

Title: Title
Student: Firstname Lastname

Problem description:

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Responsible professor: Firstname Lastname, Affiliation
Supervisor: Firstname Lastname, Affiliation

Abstract

Sammendrag

Preface

This thesis presents my final work and research for my Master of Science degree in Communication Technology at the Norwegian University of Science and Technology (NTNU). I have specialised in ICT economics at the Department of Telematics (ITEM), belonging to the Faculty of Information Technology, Mathematics and Electrical Engineering (IME).

I wish to extend thanks to my supervisor Thomas Jelle and responsible professor Jan A. Audestad for their everpresent support and valuable input throughout the semester. Furthermore, I wish to thank the respondents of the survey for their contributions, without these answers this thesis could never have been written.

Kristian Tagesen
Trondheim, June 2016

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List of Algorithms

List of Acronyms

B2B Business-to-business.

B2B&C Business-to-business-&-consumer.

B2C Business-to-consumer.

HEI Higher Education Insitution.

IME Faculty of Information Technology, Mathematics and Electrical Engineering.

ITEM Department of Telematics.

MM MazeMap.

NTNU Norwegian University of Science and Technology.

Chapter 1 - Introduction

This chapter will introduce the reader to this thesis, where the motivation, scope and contribution is presented, which (along with Chapter 2 - Background) will serve to bind the thesis together and to set things in perspective to the reader.

1.1 Motivation

as

The indoor mapping service MazeMap (MM) started as a venture from Wireless Trondheim, an R&D company working closely (and cooperating) with NTNU whose goal it is to create sustainable ventures from new ideas. MazeMap's main service is providing an indoor mapping service aimed at large institutions such as universities, hospitals, conference venues, shopping malls and more. Users are able to access the service on any computer, tablet or smartphone, where the indoor maps themselves is the main focal point. Navigation services are also available in many different forms, but using Wi-Fi is a readily available and easily deployed solution which has been co-developed with Cisco. This particular service uses a technique called trilateration[BMJK14], and is easily implemented as it uses existing Wi-Fi infrastructure to facilitate the service.

MM has a very scalable technical platform, in which a robust indoor-map-creating engine resides. This engine is able to convert digital floorplans into full-scale digital indoor maps that can be accessed from any device capable of running MM's application. Given its scalable nature, the time needed per customer is drastically reduced, and little involvement is needed from MM's perspective. Thus, in order to accelerate customer acquisition, a proposition can be made to change or alter the business model: A free model has been detrimental in the success of several start-ups in the consumer market, e.g. Dropbox, Skype, Waze and Snapchat, but can this also be applied in a Business-to-business (B2B) or a Business-to-business-&-consumer

(B2B&C) setting?

1.1.1 asda

1.2 Scope & Objectives

In order to achieve the goal of determining the effectiveness and feasibility of a free model in an international B2B&C-market and proposing a fitting business model, it is necessary to narrow down the aspects considered in this thesis. Furthermore, the aim is also to give the reader a clear and concise overview of the matter at hand.

1.2.1 Scope

MazeMap already serves a large base of customers around the world, with their main bottleneck in expanding further being customer acquisition. As means to remedy this and to accelerate customer acquisition the free model is being proposed. Given MM's robust map-generating-engine, the main focus is shifted away from any technical limitations or inherent flaws on MM's end, and is shifted towards the viability of a free model. Given the scale of a global survey, the survey presented later in the thesis will focus on an already established customer segment, namely Higher Education Institution (HEI)s. This restriction is in place in order to more specifically target this thesis's goal of proposing a business model and determining if a free model is feasible, rather than exploring new customer segments.

1.2.2 Objectives

This thesis aims to determine the viability and feasibility of a free model in a B2B&C-market, and to propose an appropriate business model in this particular paradigm. In short we can describe the objectives in the following manner:

1. Investigate if there is a demand for an indoor mapping service operating under the free model
2. Discuss and interpret the viability of such a service on an international level
3. Propose a business model based on the findings and its surrounding discussion

Taking the scope into consideration, this forms the basis of the main research question for this thesis: Is a free model viable as a business model in a B2B&C-market on an international level, and can this model potentially accelerate customer acquisition?

1.3 Contribution

Mainly, the contribution and novelty of this thesis is aimed at business owners wishing to expand their offerings to their base of customers, by enabling an indoor mapping service such as MazeMap. Furthermore, the central theme of the thesis regarding the viability of freemium in a B2B&C market, may also serve businesses looking to expand their offerings and who dares to venture in new and alternative business models. The key contributions consists of the market survey made to target the objectives set in 1.2.2 Objectives, and the resulting proposal of a business model based upon the data gathered.

1.4 Outline

1.5 Related Work

Wireless Trondheim along with MazeMap have both provided several semester projects and master theses in cooperation with NTNU.

Chapter 2

Chapter 2 - Background

2.1

Chapter 3

Chapter 3 - Methodology

This chapter introduces the reader to the methodology of the research, investigative work, the subjects under scrutiny and how these leads to the results of this thesis.

3.1 International Potential for Free Indoor Mapping Services Survey

In order to get relevant information regarding the international market for free indoor mapping services, and to obtain empirical evidence, a survey was conducted. The survey was done at an international level where respondents were asked to reply to a survey estimated to take between six and eight minutes. The main factor in choosing which HEIs to contact was the size of the institution, as these might have a larger and inherent need and demand for an indoor mapping service.

The different institutions were contacted exclusively via email, with email and name of institution being kept in a spreadsheet to avoid double-contacting people and institutions, while enabling the respective contacts of the survey to be re-contacted. Respondents were also welcome to answer the survey in other ways than Google Forms, but no respondents opted for this. Initially, only the absolute highest ranking official of any given institution was contacted, but consequently the invitation letter was altered slightly, to state that any person with relevant experience may answer the survey. The scope was then widened to include anyone from building- and facilities management, property management, information services management and a larger than initially group of senior officials. Media and communications departments were also contacted, as the invitation letter pleaded recipients to forward the letter to whom it might concern. To follow up non-respondents, each respondent was asked to state their email address and affiliation to avoid being contacted after completing the survey. A new list of non-responders was formed throughout the survey period, and sendouts were performed periodically. Furthermore, they were informed that

the survey data was to be handled confidentially, and as such every email address from the survey has purposely been redacted in this thesis. The results can be found as a spreadsheet attachment. The first round of send-outs were conducted in March 2016, and the survey was concluded late June the same year.

3.1.1 Purpose of the Survey

The primary goal of the survey was to assess and evaluate if customers in the B2B&C-market would be interested in a free indoor mapping service. The secondary goal of the survey was to assess the potential customer's willingness to pay for additional services, as this is crucial for the freemium model to be profitable. Additionally, respondents were asked whether or not an indoor mapping service was desirable in the first place. Lastly, a question was raised regarding the potential concerns in the event of a procurement, concerning demand, price and security concerns.

3.1.2 Response Rate, Difficulties and Risks

The main concern when formulating and conducting the survey at an international level, is in many cases the response rate. Given the importance of the empirical data from the survey, this was a concern from the beginning.

The invitation letter was aptly changed to accomodate for any shortcomings the plan for sending out emails had, to increase the number of respondents. Through an iterative process, the invitation letter was changed so that it was made clear that it was possible to answer the survey in a different way than through Google Forms i.e. via telephone or video conferance, but none of the respondents opted for this option. Given the low response rate from the initial sendout, telephone calls were considered as means of getting in contact with the correct personnel, but this proved to be time consuming and to little use. During the time of a telephone call, the author would manage to get around ten more contacts through email leading to the abandonment of this method of reaching out. From initially only contacting between one and three individuals from an institution, this number was greatly increased through looking up email addresses from the websites of the respective institutions. This tactic increased the response rate from 5% to nearly 20%. The length of the survey was engineered to be short, as leaders and other senior personnel often have a busy schedule. Additionally, the questions in the survey required little to no knowledge of any technical aspects regarding an indoor mapping solution. This was done in order to appeal to as broad an audience as possible. In total 198 institutions were contacted with REF:ANTALL SVAR. A total of 5517 emails were sent, making the average number of emails sent to each institution around 28.

During the first phase of the sendout a script handling sending emails spread-

	A	B	C	D
1	Email address	Letter	Name	Answer (1=yes, x=not interested)
2		Dear Sir or Madam, I am writing a mail to you because I am interested in your institution. I wish to ask a few questions about your institution. The survey is pre-scheduled for the 1st of March 2014. Should you prefer to participate, please let me know. For more information, please contact me at: Email: tagesen@ntnu.no Telephone: +47 47 00 00 00 Thank you in advance for your response. Sincerely, Kristian Tagesen Example University		
	name@example.com			1

Figure 3.1: Spreadsheet used to keep track of potential respondents

sheet was used. As described above, the spreadsheet contained a column with the numerous email addresses, while another column contained the invitation letter. The last two columns contained information whether the institution had already given an answer or didn't want to be involved with the survey, and the last column contained the name of the institution in order to have a better overview. The scripting language itself resembles JavaScript, and runs remotely on Google's servers [Goo] offering its user seamless integration across the various applications and services provided by Google. The source code of the script was inspired by online tutorials, and was customized for the purpose of sending emails using the information in the spreadsheet. The source code of the script can be seen in Listing 3.1. It should be noted that this way of sending survey invitations was abandoned at a later stage due to inherent limitations in Google's Gmail platform: A limit of 100 recipients per day was simply not enough when the total emails that was due for sending was over 5000. This resulted in abandonment of the script, in favor of using blind copies when sending the huge volume of emails. NTNU's Microsoft Office365 Mail was used instead, as it imposed fewer limitations in number of emails allowed to send during a 24-hour period.

The survey itself was conceived and presented in Google Forms, an easy and widespread method not only for making surveys, but also handling replies in spreadsheet form. The invitation letter contained a short URL of a link to the survey. Appendix B shows the survey as presented to the respondents, and Figure 3.1 shows how respondents were being tracked.

```
1 function sendEmails() {  
2   var sheet = SpreadsheetApp.getActiveSheet();  
3   var startRow = 2; // First mail to send
```

```

4  var numRows = 73;    // Number of emails to send
5  // Fetch the range of cells included in this script
6  var dataRange = sheet.getRange(startRow, 1, numRows, 2);
7  // Fetch values for each row in the Range.
8  var data = dataRange.getValues();
9  for (i in data) {
10     var row = data[i];
11     var emailAddress = row[0]; // First column
12     var message = row[1];      // Second column
13     var subject = "Market potential for free indoor mapping services -
        MSc Survey";
14     GmailApp.sendEmail(emailAddress, subject, message, {from: '
        tagesen@stud.ntnu.no', name: 'Kristian Tagesen'});
15 }
16 }

```

Listing 3.1: Email Sendout Script

3.2 Business Model Canvas

This section introduces the reader to the framework that is Business Model Canvas, used to describe the proposed business model in REF(CHAPTER XX). This particular framework has its merits in that it is used to invent, challenge and describe a business model [Str16]. Further advantages include that it strips away any superfluous elements, improving its readability and enables users and business owners to focus on the most vital elements of a business model. It is also immensely flexible, as changes can be readily made without changing everything thanks to its modular design [OP13].

Table 3.1: Building blocks of the Business Model Canvas

Product	Value proposition
Customer interface	Customer segments
	Relationship
	Distribution channels
Financial aspects	Cost structure
	Revenue stream
Infrastructure management	Key partnerships
	Key activities
	Key resources

The framework consists of nine building blocks with varying degrees of importance, but an important relationship between them. When all building blocks are determined, they make up the total strategy of how a business would operate, make money and if desired, capture market shares. Table 3.1 shows the different building blocks by their respective categories, and Figure 3.2 shows the empty template for setting up the business model. The business model canvas is described here, as it will serve as a template for the proposal of the business model. Below follows a step-by-step description of the respective building blocks.

3.2.1 Customer segments

This building block consists of the different customer segments a company wishes to concentrate on and reach out to. A market may be single or multi-sided, containing at a minimum a segment per market side. Media companies, credit card companies and to some extent social networking sites among others fall into a multi-sided market category. It is important to note that when offering a value proposition to a market, market size is an important factor, as smaller, niche markets may be a viable market segment as opposed to a bigger market. Finally, diversified products offered through the value proposition may be used to reach smaller subsets of the market.

3.2.2 Value proposition

The value proposition is the building block that describes how a company is different from other competing companies. It details how a company's products or services can create value for their respective customer segments, where values may be qualitative or quantitative. Several means of creating value among customers includes lower pricing (price-sensitive segments), design (aesthetically appealing products), status (well-known brands), customization (tailor-made services or products) and performance-driven products. Additionally, introducing a brand new disruptive technology i.e. cell-phones may benefit a business' customer segment, even though it may initially be viewed as unnecessary. Offering consultancy services can also be a value proposition in itself, for instance IT-consultancy services. Concretely, in the framework one wishes to map a value proposition to a particular customer segment, in order to identify the needs of this particular segment.

3.2.3 Distribution channels

Distribution channels concerns how a value proposition is delivered to a customer segment. A channel serves multiple purposes, with the most important being raising awareness around the products or services a company is offering and aiding customers in understanding the value propositions. It also serves a perhaps equally important function in allowing for products or services to be purchased. Furthermore, the

channels can be broken into different phases, depending on what phase a product is in. These include:

- **Awareness:** Raising awareness among customers.
- **Evaluation:** How customers are able to evaluate the value proposition.
- **Purchase:** How products are purchasable from the customer's point of view.
- **Delivery:** How a value proposition is delivered to a customer.
- **After sales:** How on-going customer support is handled post-purchase.

Along with the next block, Customer relationships, the channels block forms how a business interfaces with their customers.

3.2.4 Customer relationships

The different types of relationships a business establishes with their respective customer segments are detailed in the customer relationships block. From a business' perspective, having good customer relationships may entail several benefits in increasing their sales volume, gaining new customers and keeping their existing customers from leaving. The perhaps simplest relationship between a business and a customer lies in personal assistance, where actual, dedicated personnel from the business side is serving any customer need from any part of the sales cycle. In a B2B market one may have one dedicated person or team per customer, while in a Business-to-consumer (B2C) market this might not be manageable and call centers or e-mail respondents serves the purpose better. On the flipside, having customers manage themselves entirely either through robust online self-services or inter-customer relationships is also an option depending on the product or service provided. Lastly, co-creation where companies and customers share responsibility for the product is a modern take on a customer relationship, seen in social networks and user-creation oriented services i.e. YouTube.

3.2.5 Revenue streams

How much cash-flow each customer segment generates constitutes the revenue stream building block. It is essential for the profitability of a product or service, with revenue streams being either a one-time fee or recurring payments. Several ways to generate revenue streams include:

- **Subscription fees:** By selling a service, a business may charge its customers of that service for any given time period.

- **Licensing:** In companies where some form of intellectual property is made, it is possible to generate revenue by the sales or lending of these properties.
- **Advertising:** This type of revenue stream is generated from advertising a product or service on the behalf of some other business entity.
- **Brokerage fees:** By providing services between two parties and taking a fee for the transactions that take place.
- **Asset sale:** Selling the rights to one instance of a product falls into this category, and is the most traditional way of exchanging goods.

At this point of setting up the model, the customer segments are linked to its respective value propositions. Each of these should at this point be linked with a revenue stream.

3.2.6 Key activities

The key activities are the determinantal things that a business needs to do in order to deliver its value propositions. Together with key resources they are vital in creating and offering the value proposition to the customers, earning revenues and keeping customers satisfied. Consultant and service-oriented businesses often revolve around problem solving as a key activity, helping others with new and existing problems. For manufacturing companies and businesses, proposing, making and delivering products is a key activity, while software and banking service businesses may have a robust platform they offer their customers. In the case of the latter, the platform itself is the main component of their key activities. Lastly, it is important to connect the key activities to the value propositions, as the key activities are the main drivers of the value propositions.

3.2.7 Key resources

The key resources in this framework is absolutely vital for businesses in order to provide and create value propositions for its customers. Together with the key activities, they enable the generation of revenues, maintaining customer relationships and reach markets. Several types of key resources include: physical (buildings, manufacturing plants), human (consultancy and r&d services), financial (gaining and edge on competitors by lowering the price point) and intellectual (intellectual properties, brands etc.). The goal of the key resources is for the business to surpass competitors on key areas of the key resources.

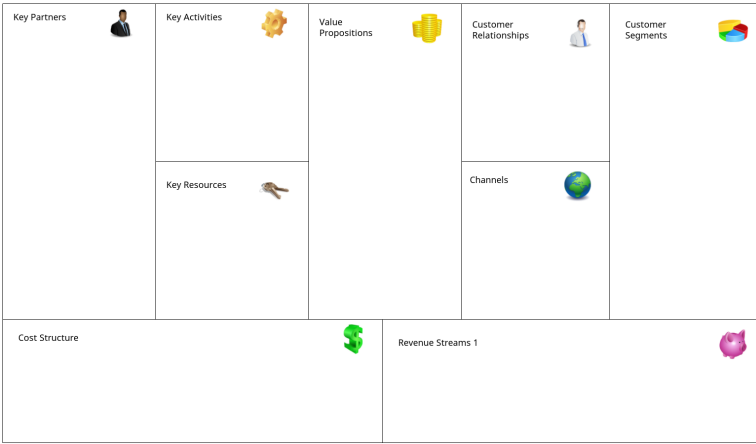


Figure 3.2: Business Model Canvas template. ©businessmodelgeneration.com

3.2.8 Key partnerships

This building block concerns the partnerships, suppliers and other third party entities needed to make the business model work. The partnerships can vary in nature, where competitors and non-competitors can forge alliances or creating joint ventures. Any non-in-house solutions have to be supplied by third parties be it manufacturing parts or personnel. Motivations for creating partnerships include optimizing the allocation of resources, reducing risk and to cut down on activities not vital in delivering a final product or service. As such, key partnerships can be linked with activities that aren't necessarily key to drive a business' value proposition.

3.2.9 Cost structure

Different cost structures include fixed costs, variable costs, economies of scope and economies of scale. Fixed costs are volume-independent, and is usually examples of employee salary, rental costs and other facilities. Variable costs are volume-sensitive, while economies of scale concerns the costs changing as a result of a change in the scale of operation. Economies of scope on the other hand benefits businesses that diversify the number of different products or services offered, and is volume-insensitive in this regard. Different cost-structures exist in cost-driven and value-driven models. The former focuses on minimizing the costs, and the latter model fits companies that less concerned with price and focuses more on value creation. Lastly, it is important to note the relationship between cost structures and key activities, as the key activities drive a business' cost structures.

Chapter 4

Chapter 4 - B2B

In this chapter, B2B solutions that have previously been under scrutiny will be discussed. Firstly, a case study done by Jepson, Lundin (2011) [JL09] will be reviewed

4.1 Teleopti by Jepson, Lundin (2011)

This master's thesis concerns the viability of freemium as a business model in expensive and advanced solutions in an enterprise market, and revolves around the Swedish software development company Teleopti.

4.1.1 About Teleopti

Teleopti is a world leading company in delivering software solutions for strategic workforce management (WFM) and telecom expense management (TEM). Their product offering is twofold, consisting of Teleopti CCC from WFM and Teleopti Pro for TEM. As far as sales channels are concerned, their products are purchasable directly from them as well as from partner resellers throughout the world. Their Workforce Management (WFM) product makes sure that appropriately skilled personnel is placed at the correct place at an correct time. Being a modular product, Teleopti CCC contains six core parts: forecasting, staffing, scheduling, operating, analyzing and reporting, with the forecasting module being the cornerstone of the entire solution since its job is trying to predict staffing needs at various times. These parts can be seen in Figure

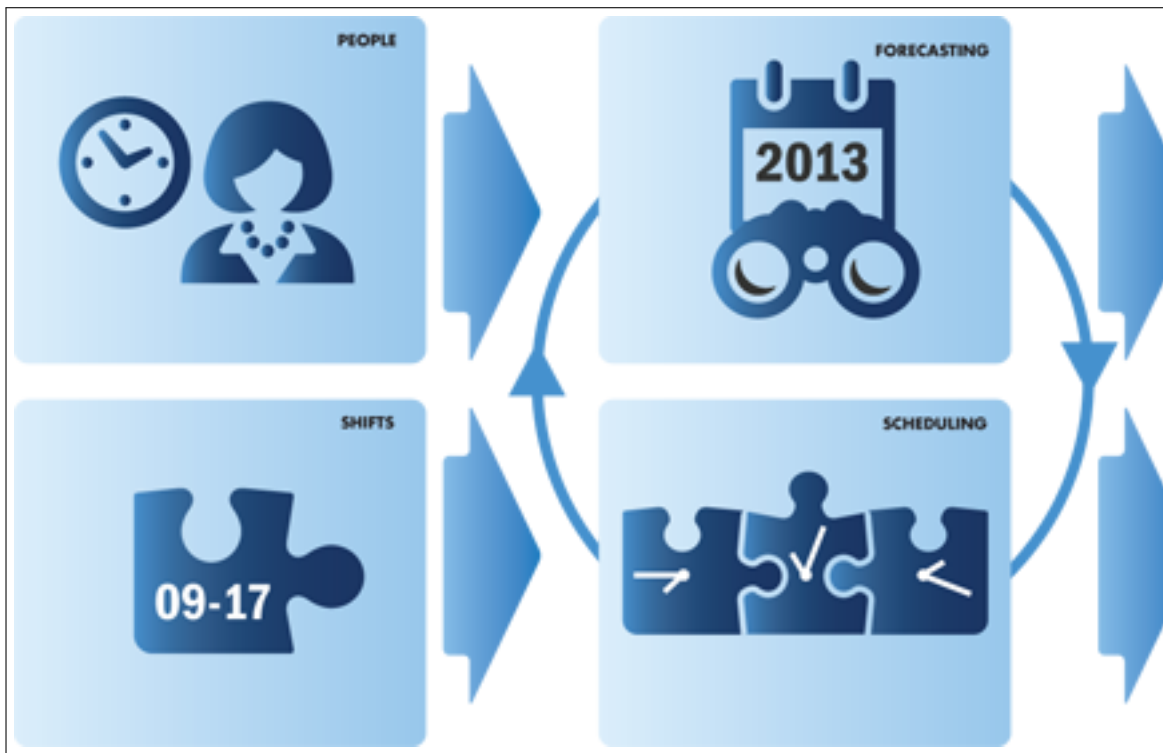


Figure 4.1: Teleopti CCC

Chapter 5 - Proposal of Business Model

5.1 Business model

5.1.1 Customer Segments

- Users of mazemap will want to be someone who resides over a certain area
- Freemium might be harder to implement, due to regulatory affairs.
- what needs to be in place customer side: low amount of financial means, preferably wifi for navigation (might be seen as detrimental, but also may hamper the service). Existing customer base.

5.1.2 Value Propositions

- Fleet management
- Reduce missed appointments
- For freemium: Cost saving by being initially free
- For freemium: Try before you buy, no big initial investment. buy after need
- Maintenance personell: Professions that see frequent changes of staff and working locations. Indoor maps enable these to find their way quicker, saving personell costs
- Directions for meeting place and nearest parking for visitors
- Alarms shows up on maps rather than a code for a specific location. Can save time in
- Equipment tracking, Internet of things
- For Freemium:

5.1.3 Channels

- Cisco marketplace
- Webpage
- Develop leads inside businesses
- For freemium: Hard to argue against initial high costs as with a non-freemium system

5.1.4 Customer Relationships

- For freemium: Guidance as a service
- As service matures, less active relationships, more automation
- Interactions between the Businesses of the B2B&C paradigm, sharing of experiences

5.1.5 Revenue Streams

- Concept of freemium: The additional services paid for by the few pays for the many customers.
- Additional paid services: Updating of maps, integration with timetabling, sms, existing IT systems, indoor pathing, indoor positioning, analytics, map editor.

5.1.6 Key Activities

- Indoor mapping roughly 80% of usage
- Integration of maps
- Rework and update map data
- Accomodating for indoor navigation and pathfinding, via Cisco and other partners
- Integration into booking systems
- Marketing, sales and customer support
- Key Account management - large customers with many needs
- After purchases: Revenue through added services as seen fit by the establishment

5.1.7 Key Resources

—

5.1.8 Key Partnerships

—

5.1.9 Cost Structure

—

Chapter

Chapter 6

6

References

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Appendix

Survey invitation letter

Regarding indoor maps survey in connection with master's thesis at NTNU

Dear Sir or Madam

I am writing a master's thesis at NTNU (Norwegian University of Science and Technology) with an aim to find out if your institution would be interested in a free indoor mapping service, helping your students, visitors etc. to find their way around your campus. I also want to find out if you'd be willing to pay for add-on services.

I wish to ask a leading figure and/or a building- and property manager to answer a short survey regarding indoor maps. Kindly forward this message to whom it may concern. The survey contains 9-11 questions depending on answers provided and would take 6-8 minutes, with replies being handled confidentially.

The survey is presented through Google forms, and can be found at:
<http://goo.gl/forms/a9AzwsrsX>

Should you prefer to answer the survey in a different manner i.e. via telephone or skype, arrangements can be made to accommodate this.

For more information or further inquiries, feel free to contact me at:

Email: tagesen@stud.ntnu.no
Telephone: +47 404 85 580

Thank you in advance.

Sincerely,

Kristian Tagesen




Figure A.1: Invitation letter. The black box is a redacted proof of NTNU enrollment by the author

Appendix B

International Research Survey Response Form

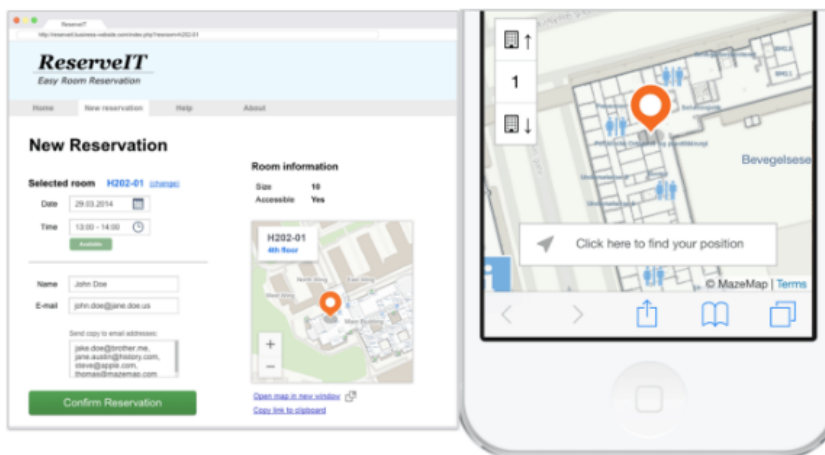
Market potential for free indoor mapping services - MSc Survey

This survey is a part of the master thesis "International potential for a free model in a B2B&C market" by Kristian Tagesen at the Norwegian University of Science and Technology (NTNU).

The questions mainly concern the viability of a free indoor mapping service, and which (if any) paid services that can potentially be beneficial to your institution.

All answers will be handled confidentially, and please don't hesitate to contact me about questions or comments regarding the survey (tagesen@stud.ntnu.no). Thank you for taking the time to contribute!

* Required



Please state your affiliation: *

If you want to hear more about the survey and results, you can also enter your e-mail address here.

Your answer

Are you currently using an indoor mapping service? *

☐ Yes

☐ No

Are you willing to consider using an indoor mapping service? *

☐ Yes

☐ No

If no, please state the reason as to why this is not desired: *

Your answer

Figure B.2: Screenshot of the international research survey response form, part 2

Interest

Given an indoor mapping service that will entail several benefits for your institution (see hint for examples), please rate the initial interest in such a service: *

For higher education institutions: Improve visitor experience by showing them where to go, how to get there and even where to park. Improve employee efficiency by showing new personnel i.e. cleaning personnel around campus without the need for a dedicated guide. Improve the experience for students by alleviating stress and uncertainty by showing students and staff alike to the correct location in time for class. Additionally, an indoor mapping enables service personnel to readily locate the place of interest as opposed to decoding a textual description.

Not interested at all

1

2

3

4

5

Highly interested

How much of a concern would price be in procuring an indoor mapping service? *

Low concern

1

2

3

4

5

High concern

Figure B.3: Screenshot of the international research survey response form, part 3

Paid services

In this section, please rank the following services in terms of willingness to pay, where 1 indicates a low willingness to pay for the indicated service, and 5 indicates a high willingness to pay.

Navigation and indoor pathfinding *

While not a necessary component of an indoor mapping service, navigation and indoor path finding can help users find their desired location. A plethora of technologies exist for this purpose using existing Wi-Fi infrastructure, Bluetooth, beacons, smartphone sensors, magnetic positioning etc.

	1	2	3	4	5	
Low willingness to pay for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High willingness to pay for this service

Timetable integration *

"Where", "how" and "when" are commonly asked questions when an appointment is due or a meeting is taking place. Timetable integration aims to answer the two former questions by providing an indoor map and which path to take to get there.

	1	2	3	4	5	
Low willingness to pay for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High willingness to pay for this service

Integration with SMS, apps, IT-infrastructure etc. *

An API that integrates indoor maps with the existing services mentioned above, aims to enable seamlessly integrating indoor maps into already existing systems and services without the need to manually do so for every service.

	1	2	3	4	5	
Low willingness to pay for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High willingness to pay for this service

Automatic updating of maps *

Larger establishments tend to change over time, and often see around 10% of buildings change annually. Manually updating indoor maps can therefore be a tedious and time-consuming activity.

	1	2	3	4	5	
Low willingness to pay for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High willingness to pay for this service

Which factors would be of concern when procuring an indoor mapping service? *

☐ Price

☐ Demand

☐ Security Concerns

☐ Other: _____

Finally, anything you would like to add?

Your answer _____

SUBMIT

16% complete

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Google Forms

Figure B.5: Screenshot of the international research survey response form, part 5