FastlegeVakten

a case study on FastlegeVakten and the Norwegian general practitioner scheme

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Oslo
October 2013

Contents

CHAPTER 1

Introduction

This chapter will convey the pattern of organization and is a continuation of the work done by Rune Sætre which resulted in the web application FastlegeVakten[1]*. Everything presented in this chapter is a continuation of the work done by Rune Sætre unless stated otherwise. An in-depth study of FastlegeVakten and the work done by Rune Sætre is presented in chapter 2.*

1.1 Background and motivation

The General Practitioners (GP) scheme in Norway was introduced back in 2001 and gave the various municipals in the country the responsibility to provide necessary health care of it's citizens. Summarized, the scheme gave the citizens the right to choose, and be assigned, a GP. The scheme also set a limit of transfers to two each year, with some exceptions given some special circumstances. Even with such small transfer limit, there are roughly 560.000 patient transfers in Norway which gives a grand total of 11,3% of the Norwegian population[1]. As much as 70% of the users transfered with the online self-service, whereas the rest did so by the phone. Surprisingly, the visitor statistics at The Norwegian Health Economics Administration (HELFO) shows a total of 534.000 users in August 2013 alone[2]. Such pressure gives room for speculation as to *why*, given the fact that there is a limit of only two transfers a year and the average time spent on the self-service is only *4.49 minutes*.

FastlegeVakten is a web application that lets users subscribe to alerts when GP's in an area is available. For a monthly fee, users are alerted by Short Messaging Service (SMS) or Electronic mail (email) so they don't have to monitor the self-service to check if GP's are available.

[1] FastlegeVakten is available at http://fastlege.endors.no/)

Today's self-service do not provide users the ability to be added to waiting lists, so these private solutions try to emulate such a feature. However, the user has to manually register the transfer as there are strong security policies in place by HELFO and thus there are no guarantees as to if the transfer will be successful. Still such online services have been given a lot of attention in the media giving indications that there might be a need and a market available.

1.2 Goals and research questions

- R1: FastlegeVakten was initially not developed with commercialization in mind. What can a marketing strategy and competitive analysis reveal in such an environment?
- R2: Can a prioritized task list be defined with a system like FastlegeVakten based on the marketing strategy and competitive analysis? If so, what will the high prioritized tasks be?
- (R1 implies: A review of the business processes).
- (R1 implies: identify key potential customers).
- (R1 implies: Marked dominance analysis, customer preference analysis ++).
- (R1 implies: Spesific conclusion of the analysis).

1.3 Research and data-acquiring method

Quantitative Research (should it be mixed?). Primary data source is acquired by using questionnaires. Secondary data sources are collected by use of public statistics and research. A comprehensive list of bibliography is given at the end of the report, and every source is marked in the report when used the first time.

Styrke og svakhet ved datautvalget og metoden

1.4 Structure of the thesis

Chapter 2 sets the context of this thesis. The chapter will present an in-depth study of the latest release of FastlegeVakten. The study will serve as a point of comparison and measurements for both the research questions and suggestions for improvements.

TODO: write this as you add chapters / have progress with the report.

Preliminary investigation analysis logical design physical design implementation maintenance

CHAPTER 2

The current state of the system

This chapter aims to give the reader comprehensive information about the existing system and it's current state. The chapter will start by presenting a business view along the boundaries of FastlegeVakten as a system, before a technical analysis is presented. These two views will serve as the foundation for the next chapter of the report; recommendations and improvements

2.1 Stakeholder analysis

Who really matters? and why is this important? well, before Visitors Customers HELFO

2.2 Logical model and the business processes

FastlegeVakten can be viewed as an application that aims to add features that currently isn't provided by HELFO and thereby providing customers with a unique feature that they hopefully are willing to pay for [1]. Marakas states that ``systems are composed of decomposable set of subsystems, each of which in turn can be decomposed'' and the first diagram in such a set is known as a *Context-Level diagram*[3]. Figure 2.1 shows FastlegeVakten as a single process and focuses on the system boundaries with regard to its relationship to any entities that may interact with it[3].

Do note the external process *bank*. This process will only be shown in this initial diagram to show its presence since the process is external and unchanged throughout the subsystems in

[1] though the system wasn't initially developed with commercialization in mind

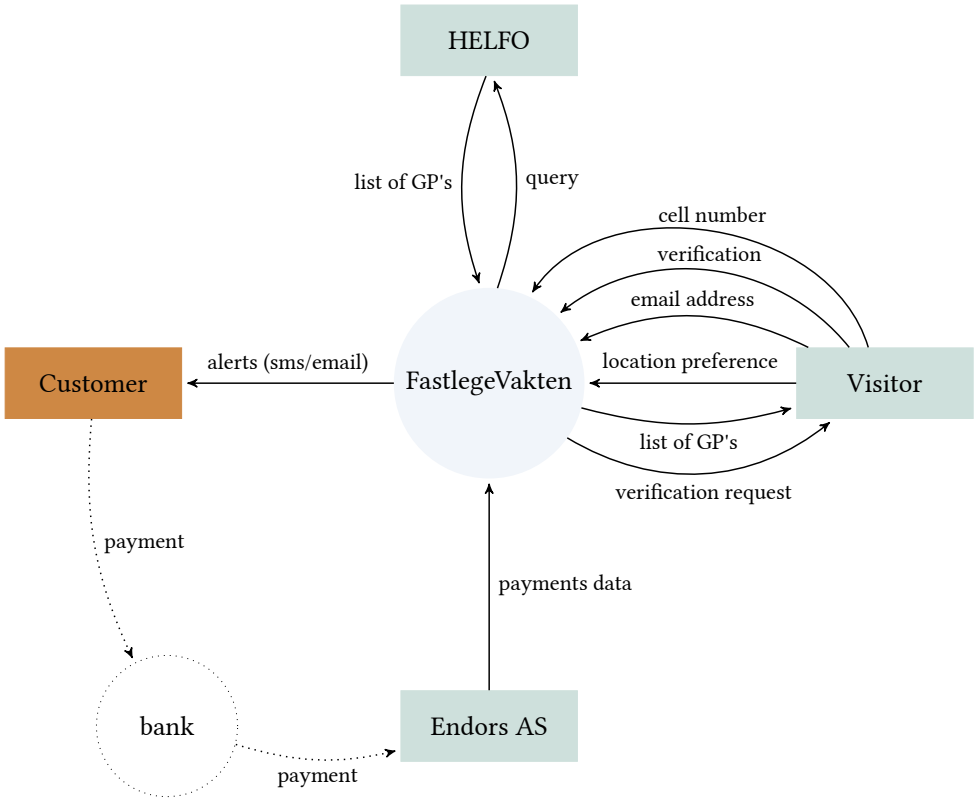


Figure 2.1: Context Diagram: FastlegeVakten

FastlegeVakten. This external process will be a topic of question in chapter XYZ, as this chapter focuses on the current system and not improvements or alternative solutions.

Each external entity is categorized as either a *sink* or *source* by the colors brown and light green respectively. Simply put, a source is an entity that serves as an origin of the data flow and a sink is an entity that serves as the destination of the data flow. An external entity can however be both, in that case the entity will be presented as a source and the description will highlight this. Further on, figure 2.2 shows an *exploded* view of the main system process. Note that all inbound and outbound flows to the system are identical since the system and system boundaries are unchanged. The only difference is the level of detail.

Each process can be categorized into *automated-, semi-automated-, and manual processes*[3].

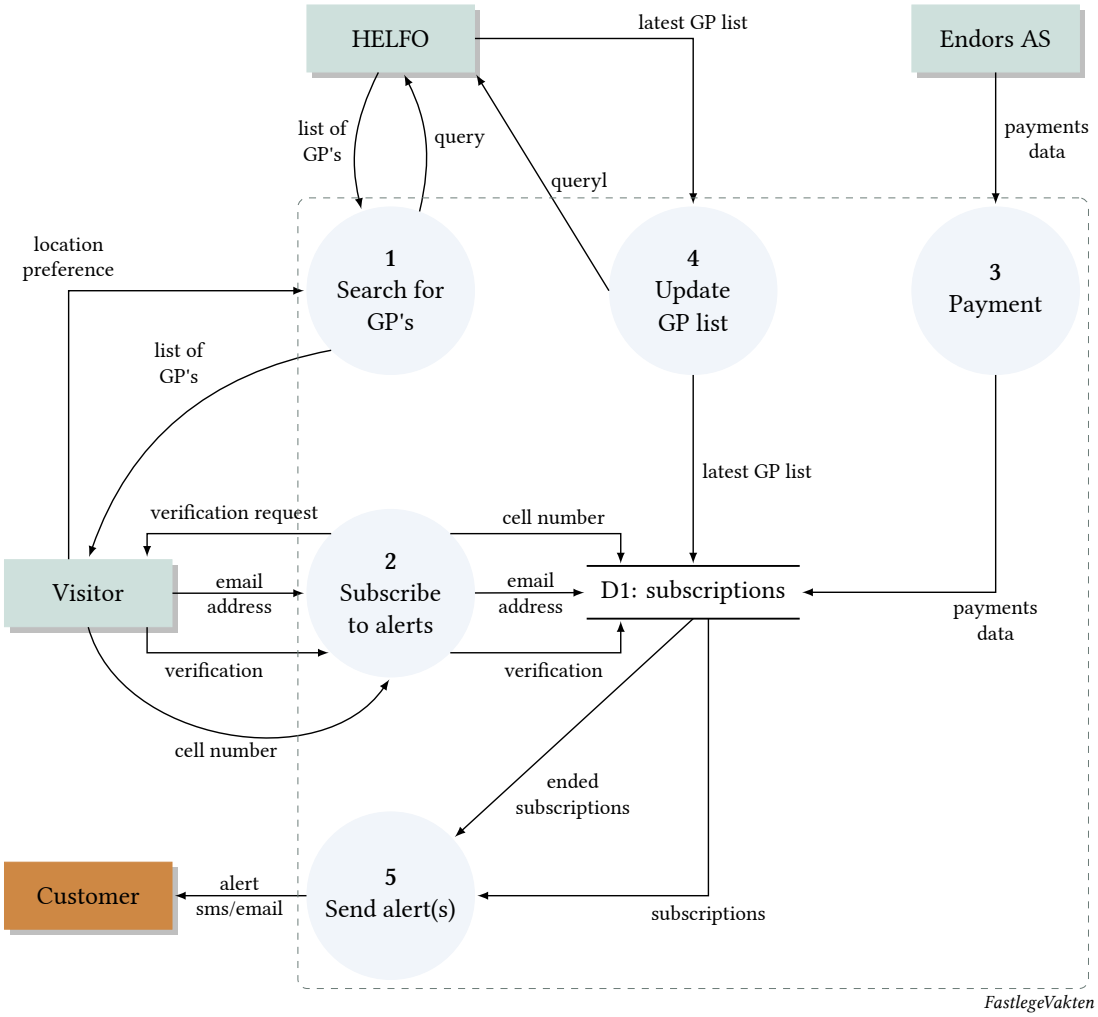


Figure 2.2: DFD-0 Diagram

2.2.1 Description of automated processes

(4) Update GP list

This *internal process* regularly fetches the most updated lists from HELFO. A *cronjob* executes a Perl script, which initiates the proper helper classes in Java to calculate both the state of the new list, but also to determine if any alerts should be executed. The mapping is done by area, or a medical practice, rather than a single doctor due to the business model of FastlegeVakten. The data integrity from HELFO can vary due to abbreviations in the Norwegian language and thus the process has to calculate what practice a doctor belongs to, and in doubt, assumptions are made. This is often needed for street names.

(5) Alerter

Alerter shares lot of characteristics with the process *update GP list* and could in fact be represented as one merged process. However, as the goal is to get more level of detail, this is separated to illustrate the different logical view rather than how it is implementation. Alerter picks up where the *update GP list* finishes by mapping medical practices to subscriptions, if a alert is triggered by process four. The alerter can be invoked by other processes to allow outbound messaging. E.g. subscriptions that are due to end or if there is a payment missing, subscribers are reported by this process.

2.2.2 Semi-automated processes

(1) Search for GP's

This *semi-automated* process executes immediately when a visitor arrives at FastlegeVakten. Initially this process automatically fetches all the GP's from HELFO and displays them. However the visitor is granted the opportunity to filter the GP's based upon their preferences such as locality, after the initial fetch. These preferences are then forwarded to HELFO which returns a set based on the given parameters. The visitor may repeat this process as many times as he/she wants. The continuation to next process is based on the visitor. This renders the process to be semi-automated.

(2) Subscribe to alerts

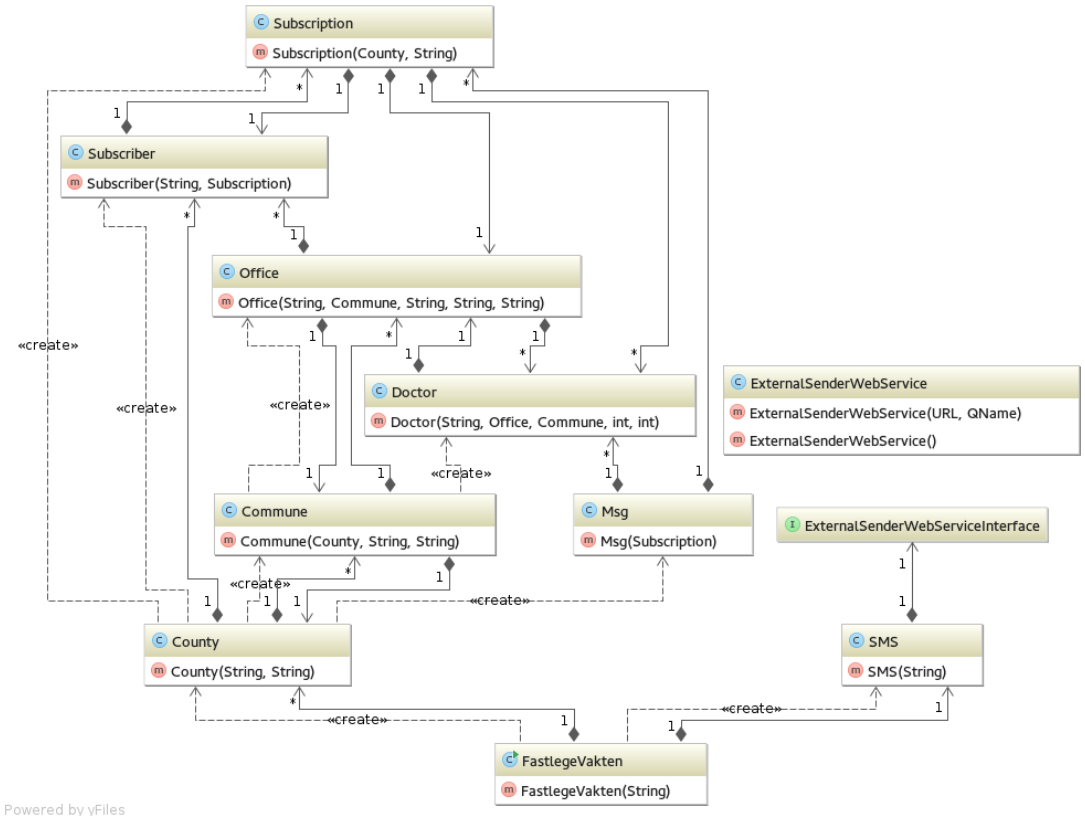
This *semi-automated* process is executed when a visitor initiates a request for a subscription by entering his or hers email. This will execute a email verification request by sending out an email to the provided address with an verification URI and register the visitor in a internal database (see XYZ for details). When the email address is verified, the process will change the state of the visitor in the database.

2.2.3 Manual processes

(3) Subscription management

This is a *manual* process where the an administrator checks the Endors account to see if there are any new inbound payments. This process also manages the state of the customers. E.g. if their subscription has run out and a payment must be done for a renewal. Note that every visitor that has paid will become a *customer*.

2.3 Implementation



2.4 Use case

Use case of each identified features (todo: draw them digitally)

2.5 Sequence

Sequence of those identified features (todo: draw them digitally)

2.6 Technologies

php, perl, java, shell script, svn short introduction of each of these when they are naturally presented first time

CHAPTER 3

Marketing strategy and competitive analysis

This chapter will present the methodology for acquiring data and evaluating data, state-of-art, ``industry analysis and competetive analysis'', S.W.O.T analysis, Critical Success Factors, Customer analysis, Economical calculations and goals, Marketing mix and implementation

Previous chapter might be merged into this chapter. Last chapter will be ``updated'' with models as soon as the Apple event tonight is done (aka I have estimate on delivery of new Mac and can determine if I should put in placeholders or just wait for the machine). Can Porter be extended to a model for an IT special case?

3.1 Industry analysis and competitive position

To understand the industry and the competitive position FastlegeVakten is in, Porters five forces analysis will be used as a basis. Porters five forces analysis is a tool developed by Michael E. Porter in 1979 at Harvard (kilde) and acts as a simple framework for assessing and evaluating strength and weaknesses, and to propose a long term strategy. When understanding these factors one can make a reasonable decision and advantage of a situation of strength, improve the situation of weakness and avoid taking wrong steps.

Figure 3.1: Porters Five Forces

3.1.1 Supplier power

The primary supplier is HELFO as they are the origin of data that FastlegeVakten uses to be able to provide its features. The system acquires data on a regular basis, updating its internal database(s) and determining if any customers need to be notified that some GP is available. These data provided by HELFO, is provided as a service to the Norwegian population and thus does not involve any cost other than fetching the actual data. In other words every competitor in the market has *free access* to the *same data*. Further on, FastlegeVakten does provide a *product differentiation* by providing alerts based on demographical and locational preferences rather than a single GP. However, there is no available information as to *why* this decision on product differentiation was made, and how it translates to the potential customers.

There is a big threat in the fact that HELFO can easily change how the data is provided and thus increasing the development costs for competitors like FastlegeVakten. This will however apply to *all* competitors and thus minimizing the individual impact on FastlegeVakten. There is also no other supplier available besides HELFO, which introduces another weakness. If HELFO were to take down or even worse, provide this feature themselves, FastlegeVakten would be forced to generate its own data or find someone else that can provide them. This potential risk leaves FastlegeVakten vulnerable.

Even though the risk is present, one can argue how likely this is to happen since HELFO is a public service that is forced by law to provide transparency when releasing projects for

tendering and can thus give good predictions as to when changes will occur.

Data integrity

Customer data

Endors (payment data)

3.1.2 Customers and buyer power

The *direct* customers of FastlegeVakten is in general every citizen in Norway that has the right to a GP.

3.1.3 Threat of substitution

FastlegeVaktencan be substituted by the service provided by HELFO, as strictly speaking, the actual changing process is provided by HELFO. The actual notification system can be substituted by *manually checking* the service on line or by phone. Besides these, there are no substitutes and thus giving indicating a strong position.

3.1.4 Competitive rivalry

Where close substitute products exist in a market, it increases the likelihood of customers switching to alternatives in response to price increases. This reduces both the power of suppliers and the attractiveness of the market.

FIGURE OF STRENGTH vs WEAKNESS

3.2 S.W.O.T Analysis

3.2.1 Strength

3.2.2 Weaknesses

3.2.3 Opportunities

3.2.4 Threats

3.2.5 Probability matrix

3.3 Critical success factors

What must be addressed immediately? What can be handled now? What needs researching further? What needs to be planned for the future?

Bibliography

[1] (2009). Helfo, Om helfo, [Online]. Available: http://www.helfo.no/omhelfo/Sider/about-helfo.aspx (visited on 04/10/2013).

[2] HELFO. (). Rapport for helfo august 2013, [Online]. Available: %5Cemph%7Bhttp://www.helfo.no/SiteCollectionDocuments/Vedlegg%20Om%20HELFO/Trafikkstatistikk%20helfo.no/Trafikkstatistikk%20helfo.no%20aug%202013.pdf%7D (visited on 07/10/2013).

[3] G. M. Marakas, *System analysis and Design, an active approach*, 2nd ed. McGraw-Hill/Irwn, 2006, ISBN: 0-07-111619-2.

List of Terms

Context-Level diagram

refers to the first diagram in a DFD set which displays the *least* amount of detail. The diagram is intended to system boundaries with regard to its relationship to any entities that may interact with it[3]. i, 5

Electronic Mail (email)

Electronic mail is a method of exchanging digital messages from an author to one or more recipients. Modern email operates across the Internet or other computer networks. i, 1

Emulate

noun imitation, following, copying, mirroring, reproduction, mimicry. i, 2

FastlegeVakten

FastlegeVakten is a web application created by Rune Sætre that allows customers to be alerted when general practitioners in a defined area is available. i, 1, 2, 5, 6, 8, 12, 13

General Practitioner (GP)

A general practitioner (GP) is a medical practitioner who treats acute and chronic illnesses and provides preventive care and health education to patients. Their duties are not confined to specific organs of the body, and they have particular skills in treating people with multiple health issues. They are trained to treat patients of any age and sex to levels of complexity that are defined by each country. i, 1, 8, 12, 13

Short Message Service (SMS)

Short Message Service (SMS) is a text messaging service component of phone, web, or mobile communication systems. It uses standardized communications protocols to allow fixed line or mobile phone devices to exchange short text messages. i, 1

The Norwegian Health Economics Administration (HELFO)

The Norwegian Health Economics Administration (HELFO) is a sub-ordinate institution directly linked to the Norwegian Directorate of Health. They are responsible for direct payments to various health service providers, individual reimbursment for certain medicines, dental services and health services abroad. In addition, HELFO is in charge of The regular GP scheme, which entitles one to have a regular GP, and issuance of The European Health Insurance Card. i, 1, 2, 5, 7, 8, 12, 13

The Norwegian Labour and Welfare Service (NAV)

The Norwegian Labour and Welfare Service administer a large proportion of the most important welfare benefits and social security schemes in Norwegian society. For example, these may be unemployment benefits, sickness benefit, work assessment allowance, disability pension, and retirement pension on reaching pensionable age. i