its suppliers.
Sustainability is also a key part of the first audit. This covers everything from carbon footprint, cyber security to working conditions.