

Practitioners's Section

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Validating the Product-Market-Fit of a B2B Platform Venture with a Minimum Viable Product: The Coating Radar Case Study

Both start-ups and established companies have increasingly launched digital business models in recent years. Some of them focus on the business-to-business (B2B) sector and follow the business model of an electronic marketplace (EM). B2B electronic marketplaces are functioning as internet platforms bringing together demand and supply which is why they are often called matchmakers. According to the existing e-commerce and EM literature, the model of an EM is particularly attractive for fragmented markets, with many small and medium-sized suppliers. The argument behind this is that an electronic marketplace can significantly reduce search and transaction costs for the buyers' side due to the aggregation of numerous suppliers. There are many highly fragmented B2B markets, in which such an aggregation via a platform could add value. But less is known about the early validation of a marketplace business model. The case of a venture called Coating Radar shows this validation process based on the concept of a minimum viable product and the lean start-up approach. This represents a contribution to the still young research field of digital entrepreneurship. Furthermore, it turns out that the product-market-fit is negative for the Coating Radar. From this result, a potential generalization could be that fragmented B2B markets might be attractive for new marketplace business models. But only a systematic validation can show whether a platform business idea can become a sustainable business. This complements the literature in the field of electronic marketplaces and B2B e-commerce.

1 Introduction

In the course of digitalization, business-to-business (B2B) trading has changed considerably and is still subject to digital transformation. This transformation affects both internal company processes as well as processes for cooperation and collaboration with other companies. Procurement and sales processes are of particular interest in the context of this paper. Many activities in these areas are still largely analogue or follow the patterns that existed 10 or 20 years ago, i.e. a

"classic" B2B deal is often still agreed upon face-to-face or by phone. Nevertheless, there are more alternatives to these conventional processes, which can usually be seen as digital extensions or supplements to the usual procurement and sales activities. E-commerce is a central term in this context. The global B2B e-commerce gross merchandise volume (GMV) was \$5,826 bil. in 2013 and increased to \$7,661 bil. in 2017 (Statista 2017). E-commerce share of total B2B sales

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in the US was 9.7% in 2015 and 12% in 2019. The forecast for 2021 is 13.1% of B2B sales will be generated digitally (Forrester Research 2017). With regard to Germany, there are statistics that show that B2B e-commerce generated revenues of around €1,300 bil. in 2018. Of this, €320 bil. was gained via websites, web shops and electronic marketplaces (IfH Köln 2019). Consequently, a major share of B2B trading is already taking place online and electronic marketplaces (EMs) are becoming increasingly important. EMs can be understood as marketplaces that bring together supply and demand in a digital way. These “matchmakers” are well-known from consumer shopping, e.g., Amazon, Airbnb, or Uber (Evans & Schmalensee 2016).

In the B2B sector, EMs are still perceived as new, although they were receiving a lot of attention during the dot-com bubble (Schmitt 2019). Since hardly any B2B marketplace survived from the dot-com era, interest in them declined, also from researchers. However, more recently B2B electronic marketplaces have been experiencing their “second spring” after their initial rise during the 1990’s dot-com bubble boom (ebd.). In fact, the technical conditions are better than 20 years ago and habits or user experiences from the B2C context are increasingly finding their way into the B2B sector (ibi research 2019).

From a scientific point of view, the business model of an electronic marketplace is very attractive for fragmented markets, because the search and transaction costs are usually high in such markets (Bakos 1991; Bakos 1997; Kaplan & Sawhney 2000; Giaglis et al. 2002; Markus et al. 2002; Thuong 2002). Thus, EMs can reduce these costs through becoming an intermediary, platform, or matchmaker (Klein & Alt 2015). In other words, EMs promise that it takes less time and effort to find a new supplier from the buyer’s perspective. This clear value proposition and today’s appeal of digital business models have encouraged both start-ups and established companies to become active in this area. At the same time, robust and resilient supply chains require close partnerships between buyers and suppliers (Wieteska, 2016). Therefore, frequent supplier changes are usually avoided in many B2B contexts. Every business partnership also comes with dependencies (Padgett et al., 2020). Suppliers are continuously trying to decrease the likelihood of “partner switching” through increasing this dependency (ebd., p. 13). At the same time, one could argue that the buyer’s loyalty towards the respective supplier might play an important role as well. Both the dependencies and

loyalties are relevant aspects that have an impact on the value proposition of B2B electronic marketplaces. This can also be seen in the single case study of the young venture “Coating Radar”. The case study addresses the following two research questions:

- a. Does the business model of an electronic marketplace create value in a highly fragmented B2B market (here: industrial coating services)?
- b. How to test or validate the idea of a new B2B electronic marketplace with as few resources as possible (following the so-called Lean Start-up approach)?

2 Theoretical Background

2.1 Electronic Marketplaces

Strader and Shaw (2000, p. 78) once defined electronic marketplaces as an “interorganizational information system that allows the participating buyers and sellers to exchange information about prices and product offerings”. In addition to the exchange of information, it is also possible for the participating parties to negotiate with each other on an electronic marketplace, or even to conduct business transactions (Archer & Gebauer 2002). The latter concretely means that one party buys a product or a service from the supplying party via the EM (Klein & Alt 2015). Such activities can take place in a business-to-consumer (B2C) context (Evans & Schmalensee 2016), but also in a business-to-business (B2B) context (Timmers 1998; Chow et al. 2000; Thuong 2002).

According to Giaglis et al. (2002) electronic marketplaces can have a major effect in markets with a high fragmentation of the supply side. Such markets “provide opportunities for intermediaries to add value” (ebd., p. 243). The main reason for this is that EMs lead mostly to an aggregation of the supply side (Kaplan and Sawhney 2000). The aggregation achieves low search and transaction costs for the demand side. Electronic marketplaces thus can create a central value in fragmented markets, especially for potential buyers (Bakos 1991; Bakos 1997; Kaplan & Shawney 2000; Giaglis et al. 2002; Markus et al. 2002; Thuong 2002; Klein & Alt 2015). For the suppliers the promise or value proposition of an EM is that these can be found faster by potential new customers. Consequently, it should be possible for suppliers to generate new business opportunities with the help of an EM.

2.2 Minimum Viable Product & Lean Start-up

Starting a digital venture is generally considered as resource-intensive and risky because software development is expensive (Pantiuchina et al. 2017; Bohn & Kundisch 2018). A digital venture which focuses on a business model of an electronic marketplace has to deal with the challenge that it is not clear whether the respective user groups will adopt this new procurement and sales channel (Driedonks et al. 2005; Schmitt 2019). To avoid costly developments and to receive first feedback from the target and user groups, so-called minimum viable products (MVPs) are created nowadays. There are several definitions of a minimum viable product which complement each other (Lenarduzzi & Taibi 2016, p. 4):

- "A MVP is a version of a new product that allows to collect the maximum amount of validated learning about the customer with the least effort."
- "A MPV has just those features, and not more, that allow the product to be deployed."
- "A MVP is typically the first version of a product released to customers, and should contain only the absolute minimum in terms of features and design for it to become viable to the customer."
- "A MVP represents the minimum functionality or set of features within the product, allowing the firm to test the product in the market and gather customer feedback."
- "A MVP is an experimental object that allows for empirical testing of value hypotheses."

A frequently used metaphor for MVPs comes from Kniberg (2013) using various means of transportation to represent the development process of a new product (see Figure 1).

The illustration shows that MVPs are about focusing on the actual customer need, i.e., if the customer only wants to get from A to B quickly, several means of transport might solve the customer's problem. Here, a skateboard could already be a MVP to receive initial feedback from the customer. It might

not be necessary to develop a car to get feedback, which would be much more costly and time-consuming.

The skateboard is actually a usable product that helps the customer get from A to B. It is not great, but a tiny bit better than nothing. So we tell the customer "don't worry, the project is not finished, this was just the first of many iterations. We're still aiming to build a car, but in the meantime please try this and give us feedback". Think big, but deliver in small functionally viable increments. (Kniberg 2016)

In the context of a digital venture, a minimum viable product can be understood as a digital prototype that shows the most important value proposition towards the user. Here, MVPs represent often so-called landing pages, i.e. websites that have a basic functionality that supports the value proposition and the underlying hypotheses (Khanna et al. 2018). The concept of an MVP can be embedded in the theoretical model of the so-called lean start-up (Frederiksen & Brem 2017; Dennehy et al. 2019; Shepherd & Gruber 2020). According to Ries (2011, p. 9), "the fundamental activity of a start-up is to turn ideas into products, measure how customers respond, and then learn whether to pivot or persevere. All successful start-up processes should be geared to accelerate that feedback loop." Furthermore, he states (ebd., p. 75) that "the feedback is both qualitative and quantitative. [...] The products a start-up builds are really experiments, the learning about how to build a sustainable business is the outcome of those experiments." This resulted in the "Build-Measure-Learn" feedback loop, which represents exactly these iterations (see Figure 2).

Running through iterations and experiments serves to validate the idea and should therefore help the entrepreneur to better assess the product-market-fit (Dennehy et al. 2016). The goal of the validation is therefore to make a statement about the product-market-fit, based on the empirical findings of the MVP or from several MVPs (ebd.).

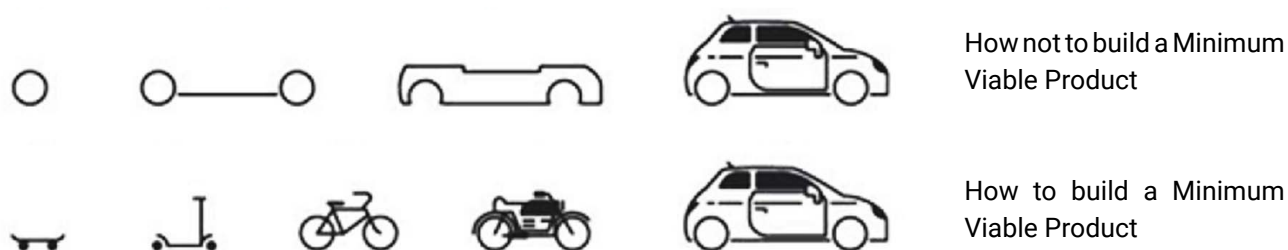


Figure 1 A minimum viable product (based on Kniberg 2013)

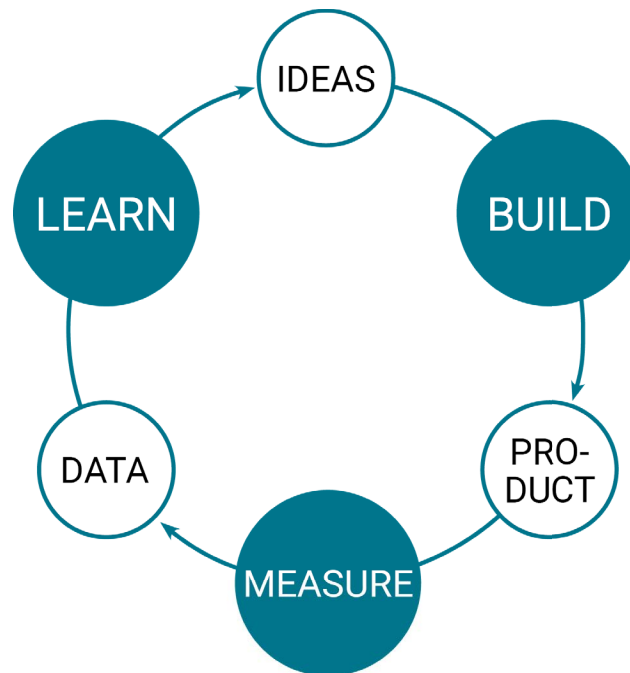


Figure 2 The Build-Measure-Learn feedback loop (Ries 2011, p. 75)

3 Methodology

In the area of case study research, various approaches that can be pursued. Three approaches are particularly noteworthy. These are the Grounded Theory according to Glaser & Strauss (1967) and the case study approaches according to Yin (1981, 2013) and Eisenhardt (1989). A characteristic of the Grounded Theory approach is that a scientist investigates a certain phenomenon without taking a detailed look at the literature in the beginning. The theory development is mainly based on the data of the case. Case studies that follow Glaser & Strauss' inductive approach usually have a very short theory section, so the relevant literature is rather mentioned within the case presentation.

The procedure is different from Yin and Eisenhardt. Both Yin's and Eisenhardt's case study approaches are built on existing literature, so given theories or concepts should be tested and ideally extended. Case studies that follow Yin's deductive approach usually begin with a detailed examination of the literature. Based on this, a new model or synthesis is developed, which is then validated in the case setting.

Compared to Yin, the case selection should take place earlier in Eisenhardt's opinion. Case studies that follow Eisenhardt's

abductive approach therefore start with a literature review as well and possibly give a first impression of theory development. Nevertheless, the theory is built in the process, whereas Yin completes the theory building before the case execution. For this reason, it can be said that Eisenhardt's approach lies "somewhere in-between Yin's approach and the Grounded Theory approach" (Seenhuis et al. 2006, p. 7).

The single case study about the Coating Radar is in line with Eisenhardt's hybrid form of case research, considering the process of case and theory development. This process can be described as "highly iterative and tightly linked to data" (Eisenhardt 1989, p. 532). Nevertheless, working strictly according to Eisenhardt would also include a comparison of multiple cases what was not in the scope of this research project. The arguments for and against single or multiple case studies continue to be debated among case study researchers. For this paper, the main objective was to tell a "good story" and to enrich theoretical insights, what is also in line with Dyer & Wilkins (1991).

4 The Coating Radar Case Study

Eisenhardt's scientific approach may sound familiar to entrepreneurs as well. Going through iterations, collecting, and analyzing data are essential components when

developing a minimum viable product. In the following, the case of the Coating Radar is examined. It is important to note that the author of this study is also the main character of the case and therefore the founder of the start-up Coating Radar. This is the reason why the case is written in the first person. The name of the venture already reveals which industry was addressed by the idea of the Coating Radar: the coatings industry.

4.1 Context

The coatings industry deals with the production of paints, varnishes, and lacquers. The word “coatings” functions as an umbrella term for these products. The main actors in this industry are the coating manufacturers, such as AkzoNobel, PPG, Sherwin-Williams or BASF (Statista 2020). The probably best-known coating processes are “wet paint” and “powder coating”. Companies in these fields are producing specific coatings, often fluid and sometimes powder-like. Private customers can find such products, mostly wet paint, for example in do-it-yourself stores or in specialist shops. However, this case is about one specific B2B context inside the coatings industry: so-called coating services (also: “job coating”). Coating service companies (also: “job shops”) are applying special coating solutions on specific components or parts. These parts are mostly out of metal and need to be coated because of corrosion. Almost every surface that we can see our touch is usually protected by coatings. Coatings can also not only protect but also enable various functionalities, such as conductive or antibacterial coatings. The variety of functionalities, application areas, technologies, and coating processes is tremendous. The coating manufacturers supply these coating service companies with their coating material. Accordingly, coating service companies apply the material on the respective surface. This market can be seen as a classical service industry in an industrial B2B context.

4.2 Idea

The idea of the Coating Radar was a “platform for coating services”, so an intermediary that brings together supply and demand digitally in the field of industrial coating services (also: “industrial surface treatment”). Consequently, there should be coating service companies on the supply side of the platform that deal mainly with B2B customers. There was consequently no interest in B2C coating services, e.g., car painters or repair shops. On the demand side of the platform, there could be almost any industry since many

applications for coatings exist. Important application areas are for example the automotive industry, metal industry, furniture industry, construction industry, mechanical engineering, or electrical industry.

4.3 Market

The coatings industry is an important segment of the chemical industry. Industrial coating services can be considered as a niche market within the coatings industry. The activities of the Coating Radar focused on the DACH region (Germany, Austria, Switzerland). Looking at the figures in Germany, according to the Association of the German Paint and Printing Inks Industry (Verband der deutschen Lack- und Druckfarbenindustrie 2020), 389,000 tonnes of industrial coatings were sold in 2019, worth €2,2 bil.. Since there are hardly any reliable statistics about the coating service companies themselves, I came to an estimation of about 3,500 coating service companies in the DACH region (10,000+ worldwide) based on several industry guides and portals. The majority of the coating service companies are very small businesses with up to 20 employees (Deutscher Sparkassen- & Giroverband 2019). There are also a few big companies and corporates with several thousand employees, such as Aalberts or Oerlikon, but I was mainly interested in the small and medium-sized coating service companies with less “digital capacities” (e.g., modernity/actuality of the website, use of online marketing, etc.). These small and medium-sized enterprises (SMEs) are not necessarily known or particularly visible on the market. This should be changed by the Coating Radar.

4.4 Minimum Viable Product

The highly fragmented market of coating services with hundreds of rather small suppliers seemed to be ideal for a marketplace business model. The value proposition for the demand side was that the Coating Radar reduces the search costs (for finding a new supplier) through fast and digital matchmaking. For the coating service companies on the supply side, the idea of the MVP was to generate high-quality leads through a standardized request tool. Furthermore, their “digital findability” should be improved through the Coating Radar by creating online profiles for each supplier. Consequently, the MVP of the Coating Radar represented a website (or landing page) with the above-described functions. The website domain was called www.coatingradar.com, with the slogan “Find the right coating service” (see Figure 3). There was a German and an English

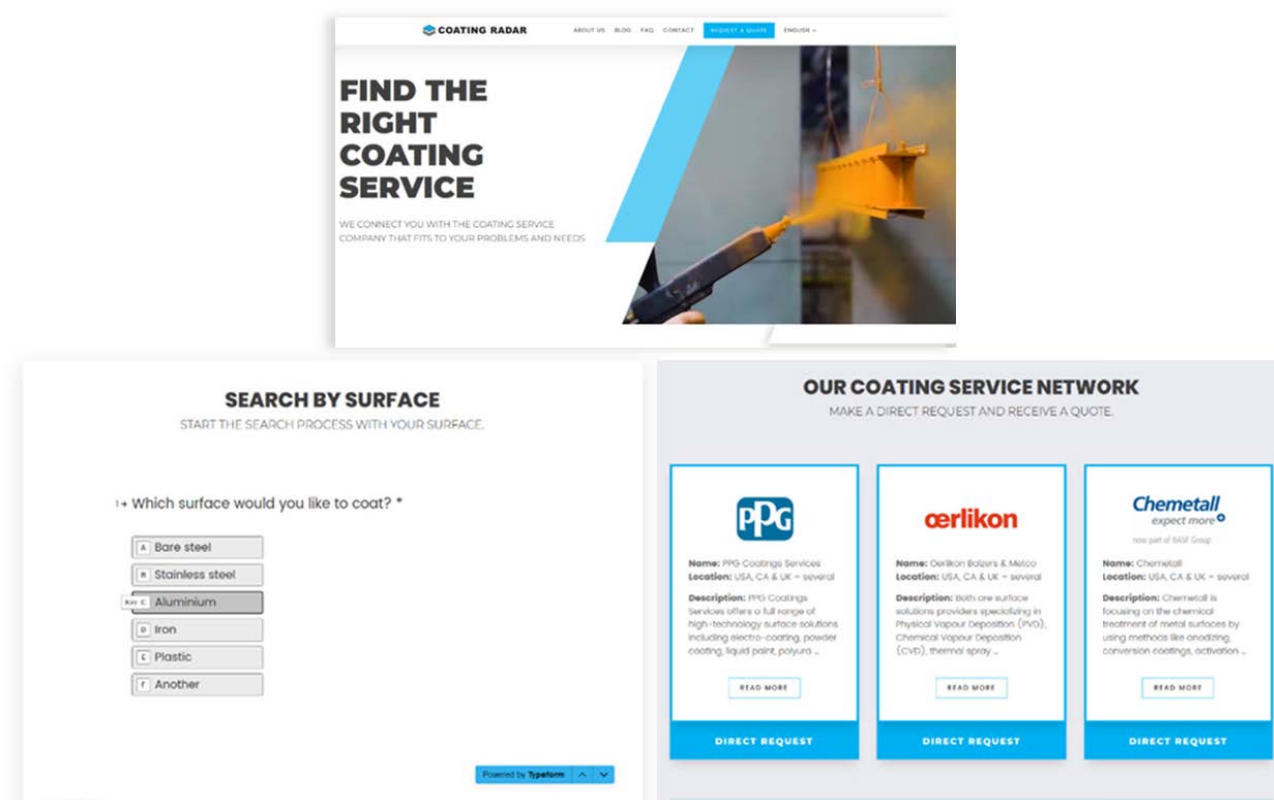


Figure 3 Impressions of the website and its functions (own representation)

version of the website, also with the respective subdomains for Germany, Austria, and Switzerland. The MVP was launched in December 2019 and the experiment lasted six months.

The digital matchmaking between supply and demand should become “smart” over time, so the more the Coating Radar knows about the coating service companies and their capabilities, the easier it would become to address them with suitable requests. The aim was therefore to create a database with detailed technical information for each coating plant, e.g., the maximum size or maximum weight of the component that can be coated in the respective plant. Admittedly, the matchmaking of the Coating Radar was not very intelligent at the beginning, i.e. many requests that were forwarded to the coating service companies did not fit. To resolve this, the coating service companies could register on the Coating Radar’s website, providing very detailed information about their capabilities.

A new website like www.coatingradar.com is usually not found by itself, so efforts had to be made to ensure that users visit the landing page. For this reason, a sales campaign was

launched in which 250 coating companies were contacted by e-mail. In the e-mail, the Coating Radar was promoted as “the new platform for coating services”. The first e-mail was followed by a reminder e-mail after two weeks. The mailing was accompanied by Google advertising campaigns so that the Coating Radar could be found on the first pages of Google, depending on the respective search term. Also here different variants of Google ads were tested, with different advertising texts and broadcasting periods (see Figure 4). The duration of the advertisement was between two and four weeks. Advertisements were published primarily in German, but occasionally also in English. For each click on the advertisement, a certain amount of money has to be paid to Google. When Google advertisements are broadcasted, impressions are generated in addition to clicks. An impression here means that the advertisement was visible to the user but was not clicked. So the user could see the ad when scrolling through the Google search results, for example.

The question of how the Coating Radar wants to earn money was often asked during the experiment. Regarding the business model, the idea was to keep it deliberately open

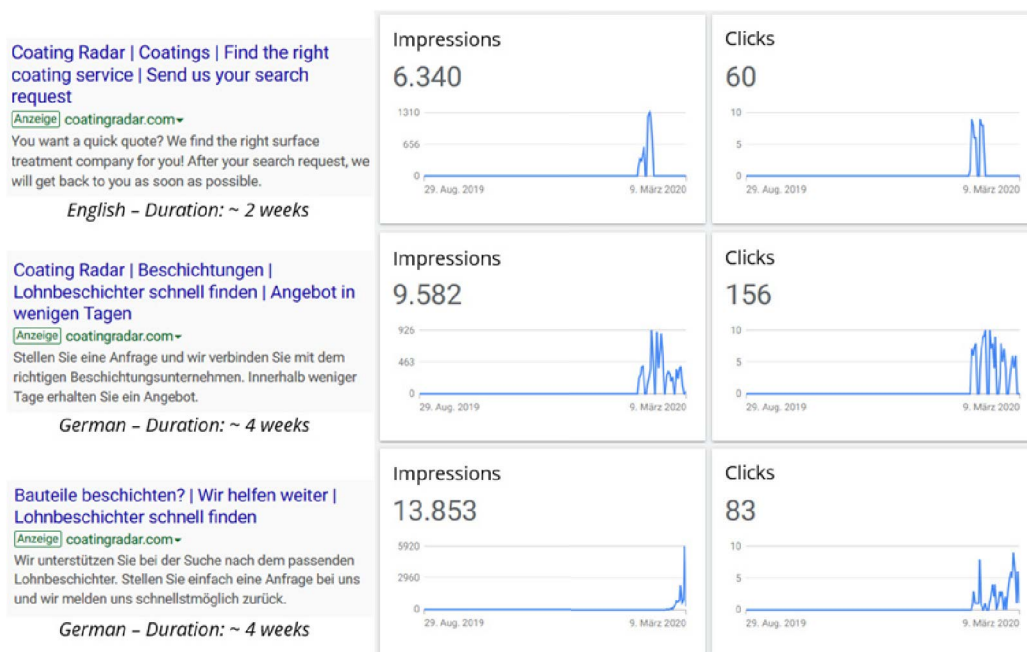


Figure 4 Examples for the conducted Google advertisement campaigns (own representation).

and to understand the industry and its dynamics first. So the matchmaking service has not been monetized. Of course, at that time there were already ideas existing to achieve revenues as a platform operator. An obvious possibility would be a brokerage fee for each match or a subscription model for the supply side. Additional services besides the matchmaking were also considered such as logistics or financial services.

4.5 Hypotheses & Data

A minimum viable product is always based on different assumptions and hypotheses (Shepherd & Gruber, 2020; Khanna et al., 2018). In science, hypotheses are verified or falsified. In practice, it is usually about the validation of hypotheses. Since both time and monetary resources are usually limited for a young venture, hypotheses should be tested easily and at reasonable costs. Scientists usually think a lot about the formulation of the respective research hypothesis, whereas practitioners proceed much more pragmatically. From a scientific perspective, practice-driven hypotheses for MVPs therefore often seem rather banal. Nevertheless, the basic logic and procedures are very similar. After a successful testing of the hypotheses and a positive validation of the overall idea, more cost-intensive realization steps usually follow. Consequently, a substantial value of the new product or solution for the target or user groups should be identified during the MVP phase. The term "substantial"

means here that there is a meaningful, empirical proof that the respective business idea should be pursued further. This proof is ideally expressed in numerical values. In the case of the Coating Radar, there were the following three hypotheses which should be validated in the form of the MVP experiment:

- General hypothesis: A B2B marketplace creates substantial value in the fragmented niche market of coating services, both on the demand and the supply side.
- Hypothesis addressing the supply side: The majority of the coating service companies that will be approached during the sales campaign will register via the website.
- Hypothesis addressing the demand side: The majority of the requests received via the website can be successfully matched.

The majority was specified here with 75%, i.e. at least 75% of the 250 approached coating services companies register via the website (hypothesis 2). In addition, at least 75% of the requests can be matched (hypothesis 3). If both hypotheses are validated, hypothesis 1 can also be validated. MVPs are characterized by the fact that they collect data in a variety of places. This data can be of a quantitative and qualitative nature. In the case of the Coating Radar, there were three places or contexts of data collection in particular:

1. The website, e.g.,
 - How many users will visit the website during the testing period? (see Figure 5)
 - Where are the users coming from?
 - For how many minutes/seconds are the users staying on the website?
 - How will Google ads increase website's traffic, also with different budgets?
 - Which Google ads will run well and what are the relevant search terms?
 - What budget will be needed in this industry niche to be on page one at Google?
2. The sales campaign, e.g.,
 - How many coating service companies will register via the website during the sales campaign?
 - Will they fill out the online registration form or do they stop somewhere in between?
 - How many coating service companies will answer to the mails or even call?
 - How will the coating services companies react in general about the Coating Radar and its activities (e.g., constructive, skeptical, open, positive, negative, etc.)?
3. The requests and matchings, e.g.,
 - How many requests will be generated via the website?
 - How many of these requests will come from a (potential) private or commercial customer? (The Coating Radar focused on commercial customers.)

- How many of these requests can be matched with a suitable coating service company?
- What will be the feedback of the coating service companies on each request?
- What kind of requests do coating service companies prefer?

Detailed answers to these questions can be found in the appendix.

4.6 Results & Findings

After the data collection, the evaluation of the experiment was carried out. In summary, the MVP came to the following results on a quantitative level:

- In total, 34 requests (demand side) were created and submitted via the website. 20 out of 34 requests were commercial requests made by companies. No match could be achieved for these requests. Private requests dropped out because of the B2B focus.
- Around 30 coating service companies (supply side) registered via the website, with around 60 locations in the DACH region (overall: ~ 90 European locations, ~ 20 US/UK locations)
- Around 28.000 website hits/page views were counted. Around 6.000 visitors were on the website (~ 1.600 US visitors, ~ 1.400 German visitors, ~ 500 Russian visitors). These numbers may include bots.

The number of matches already expresses that the MVP did not achieve a successful or positive result. Although some



Figure 5 Website statistics of the Coating Radar (data collection: ~ 6 months) (own representation).

registrations of the coating service companies took place, it was not possible to match the requests with the supply side. To refer to the hypotheses (see Section 4.5), it can be stated that the majority of coating service companies contacted did not register via the website. Furthermore, not a single match between the supply and demand side could be accomplished during the test period.

A product-market-fit is, therefore, not given since this should be the core activity of the Coating Radar. But why did the matchmaking not work out? This analysis took place mainly on a qualitative level. The following aspects were identified during the analysis, from which generalizations were derived (see Table 1).

5 Discussion

Entering a B2B market as a new platform operator is very challenging because of several aspects. Besides the aspects of having domain knowledge (ideally in the founding team) and considerations regarding moderations efforts (and how to reduce them), the aspects of dependencies and loyalties have to be taken into consideration. The case of the Coating Radar shows that there is a high level of loyalty in the respective industry, what also comes with certain dependencies. Here, suppliers are only replaced, if something at the business relationship changes significantly, e.g., the product/service quality gets worse or the price increases enormously. It is assumed that this is the reality in many B2B contexts. Consequently, new B2B platforms should be aware that they cannot acquire relevant market shares immediately or within a few months. It can take years to gain significant market shares. One reason for this is that a new B2B platform usually questions present business relationships that often exist for years or even decades. This

Table 1 Qualitative findings and generalizations.

Case findings	Possible generalization derived from the case
The Coating Radar followed an extremely universal approach which means that there are many different coating technologies and processes, and all should be reflected on the platform. Process-specific expertise is necessary to execute such an approach in a serious way. The Coating Radar would have needed experienced coating experts as team members, which was not the case.	A B2B platform operator should have domain knowledge internally.
Most requests were incomplete in the first moment of receiving the request, e.g., technical drawings of the component, data sheets or specifications were missing. In such a case, questions had to be asked to complete the documents. At the same time, the coating service companies usually had questions as well. Serving as an intermediary, I took over the very demanding moderation.	A B2B platform operator should be aware of high moderation efforts. Also here, domain knowledge brings advantages.
Hardly any match was possible because coating service companies are very selective when it comes to accepting a request. Many requests were just not attractive for them or could not be fulfilled economically, e.g., small batch sizes or special customer requests. So apparently suitable requests were rejected.	A B2B platform operator should know the respective industry very well, e.g., knowing which requests can be realized economically and what is attractive for the supply side in general.
The main reason why the Coating Radar received primarily such "bad" requests was that the market is characterized by strong relationships between customers and coating service companies. Conversely, this means that the "good" requests do not go through a new platform.	A B2B platform operator should be aware of the fact that buyers' loyalty towards the established suppliers is high in most B2B contexts.

questioning is not desired, especially on the supplier side, but the demand side is mostly not interested either due to complex supplier qualification processes. Such processes usually take several months and are cost-intensive.

As far as the quality of the requests is concerned, it can also be stated that low-quality (or “bad”) requests will prevail, especially in the beginning of a new B2B electronic marketplace. High-quality (or “good”) requests have usually already been assigned for a long time or are repeatedly assigned to the same supplier. In the case of the Coating Radar, the problem of “not finding the right coating service company” may only be the situation for companies that have complicated components (e.g., complex geometry) or unusual requirements (e.g., special colour). For them, a platform like the Coating Radar might be helpful. Focusing on this niche (within the niche) would have been a possible option for the Coating Radar. But dealing with requests that normally nobody in the market would like to handle does not sound attractive for an upcoming platform operator, and if it is possible to generate revenues in such a niche needs further considerations as well. Consequently, entrepreneurs who choose the “adventure of starting a B2B platform” will deal in the beginning mainly with requests that do not meet the usual industry standards due to the existing and dominant business relationships. These unusual requests might be rare (depending on the market size) and require internal domain knowledge. Acting here as a consultant for the requesting company could be an opportunity for an entrepreneur as well. An alternative could also be to pursue a new business model with the knowledge achieved during the MVP. Such a major strategy change of a start-up is also called “pivot” (Bohn & Kundisch 2018; Khanna et al. 2018). A young venture that does not give up after a negative validation could therefore also pivot into a new business model, ideally taking advantage of the experiences collected during the first MVP phase.

6 Conclusion & Outlook

In order to address the first research question regarding the value creation of an EM business model in a fragmented chemical services market, this case study indicates that the business model of an electronic marketplace is not necessarily attractive for fragmented B2B markets. The market for industrial coating services can be seen as such a market with a high fragmentation of the supply side.

Business relationships are very strong in this industry, so there is hardly any willingness to switch the supplier from the buyers' perspective. This finding can be transferred to any B2B context in which a high buyers' loyalty exists. The central EM value proposition of reducing search and transaction costs through aggregation is therefore invalid in such a B2B context. Here, the search and transaction costs are kept low through strong business relationships. This complements the existing literature in the field of electronic marketplaces and B2B e-commerce.

The common limitation of a single case study is that replications might be necessary to be able to generalize the findings. Such a replication could be done in a future research project using a comparable venture. The start-up selected as a research object would need to follow a marketplace business model in a B2B context.

The case of the Coating Radar can also be seen as a pioneering application of the MVP concept and the lean start-up approach in the context of electronic marketplaces, which relates to the second research question. Both the quantitative and qualitative findings of the case have shown that a landing page, in connection with a sales and online marketing campaign, is a suitable instrument for gathering feedback in an early stage of a new B2B EM venture. Very few resources were necessary for the testing or validation of the overall business model idea. In this sense, the case contributes mainly to the research field of digital entrepreneurship. Here, further research perspectives exist as well. A possibility would be to accompany a start-up through various MVP phases. If a venture went through several phases, there are usually “pivot stories” (from the founders). This is the case for many successful start-ups. Here, it would be interesting to describe the strategic changes and its operative execution in detail. How pivots work exactly is still an almost untreated field of research.

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Appendix: Detailed answers to the questions posed in Section 4.5

Question	Answer
How many users will visit the website during the testing period?	Around 6.000 users visited the Coating Radar website during the test period (6 months).
Where are the users coming from?	From these 6.000 users around 1.600 were US visitors, 1.400 were German visitors, 500 were Russian visitors (see Figure 5). These numbers may include bots.
For how many minutes/seconds are the users staying on the website?	The average time spend on the website was 2m 46s (during the test period, measured with Google Analytics).
How will Google ads increase website's traffic, also with different budgets?	Google ads increases the clicks enormously. Websites that are new and consequently difficult to find are therefore dependent on Google ads. Here, three campaigns were made, see question below.
Which Google ads will run well and what are the relevant search terms?	<p>The 1st campaign addressed the USA, Canada and the UK:</p> <div data-bbox="948 947 1289 1077" style="border: 1px solid black; padding: 5px;"> <p>Coating Radar Coatings Find the right coating service Send us your... You want a quick quote? We find the right surface treatment company for you! After your search request, we will get back to...</p> </div> <p>(Keywords used: powder coating service, powder coating, aluminum coating, coating service, coating service shop)</p> <p>The 2nd campaign addressed Germany:</p> <div data-bbox="948 1249 1289 1379" style="border: 1px solid black; padding: 5px;"> <p>Coating Radar Beschichtungen Lohnbeschichter schnell finden ... Stellen Sie eine Anfrage und wir verbinden Sie mit dem richtigen Beschichtungsunternehmen. Innerhalb...</p> </div> <p>(Keywords used: Oberflächentechnik, Oberflächen-beschichtung, Oberflächenbeschichtung Metall, Oberflächenbeschichtung Aluminium, Stahl beschichten, Oberflächenveredelung)</p> <p>The 3rd campaign addressed Germany as well:</p> <div data-bbox="948 1621 1289 1751" style="border: 1px solid black; padding: 5px;"> <p>Bauteile beschichten? Wir helfen weiter Lohnbeschichter schnell... Wir unterstützen Sie bei der Suche nach dem passenden Lohnbeschichter. Stellen Sie einfach eine Anfrage bei uns und wir...</p> </div> <p>(Keywords used: Lohnbeschichtung, Bauteile beschichten, Metall beschichten, Werkzeug beschichten, Stahlträger beschichten, Beschichter Deutschland)</p> <p>1st campaign: 6.340 impressions / 60 clicks 2nd campaign: 9.600 impressions / 156 clicks 3rd campaign: 14.100 impressions / 86 clicks</p>

Question	Answer
What budget will be needed in this industry niche to be on page one at Google?	1 st campaign: ~ 8 €/day (total: 72 €) 2 nd campaign: ~ 11€/day (total: 267 €) 3 rd campaign: ~ 14€/day (total: 173 €)
How many coating service companies will register via the website during the sales campaign?	Around 30 registrations were made from coating service companies (supply side), with around 60 DACH locations (90 European locations, 20 US/UK locations)
Will they fill out the online registration form completely or do they stop somewhere in between?	There was an online registration form on the website. The average time to complete the detailed registration was ~ 10m. The completion rate was ~ 23%.
How many coating service companies will answer to the mails or even call?	We addressed around 250 coating service companies with our email sales campaign, parallel to the Google campaigns. Here, unfortunately, we did not make a clean collection.
How will the coating services companies react in general about the Coating Radar and its activities (e.g., constructive, skeptical, open, positive, negative, etc.)?	Many coating service companies were interested in our activities and we were surprised about the positive feedback. However, there was a lot of skepticism, and of course there were also people that did not answer or did not show any interest.
How many requests will be generated via the website?	In total, 34 requests (demand side) were created and submitted via the website.
How many of these requests will come from a (potential) private or commercial customer? (The Coating Radar focused on commercial customers.)	20 out of 34 requests were commercial requests made by companies. The requests came from very different industries, e.g., a hotel, a craftsman shop, an architect, or an interior designer.
How many of these requests can be matched with a suitable coating service company?	No match could be achieved for these requests. Private requests dropped out because of the B2B focus.
What will be the feedback of the coating service companies on each request?	In general, the coating service companies were interested and concerned, so there was multiple correspondence, with each request we forwarded. Nevertheless, the result was always that the request itself was not interesting (often because of the low number of components, and/or because of complicated/unclear requirements).
What kind of requests do coating service companies prefer?	Industrial coating service companies prefer requests with a very high number of components to be coated. Also the requirements should be clear from the beginning. Special requests, such as special colors, are usually not welcome.