



ASSIGNMENT OF BACHELOR'S THESIS

Title:	Product Design of Platform Offering Relevant Information Sources
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Instructions

- 1) Using your knowledge of product management principles, briefly describe product design development phases in the case of a specific service consisting in offering media information resources that would be identified by experts in the given field as relevant for final service users.
- 2) Evaluate the commercial potential of such a service based on the market assessment.
- 3) Design the fundamental functionality of an optimal implementation of such a service and prepare a high-detailed prototype presenting basic use-cases that could be used for iterative testing within a group of final users.
- 4) Perform this testing and based on its results, design an efficient procedure for the final development of the service.

References

Will be provided by the supervisor.

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FACULTY OF INFORMATION TECHNOLOGY
DEPARTMENT OF SOFTWARE ENGINEERING



Bachelor's thesis

Product Design of Platform Offering Relevant Information Sources

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Supervisor: Ing. Mgr. Pavla Vozárová, Ph.D., M.A.

15th May 2017

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In Prague on 15th May 2017

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Abstrakt

Táto práca sa venuje návrhu systému pre jednoduchší prístup k článkom na Internete z pohľadu produktového manažéra. Čitateľ sa dozvie o úlohách a zodpovednostiach role produktového manažéra a dôležitosti jeho prítomnosti v produktovom tíme pred začatím samotného vývoja. Tieto poznatky sú ďalej aplikované na danú produktovú príležitosť pre návrh samotného systému a jeho vizuálnych prototypov.

Kľúčová slova Produktový manažment, prototypy, užívateľské testovanie, mobilná aplikácia, webová aplikácia, zdieľanie článkov

Abstract

This thesis is devoted to designing a system for easier access to articles on the Internet from the product manager's perspective. The reader will learn about duties and responsibilities of the role of product manager and the importance of his presence in the product team. These methods are then applied to the proposed opportunity for designing the product and its visual prototypes.

Keywords Product management, prototypes, user testing, mobile application, web application, article sharing

Contents

Introduction	1
Motivation	1
Goal	2
Structure	2
1 Product Manager’s responsibilities	5
1.1 Product opportunity assessment	5
1.2 Product Discovery	9
2 Product Opportunity assessment	11
2.1 Value proposition	11
2.2 Target market	11
2.3 Metrics	12
2.4 Competitive landscape	12
2.5 Market window	13
2.6 Go-to-market strategy	13
2.7 Solution requirements	14
3 Product Discovery	15
3.1 Product Principles	15
3.2 Personas	16
3.3 Proposed solution	16
3.4 First iteration	18
3.5 Second iteration	24
3.6 Product vision	27
4 Monetization and funding	29
4.1 When to start monetizing?	29
4.2 Revenue channels	29
4.3 Funding	30

Conclusion	33
Bibliography	35
A Acronyms	37
B Contents of enclosed CD	39

List of Figures

3.1	Diagram for login and sign up use case	19
3.2	Diagram for reading an article use case	20
3.3	Screen with login and sign up	21
3.4	Screen with available articles	21
3.5	Detail of an article	21
3.6	Screen with results from search for hunters	21
3.7	Screen with details about a hunter	21
3.8	Dashboard with some statistics	22
3.9	Saved articles for distribution	22
3.10	Past sent article sessions with success rate of those articles	22
3.11	Replaced list with articles with swipe-able cards	25
3.12	User can now type some tags and the app will recommend some topics he can choose from	25
3.13	User will now see topics in hunter's profile	25
3.14	Screen with results from search for hunters	25

Introduction

Motivation

Enormous amounts of information are bombarding us every day. Rise of the Internet in last two decades amplified this problem exponentially and information overflow has become one of the most serious problems of our generation that affects billions of people around the world. Not only are people overwhelmed and must filter through irrelevant data to get quality content, they are often left too confused to make their own opinion on various situations and events that flow through our society. Although this is more of a problem of individual's critical thinking, people are most of the time left with no other options than to place their trust in big influential corporations. Moreover, credibility of large companies is harder to invalidate than credibility of an individual. Events of US Presidential Elections 2016 showed this problem in its full potential, as there were severe discussions about validity of several articles that spread through social media and might have pivoted the elections [1]. The key takeaway from this is not to debate, whether it was valid or not but rather to realize the importance of developing means to control our information intake as it **might** have an effect on electing one of the most powerful people in the world.

However, information overflow doesn't affect only these very serious situations. There are people over the world that are searching for various content about their topics of interest every day. They need to filter out relevant content as well and this activity is repeated by every individual. An activity, results of which could be theoretically shared among others.

These reasons are the main drive and motivation for me to pursue finding a solution that would help people have more granular choosing

of information channels and ultimately reward those who will devote themselves to provide more transparent access to those channels.

Goal

Main goal of this thesis is to assess product opportunity regarding faster and more reliable access to information and if such opportunity exists, then propose viable solution from perspective of a product manager. It will also need to validate usability of such solution with target users using prototypes of user interface. If such solution exists and it is both viable, usable and feasible for the product team to build, then the output of this work will be a high fidelity prototype that could serve for some future product team as a specification of minimal viable product.

Structure

This document is structured into three main parts. In the first one, I will cover the basics of responsibilities that fall on the role of product manager in a product team and why is this role so important to succeed with a product on market. The focus will be on activities, that I will perform in this thesis so that the reader really understands the importance of these processes.

Second part will be about product opportunity assessment which includes analysis of existing solutions for accessing relevant information, defining basic product principles that need to be followed in order to focus mainly on the problem at hand and defining how would the resulting solution measure success.

After an opportunity has been identified, we will dive into actual product discovery and definition in the last of the three main parts. At first, we will look at product vision and how it might look in the future. Then I will iterate through prototypes of user interface based on user testing until a usable solution is found and validated. It will also include definition of personas and other tools needed to propose the most accurate solution.

After the product has been defined we will discuss potential business models and revenue channels. With the potential for this product to go global, it will be beneficial to consider various possibilities to cover the initial funding and development. We will dive into positive and negative aspects of approaching an investor early on or attracting the attention with own resources before getting funded.

At last, I will evaluate this effort and decide if the proposed solution is in fact **viable**, **usable** and **feasible** and so if it is worth spending resources to bring such product to market.

Product Manager's responsibilities

Acknowledgement

Basic ideas about the role of a product manager within a product team are from excellent book [2] “Inspired: How To Create Products Customers Love” by Marty Cagan. He is a great minded product manager largely responsible for the success of Ebay in its early expansion and is the founder of Silicon Valley Product Group which educates startups and corporations about innovation and the importance of product management on it.

This chapter is a reflection on that book’s opinion about the product manager’s responsibilities and my interpretation of the key take aways from it that I want to use while designing the final product.

1.1 Product opportunity assessment

When a product manager stumbles upon an idea, it is his job to research it properly, define the opportunity and evaluate if it’s worth pursuing for the company. An idea or suggestion can come from anywhere, whether it is a coworker, friend, user testing or superior management. But ultimately, product manager is responsible for the success of the product and it is his job to be the voice of reason in these early stages and properly validate assumptions behind the idea. Outputs of this effort are called **Product Opportunity Assessment**. This can save precious resources of the company as it not only prevents spending on unworthy products or features, it also saves the opportunity cost of development team that could be building something more valuable instead.

POA—Product Opportunity Assessment—document can be divided into several sections, each answering important questions that define problem's worthiness of company's resources. Together they all contribute to the final **go** or **no-go** decision for this opportunity.

1.1.1 Value proposition

Question: What problem will it solve?

Every product needs to bring some value to target users. It is necessary to identify the base problem to solve it efficiently and in a way that is valuable to the user.

1.1.2 Target market

Question: For whom do we solve that problem?

Clear understanding and definition of product's potential users is essential for several other aspects covered in POA such as market size or go-to-market strategy. Without knowing your target market, you cannot predict the market size or which channels you'll need to approach to scale properly.

1.1.3 Market size

Question: How big is the opportunity?

Every early attempt to determine the size of market is usually way off. It is however very beneficial to think about it as it can help identify poorly defined target market.

1.1.4 Metrics

Question: How will we measure success?

In order to know if the product is moving in the right direction, we need data. Without proper metrics, product manager is blind in his decision making towards better solution.

1.1.5 Competitive landscape

Question: What are the alternative solutions to this problem?

There is always an alternative. It might not be effective, but the problem you are trying to solve is already being solved somehow. It doesn't even need to be another company or product, but rather some process that people use to overcome the problem. It is product manager's job to

dig into these alternatives and find out if there are people really craving for a better solution. Additionally, if there is no direct competition from another company or product, product manager needs to determine why. It might be that we possess unique new technology that wasn't available before, is perfect for providing better solution and the timing is in our favor. However, it might also indicate people's unwillingness to pay for such product.

1.1.6 Market window

Question: Why now?

As mentioned in previous section, timing of product launch is critical. What are the main reasons for this product to be launched right now and it couldn't be done in the past? It is very unlikely that a product wouldn't made it to market sooner, if it was doable for example ten years ago. Is it some new technology, that provides much better user experience? Discovery of more efficient business model? Has recently become using such products socially acceptable in society? Lack of answer and the clear reason why is now the perfect time to make a product like this indicates a need for serious rethinking of the problem itself.

1.1.7 Go-to-market strategy

Question: How will we get this product to market?

There are numerous ways how to approach product growth and attract new users. However, not all products can leverage one of the cheap and effective strategies that produce desired growth and they need to invest serious financial resources to attract users. If that is the case, than proceeding with such product would be not possible for some companies without external investment as it could deplete the company before the product starts generating revenue.

1.1.8 Solution requirements

Question: What factors are critical to success?

These should derive from product principles and steer the product in the direction of fulfilling these factors as they will give it the competitive advantage over existing solutions.

1. PRODUCT MANAGER'S RESPONSIBILITIES

Note: There are several more points that should be covered in POA, but as they are not applicable to this situation I did not cover them to avoid confusion.

1.2 Product Discovery

After the opportunity has been identified as worth of needed resources, product manager starts with defining the solution through prototype iteration and potential customers' feedback.

1.2.1 Product Principles

Every product needs to have a set of guidelines which help the team make difficult decisions when facing a dilemma about proceeding with business or product decision at hand. Those are called **Product Principles** and they serve as a reminders of what's critical to success of the product. When faced with difficult decision, the alternative that is most aligned with this set of beliefs should be considered the most.

1.2.2 Personas

Personas represent hypothetical users of the product. They are a set of characteristics that define a specific group of expected product users. Using these, it is easier to predict how they will cope with various use cases in which they will find themselves while using your product. They are also necessary to understand what motivates these people's behavior. Overall, personas are a great tool for designing the first feature set until the feedback from real users is acquired.

1.2.3 Prototypes

It is crucial to make actual prototypes that user can interact with as this will reveal many problems that would otherwise remain hidden until discovered in development stages. Changes needed to solve these issues during development are very costly, demotivate the team and delay the launch **significantly**. During product discovery however, these modifications can be made with rapid prototyping within hours or days. This offers large cost savings and ensures that the issue gets appropriate amount of attention and its solution is not rushed and pushed to development without proper validation.

1.2.4 Early adopters and feedback

One of the most important responsibilities a product manager has is to ensure that a product that is being built is **viable, usable** and **feasible**. To address the first two properties, he needs to find several suitable

1. PRODUCT MANAGER'S RESPONSIBILITIES

potential users of this product which are in great need of solving the problem of decentralized information channels as soon as possible. These people are called **Early adopters** as they are the first ones that start using the product. Their emotions towards it are amplified in comparison to future regular users and so are better recognizable by the product manager. Once identified, product manager can focus on these emotions to drive the user experience as much as possible. Early adopters are also usually very eager to provide you feedback as they want you to improve the product for their own sake as well.

Product Opportunity assessment

In this chapter I'll begin answering the questions mentioned in the previous chapter. Clear answers to all of them should together make it easier for the responsible entity to make a decision about whether to proceed with designing and implementing a product.

2.1 Value proposition

Consider times and places, in which people tend to read articles. In my experience, most people will try to read something on their daily commute to and from work, during lunch or before getting up in the morning as also an article from NiemanLab [3] supports. What these situations have in common is their high time dependency. Every second wasted is decreasing attention and might disrupt user's way to opening some valuable content. Current tools for gathering such information — such as Facebook pages or Twitter—are often polluted with unrelated posts that distract users from finding what they need. And as Instagram took leverage of similar situation and created social network strictly focused for its specific content—images—I believe that it is only a matter of time before content-focused alternatives rise to attention.

2.2 Target market

If the product would expand its reach enough, then the target market is really wide. Basic user could be practically anyone who likes to read about topics that interests him. However, it is not wise to target such

big market as the demand of resources to cover all various types of users is too high. It is much less risky to start with people that strive for professional development and start expanding later.

2.3 Metrics

The most simplistic and valuable metrics for a product that cares about content sharing are number of articles shared per time period and number of read articles by end users.

2.4 Competitive landscape

Obtaining information is a process which people undergo for a very long time and the problem of optimizing it is not entirely new, so there are many alternatives that aim to tackle it. Whether it is through conventional ways such as newspapers, television or more modern approaches like Twitter or Facebook feeds.

2.4.1 Conventional mass media

These channels has been here for a century and according to American Press Institute [4], majority of American citizens still use them as their primary source of information. The problem is however, they are highly centralized and it is very hard for new companies to get the audience that matches the big influencers as they lack the viral effect that modern internet platforms provide.

2.4.2 Twitter

Twitter is a messaging social network, which allows anyone to post short messages to whomever wants to listen. Users build up an audience upon their level of engagement and gain certain amount of influence. As Twitter grew and evolved, people and companies started to use it as a tool for promoting different kinds of content. In an ideal scenario, Twitter would be a perfect solution for quick access to new content. However, promoting content is only a fraction of Twitter's daily usage and it is highly probable that user's feed will be highly polluted with irrelevant information and can cause enough distraction during user's spare time opportunity to read, that he will eventually not get what he came for. And for its highly variable usage, Twitter cannot introduce features to help overcome these issues because it is not in favor of the majority.

In fact, it was never in Twitter's intention for their users to promote content [5]. Community bent the platform for their own needs and that only reveals the opportunity for a more specific product.

2.4.3 Facebook

Facebook feed offers more features for promoting content, but it still lacks end user usability that would prevent from distraction just as Twitter does.

2.4.4 Specialized forums

Enthusiastic people tend to gather themselves to share their interests and keep themselves up to date with the latest news. This often leads to creation of specific discussion forums about various topics. However, they suffer from the high distribution across the web as well and the user has to crawl through several sites just to check for the updates.

2.4.5 Tapito

Tapito is a Czech startup that utilizes machine learning algorithms to automatically recommend you articles that might interest the user. However, the topics of interests are not the only deciding factor in whether the user likes the article or not. Moreover, user can't just simply "unfollow" the source of a unwanted article.

2.5 Market window

Although I deemed Facebook's and Twitter's feeds not usable enough for instant access to content, they are the main reason why this kind of product could be successful now. Their massive rise in popularity taught people to use such products to gain access to information. Ten years ago, these habits didn't exist and so now is the time to provide better user experience when reaching for content in time-dependent situations.

2.6 Go-to-market strategy

As there are already people and companies that try to filter out and promote content, its in their best interest to provide their audience with better access to content they are promoting. Targeting these people

should be the most efficient way to ensure growth as they can bring their audience with them.

2.7 Solution requirements

There are two main characteristics to keep in mind when designing a product for this opportunity. It needs to take away as many steps as possible that the user has to make from the moment he wants to read something to an opened article. However, it needs to be equally simple for a user to gather and organize content that he wants to eventually share to his audience.

Product Discovery

For the purpose of this thesis, let us assume that the management considered the implications of the POA document reasonable enough to make the resources needed for creating such product worthwhile. That means we have a **go** decision and we can proceed to the product discovery itself.

3.1 Product Principles

As highlighted in the first chapter, product principles can help us steer the product in the desired direction when faced with a difficult decision. They need to be strict, concise, unambiguous and easy to remember. Every member of the product team—from the product manager, designers, engineers to the marketing—needs to be aware of them as they also help them keep the main focus of the product in mind when deciding details in their area as not every small thing can—and should—be brought up to the management.

From the POA document above, I came up with these five product principles that addresses the main issues for users which they experience in described situations.

- Extremely fast access to new content.
- Easy management of desired information channels for users.
- Seamless gathering of useful articles.
- Minimal distraction.
- Providing of content when opportunity arises.

3.2 Personas

Since we need to propose an MVP—minimal viable product, which stands for a product with smallest feature set capable of solving particular problem—we need to narrow the target market as well and start expanding the reach once we dominate a small part. For this reason, I designed the following personas to describe use-cases in profession environment as in my opinion, the need to advance one’s career is more prominent in those people who experience it and so it should be easier to target them and get onboard.

3.2.1 John

John is 30 years old. He is CEO of a small startup and is generally very busy during the day. His day mostly consists of meetings. John knows that if he wants to keep up with other companies, he needs to follow news about team and product improvement.

3.2.2 Jane

Jane is a young 23 year old developer. She recently developed interests in marketing, but she doesn’t know any blogs where she could find some valuable information. Her only source is her colleague in marketing department, who send her links to articles now and then. However, she is still a developer and she wants to educate herself in her field. Blogs and other sources that she knows of are scattered over several platforms and she feels frustrated when she often misses articles that would be very valuable to her.

3.2.3 Adam

Adam is a marketing specialist in a software agency studio. One of his responsibilities is also to advance the image and corporate identity and so he spends a considerable amount of his work time searching for information and valuable content that can help him to achieve that.

3.3 Proposed solution

The simplest MVP for the opportunity described needs to have three fundamental parts. First, you need to have a way which allows people—hunters—to store content that they have found on the internet and

provide means to share it with others fast. Second, it needs to get that content efficiently to user's audience and make sure that it reaches them exactly when they are in need of to read. Lastly, there needs to be a process which connects those two sides of users and allows readers to find people to follow easily.

3.3.1 Gathering and sharing content

To mark some article as valid and useful, a simple browser extensions is enough to make the process of gathering content as seamless as possible. It will replicate the functionality of an ordinary bookmarking feature in today's browsers, but will be connected to a personal account in which these articles will be stored. However, organizing this content and eventually releasing it to audience is a much more complex cognitive task which will require a web application—rather than mobile—interface that will allow the hunter—user that has interest in gathering and distributing content—to add short descriptions to articles, change priorities or adding/removing articles altogether before their distribution.

3.3.2 Accessing shared content

Based on personas described above, we need to consider the situations in which we want to engage with the user. It is obvious that it will only be by exception that the user will have access to a desktop device and so interface should be definitely on a mobile platform. An app will provide instant access to a list of valuable articles right after opening it. If none are found or the reader is not satisfied with offered content, he can start searching for other people to follow. User will have the ability to rate the article once he finish reading it. This rating will serve as a guide for future readers about perceived quality by others and also as a feedback to the provider of the article.

3.4 First iteration

From the proposed MVP above I designed few use cases that are required to fulfill the product's purpose. From these I managed to sketch out a simple screen prototype that is able to simulate those use-cases including logging in, picking an article to read or finding new people to follow. We can now proceed and try to test this prototype with people matching some characteristics from our personas described earlier. It is very important that during the testing interview, we focus on identifying the pain points of the user's experience when trying to accomplish two critical use-cases—that is actually reading an article and finding other people that are aligned with his topics of interests—and also notice his engagement when using the app. To achieve the latter, the prototypes should be filled with data that corresponds with the user's preferences and for that some beforehand preparation for the interview is needed.

3.4.1 Use cases

To not take up much space in the document, I included only diagrams of login and sign up use case (see figure 3.1) and reading an article use case (see figure 3.2). The reader can however review all of them as an attachment to this document in the 'images' folder. All use cases have the prefix 'usecase'.

3.4.2 Prototypes

Using popular design tool Sketch, I drew several screens of both mobile and web interface. Mobile interface on figures from 3.3 to 3.7 serve for access to articles provided by hunters the user follows and management of those subscriptions. After user logs in on figure 3.3, he can immediately access available articles as seen on figure 3.4. When clicked on an article, user gets to the screen on figure 3.5 with the article itself and two buttons to be able to rate it afterwards. Remaining two figures 3.6 and 3.7 show screens with searching for other people to follow and more details of a particular hunter with some of his latest articles.

Web interface serves as a management tool for article hunters. On figure 3.8, user sees some basic statistics to gain feedback about his provided content overall. The most important screen is on figure 3.9, where the user organizes the content he saved earlier and finally sends it to his followers. He can also browse through the history of his distributed

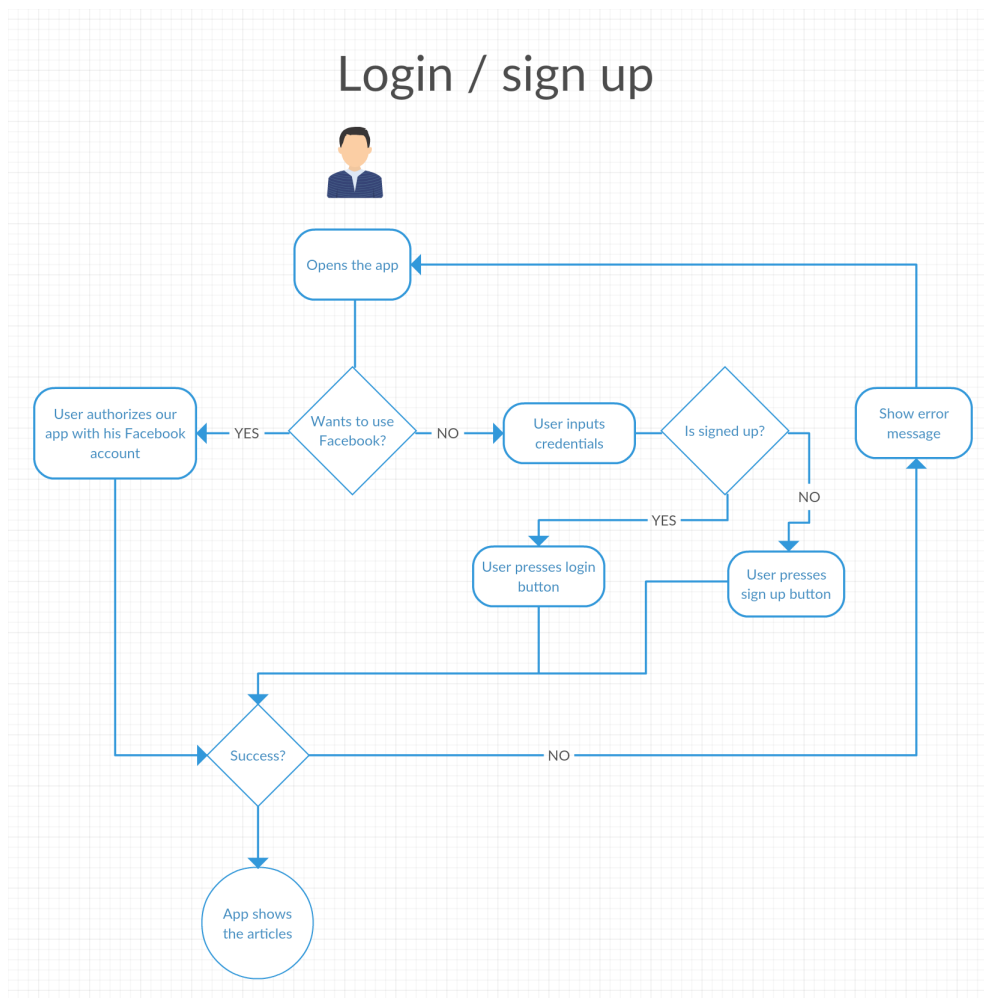


Figure 3.1: Diagram for login and sign up use case

content on figure 3.10 and have more granular statistics about every single article.

3.4.3 User testing

Since we only have visual prototypes, I used an online tool called InVision which lets you create clickable prototypes just from designs created in Sketch. This allowed to see more realistic reactions from people with whom I performed these tests.

To respect their privacy, I changed names of the people involved in these tests. However, most of them were students or colleagues I asked for help. Moreover, I did not want to have only feedback from people

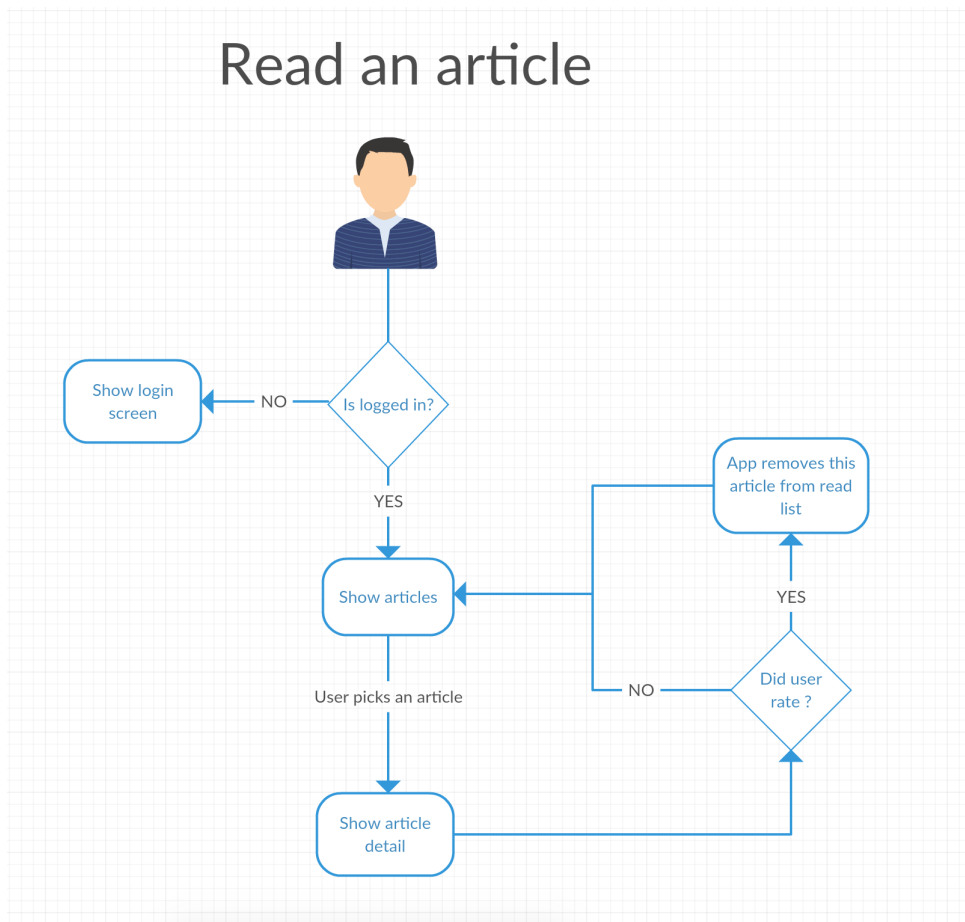


Figure 3.2: Diagram for reading an article use case

that know me personally as it might distort their actual interest. In that spirit, I asked several people in National Technical Library for assistance.

3.4.3.1 Adam

Adam was very impressed with the design of the app. He automatically logged in using Facebook login button and went on to discover several articles already prepared for him. Multiple articles caught his interest and that's when there was first indication of a problem. He began scrolling through the list and started to hesitate about which one of them to open first. This is a distraction for the user and requires some unnecessary cognitive function.

When he finished reading, he rated the article without any hesitation. He removed some articles from the list that didn't interest him and went

3.4. First iteration

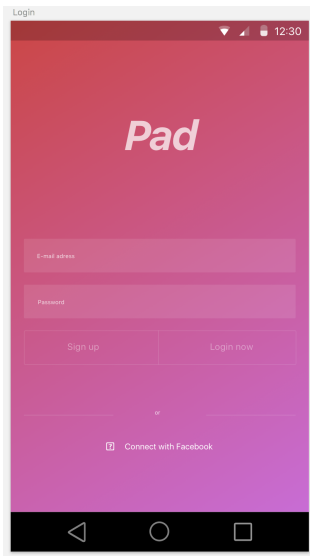


Figure 3.3: Screen with login and sign up

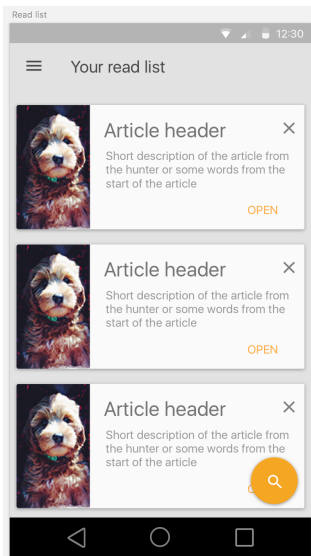


Figure 3.4: Screen with available articles

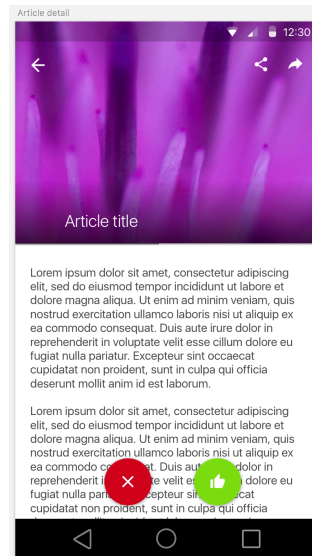


Figure 3.5: Detail of an article

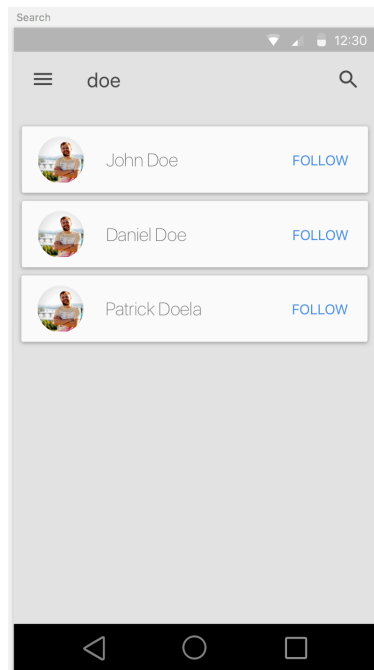


Figure 3.6: Screen with results from search for hunters

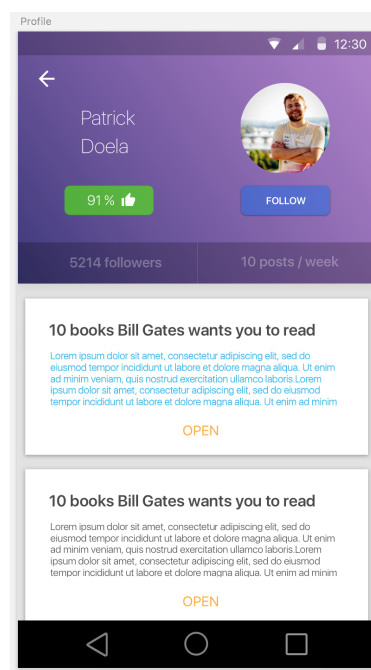


Figure 3.7: Screen with details about a hunter

3. PRODUCT DISCOVERY

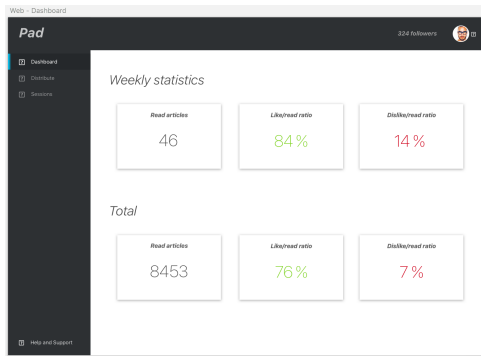


Figure 3.8: Dashboard with some statistics

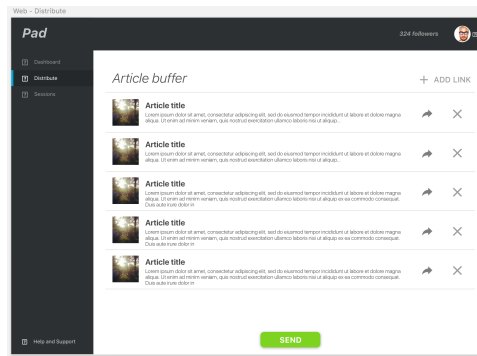


Figure 3.9: Saved articles for distribution

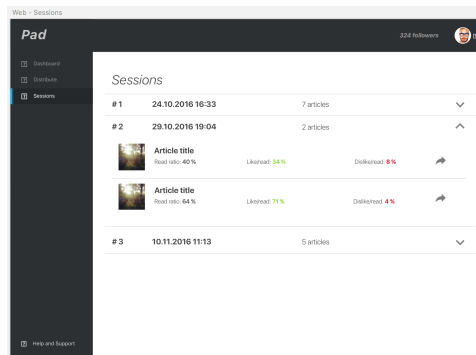


Figure 3.10: Past sent article sessions with success rate of those articles

on to search for some new people to follow. He then struggled heavily on how to continue, as he didn't know any influential people that might have been on a platform like this. He just knew the topics.

3.4.3.2 Dana

Dana didn't want to provide access to her Facebook account, so she logged in using an email and password. She again found several articles ready for her and experienced similar hesitation as Adam when she had to pick just one article to read. Interesting thing was, that she didn't use the remove button on the list itself to remove the article but rather opened it up in detail and pressed the X button for marking not valuable content.

3.4.3.3 David

David logged in without any problems. After opening his read list he showed signs of hesitation as well but not at such scale as it was the case with both Adam and Dana. He quickly started going through them from the top, one by one. However, he did express his desire to have some metric upon which he could evaluate the article before opening it. When he opened up search for new hunters, he immediately expressed his discomfort that he has no ways of finding any people with his interests as he hadn't had any means for inputting them to the application.

However when he rated the article, he wasn't happy about the fact that the article has disappeared from his read list after he rated it. He wanted to keep the article so that he could send it to his colleagues later.

David also liked the idea of using a platform like this for sharing his favorite content, but could find a way for him to become one of the hunters.

3.4.3.4 Conclusions from first iteration

- There is a clear cognitive obstacle on the read list page which results from too much information thrown at user and lacking a metric that would prioritize it in any way
- Search by users' names is not sufficient. User needs to be able to express their interests and let the app find suitable people accordingly
- There needs to be more informative indication that the X button on the article detail is affecting hunter's score and should be used when it really does mean the article is not worth reading
- The app does not mention any information regarding the web interface for hunters and this can result in decreased growth
- The app does not keep any articles after they are rated. Some kind of archive would be beneficial, however, it is not a critical feature and so should be left for the updates and continuous development. That being said, it is still a very important factor for the user experience and so should be marked as a high priority after the initial release

- As the results of mobile application’s tests suggest some new functionality, there is no point in testing the web interface without it. We can proceed to altering the prototypes.

3.5 Second iteration

3.5.1 Modifications

- Substitute list of articles to a more focused page view. See figure 3.11
- Add article success heuristic that will help in sorting quality articles
- Introduce tags to describe topics in which the user is interested with so he can search for people he does not know by name. See figure 3.12 to see the modification in mobile app and figure 3.14 for web interface
- Add reminders to explain the dislike button more

To remove the hesitation when picking an article, the app will substitute the list for a more focused way of presenting the data. I decided to use a page-based view, where only one article will be shown to the user at a time. Also, the page should include information about like to read—number of likes to the number of total reads of that article—percentage to serve as a heuristic for the user.

To improve the search however, new functionality needs to be introduced. Every hunter needs to associate himself to several tags, that define his field of topics. When the user searches for new people to follow, these will serve as relevant reference points according which the platform will present the top choices. People will still however be able to search by name.

First time the user presses the dislike button on some article, a confirmation dialog will be shown, informing the user that this action have a great impact on the hunter and should be used only when that article is in fact inappropriate and reminding him that he can simply remove the article from his list if it doesn’t interest him.

3.5.2 User testing - mobile app

To ensure the first time visitor factor, I asked different people to look at prototypes. However, I did a quick validation with previous testers to see their reactions to new elements.

3.5. Second iteration

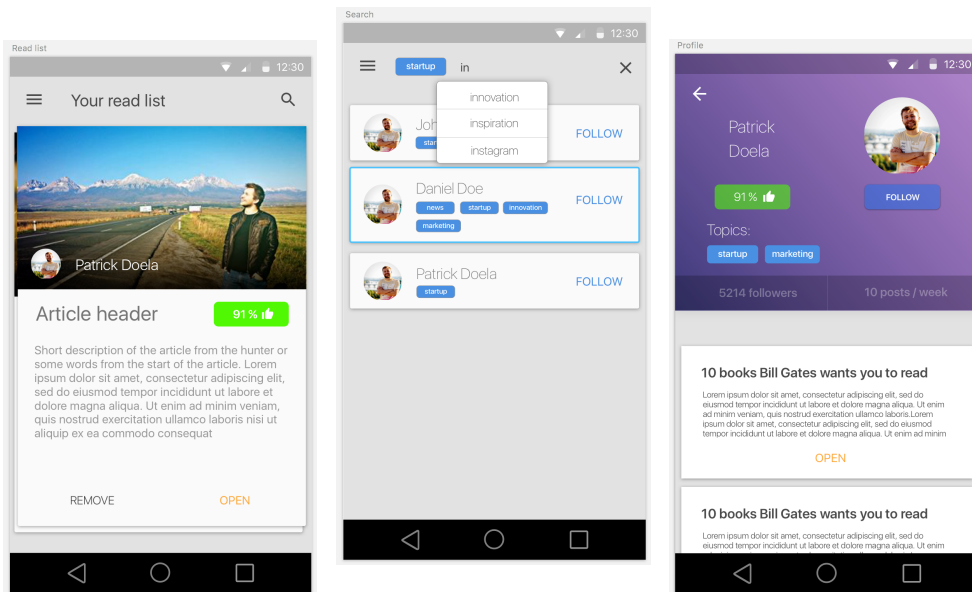


Figure 3.11: Replaced list with articles with swipeable cards

Figure 3.12: User can now type some tags and the app will recommend some topics he can choose from

Figure 3.13: User will now see topics in hunter's profile

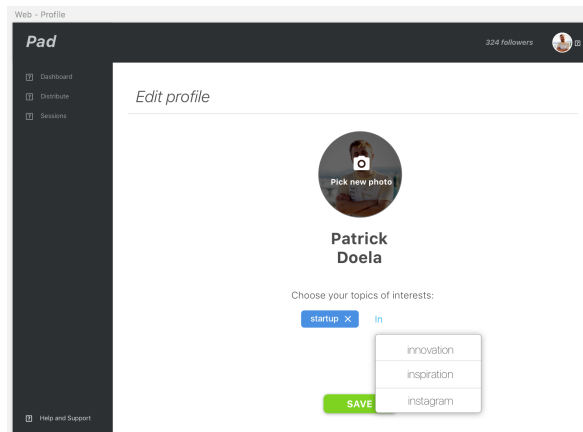


Figure 3.14: Screen with results from search for hunters

3.5.2.1 Susan

After logging in with Facebook, Susan immediately got here eyes on one particular article and opened it up immediately without even trying to get the app to show other articles. This is a very good sign, however when

she came back to the article pages, she didn't realize that she could drag the cards to move them to the end. Her only interaction with the article was only reading it or removing it from the list.

3.5.2.2 Revisiting previous testers

Test with Susan showed a positive move in the most critical pain point from the first iteration. I wanted to go back to the previous testers to see if the problem vanished in their experience as well, in spite of the fact that the important factor of the first-time user would be missing. However, all of them showed better flow through the main use case of reading an article.

3.5.3 User testing - web app

3.5.3.1 Peter

I introduced the concept of this platform to Peter and he quickly got up to speed with it. After opening the dashboard with statistics he was a little confused about the meaning of some of the statistics. He wanted to see his profile to see details about his account. He missed the email address upon which his account was registered. Remaining two screens with past sessions and article organization were without trouble for him to understand.

3.5.3.2 Philip and Andrew

Both of the remaining test sessions were really similar to the one with Peter. No particular pain points in user experience were detected.

3.5.4 Conclusions

Second iteration of prototypes are in my opinion suitable for development phase. Critical pain points in mobile application have been resolved and few remainders and dialogs can be left up to visual designers. Web application testing did not reveal any critical issues, however their experience is heavily dependent on actual data and is very hard to test with only a visual prototype. Further experimenting and testing in production will be required later. Overall the application seemed to catch people's interest and I would certainly recommend proceeding with the project to the development phase.

3.6 Product vision

If the MVP proves the expected potential for this product, the company can hire more engineers to work on features that support the main use-case and will provide even smoother experience when dealing with access to information.

Although that this product is largely based on the fact that machine learning algorithms can determine **related** content rather than the **quality** of it, they can be very useful in supporting processes that will help people to do the job. However, developing them to do their job effectively is very costly and will not have much effect in early stages. On the other hand, once the MVP proves the concept and value of a product like this, machine learning can supercharge the growth of the product and with it the actual value it provides. Users will be able to find reliable people in their fields of interest much easier and the content could be offered to them before they even try to find the person who recommended such article.

On the other side, hunters will have much greater control over their audience and what they are offering them. They will have the opportunity to adapt their content based on users' reactions, analyze the data and even have more granular distribution to increase the audience's satisfaction with their feed.

Monetization and funding

Every product needs to make money to sustain itself. Product manager needs to be, however, very careful when designing a way to extract money of the value the product carries to its users. Uneven monetization will decrease users' the overall value and experience.

4.1 When to start monetizing?

As this product's value highly depends on user community, any early attempt to extract money will result in decreased growth and in extension its value. I would recommend postponing any monetization features until a stable user base and healthy growth of it is established. However, determining the exact point in a life of a product will be up to the product manager as he will be aware of other contributing factors such as insufficient capital to sustain the product much longer, actual engagement of users and others.

4.2 Revenue channels

4.2.1 Paid subscriptions

Small fee for monthly subscription could provide enough motivation for hunters to build their audience—boosting growth of the product as a consequence—and provide means to generate money for product by taking small percentage of it.

However, this kind of revenue plan combined with postponed introducing to the platform—reasons of which were described above—will need to handle what to do with the existing users and their subscriptions. One of possible solutions is to introduce some kind of advertising and allow

people to still subscribe for free in exchange for sponsored articles being pushed to their feeds by hunters.

4.2.2 Premium content

An alternative to previous proposal would be to leave the free subscriptions as they are and provide features for hunters, that allows them to separate their content to premium and basic. Premium subscription would be paid resource.

4.2.3 Premium features

In comparison to paying for premium content, hunters could provide more data to their articles, for example they could record these articles as audio sessions which would made the experience for users much more enjoyable.

4.2.4 Data analysis

The best hunters could turn their activity on this platform into a serious business. Serious business however needs proper tools to ensure its growth and stability. The platform could offer them assistance by providing the necessary data and its analysis.

4.3 Funding

Whether you decide to fund a product like this on your own or try to find an investor early on, the development cost of only the implementation itself will be in tens of thousands of dollars based on my previous experience as a lead software developer in a startup development studio. This does not include costs on marketing, advertising or constant introduction of features to keep users engaged. It would be also beneficial to hire first several influencers to bring content to the platform, ensure value for the first users and provide yourself with a close feedback loop about the future pain points of the hunters.

4.3.1 Own funds

We know that we're going to need a lot of money for an individual to create this product, so naturally and investor comes to mind. However, there might be severe advantages to at least start with own capital. First of all, you have absolute control over the product. Your judgement is

focused primarily on creating value for users as opposed to the investor, which might push you directly or indirectly—without even knowing it—towards generating revenue as soon as possible. However as mentioned earlier, that might have negative effect on the product overall.

Moreover, the farther you get on your own, the less of the company you'll need to sacrifice to the investor later on. Of course, you could not approach an investor at all, but the nature of this product suggests that you need the funds to make product valuable before it starts to generate revenue. Expanding to other markets costs a lot of capital and the lack of investor—and the funds it can bring to boost the product's growth—may prolong the expansion so much that the startup might not survive it at all [6].

On the other hand, own funding does not necessarily mean an individual. It can be a company, that wants to expand its portfolio with a new product and has sufficient funds to fund its development for a significant period of time. That way, the product gets the advantages of the own fundings and reduces the effects that the investor has on it. They are not diminished completely, as the company itself poses as an investor in certain way—after all, the company expects return as well—however it is reasonable to assume that an investor—whose survival is purely based on returns on their startup investments—will be more concerned about their returns as opposed to the company which has their own business and generates money elsewhere.

That said, not every investor will behave the way I described above. Details of the relationship between the startup owner and the investor differ on every occasion and the best investors certainly know that the worst thing they can do is to stand in the startup's way. However, the nature of this relationship suggests some behavioral traits and patterns and the potential startup owner should be aware of this.

4.3.2 Investor

As described above, using your own funds from the start is beneficial. However, there certainly are cases where you just don't have enough, you don't have the team or the environment to develop a product but you do have a strong vision. In that scenario, it is **perfectly reasonable** to get help. Investors often group up behind organizations called **incubators** which are designed to provide an individual with everything they might need from work spaces, development team, educational resources to the actual funds. They guide them through the startup journey and ensure

4. MONETIZATION AND FUNDING

the startup has the best possible conditions for success.

Conclusion

The goal of this thesis was to familiarize the reader with the importance of product management on a product development and its processes, apply these processes and methods in practice and design a suitable solution to the proposed opportunity regarding better control of channels through which people acquire relevant content on their daily basis.

In the first part, the reader is informed about the two main elements that compose the work of the product manager before the development phase—product opportunity assessment and product discovery. In the POA document product manager tries to determine, if there is an opportunity to build a product at all and moreover, if it is reasonable enough to pursue its development. If it is so, product manager needs to design and prototype its solution and resolve the pain points within the user experience before the developments starts. Hopefully, this effort will persuade the reader to put more importance on the product management within a lifecycle of a software product’s development as I believe it is still very underestimated field, especially here in Czechia.

Second part presents real example of applying this knowledge on a possibility to present a product that would allow users to simplify their process of accessing quality articles and minimize distraction from actually reading anything. POA document covered several key factors that should reveal potential problems with the basic ideas about the need of such product. Results of this effort suggested that it should be valid to proceed to designing a product as the analysis did not provide any major hint about a critical flaw in the concept.

After identifying the opportunity, I began with a product discovery that consisted of personas definition, design of basic use cases and creation of screen prototypes of a web and mobile application. Upon

feedback from user testing, it only took two iterations of prototypes to remove critical pain points in user experience. I am satisfied with the result as user feedback provided with insights of perceived value by users while still maintaining the product as simple as possible to keep in line with the concept of initial release of an MVP—minimal viable product. I also discussed possible ways of monetization of this product and why it should be postponed until a stable user base is established.

At the end, based on my experience when working with startups both investor-based and self-funded, I tried to describe some of the downsides and upsides of getting an investor for a new startup.

I strongly believe that this product could reach a global market, however it would depend heavily—as with any other product—on its execution and product team. It offers vast possibilities with new features—starting with article archive or video sharing—or integrations with various blogging platforms. If you look at the progression of content creation and promotion—from writing books, setting up blogs, easy blogging platforms like Medium to the arrival of Twitter—you can see that every next product along the way took out some steps that were required to get the content to your audience. Blogs did not required the extensive publishing process of books, Medium took out the need of setting up and maintaining your own website and Twitter even took out the need for ability to produce long rich texts by limiting the length of the message to 140 characters. This product **could** be the next step by eliminating the need to write at all, providing an ability to build audience before users have something relevant to say on their own and promoting quality content on the internet in the process.

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Acronyms

POA Product Opportunity Assessment

MVP Minimal viable product

Contents of enclosed CD

<code>src</code>	the directory of source codes
├─ <code>sketch</code>	Sketch files with sources to design prototypes
├─ <code>thesis</code>	the directory of \LaTeX source codes of the thesis
<code>text</code>	the thesis text directory
├─ <code>thesis.pdf</code>	the thesis text in PDF format