

FRÓÐSKAPARSETUR FØROYA

HAGSTOVAN

BACHELOR PROJECT FORMULATION

CREATE A NEW MODERN AND RESPONSIVE USER
INTERFACE FOR THE FAROESE STATBANK

SKAPA EITT NÝTT NÚTÍÐAR NÝSLUMARKAMÓT FYRI HAGTALSGRUNNIN

Author

Helgi POULSEN

Supervisor

Kári HOLM
JOHANNESSEN

August 9, 2019

Introduction

National statistical offices disseminate official statistics in statbanks where it is available to citizens and institutions via web interfaces.

All the statistical offices in the Nordic region and in several other countries around the world use an installation of the statbank application, PX WEB, to disseminate official statistics.

PX Web is lead by Statistics Sweden and developed in cooperation with other national statistical offices, among them Statistics Norway and Statistics Finland.

User research performed in the Faroe Islands shows that many of the mediocre and novice users have a difficult time using the PX Web interface. Similar findings have been found by other statistical offices, which are using the PX Web statbank application. This is therefore a cross-national problem since users in several countries using PX Web are facing the same usability issues.

One of the main challenges for the users across different sectors is to find the right data in the statbank. The user interaction tends to involve many clicks to get data and when the data finally is returned from the application it often is not what user is expecting. This often results in users giving up in finding the right data.

The user journey in the statbank starts by navigating the folder structure and then finding the right table [1a](#). When the user has found a relevant table the user has to choose multiple categories from several statistical variables [1b](#) and then click the submit button to display the data [1c](#). If the data is not what the user is expecting the user has to go over this procedure once again.

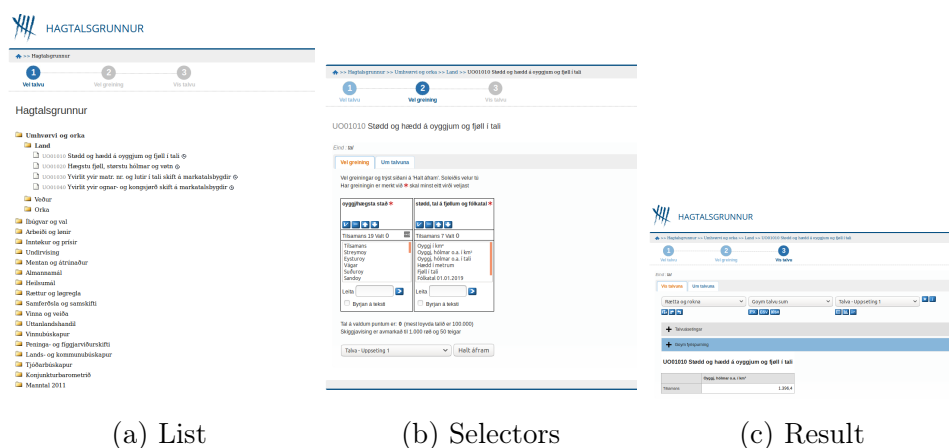


Figure 1: User Interface (Faroeese Statbank)

In ISO 9241¹ usability is defined as the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments. In this case this means users finding the right data in the statbank.

Effectiveness is the accuracy and completeness with which the users can achieve specified data in PX Web. Efficiency is the resources expended such as time or number of clicks in relation to the accuracy and completeness of getting the right data. Satisfaction is the comfort and acceptability of the work system to its users and other people affected by its use.

From a usability perspective it seems that there is a lack of effectiveness and efficiency in the PX Web application. This requires a new approach to get and display the data from the statbank application.

In this thesis I am aiming to improve the effectiveness and efficiency of the application by developing a prototype of a new web interface that exploits and utilizes the API in the PX Web statbank. I aim to establish a direct communication between interface and the API in order to get data, manipulate data and displaying data instantly.

In this approach the user will instantly be shown data when the user has chosen a category from a statistical variable. This differs significantly from current approach where the user has to choose multiple categories in several statistical variables and then click the submit button to get the data.

This new approach reduces the number of clicks and the time used to get data significantly. It will hopefully make user interface more intuitive and easier to use.

If the project is successful the prototype will be presented in the annual PX Web Conference in November where all statistical offices, using the PX Web application, meet to discuss how to improve the application. This means that all statistical offices using PX Web can benefit from this project and implement the interface in their local installation.

¹ISO 9241

1 Technology

One of the main goals is to establish a communication link between the back-end REST API served by statbank application and the new front-end prototype user interface.

This means that the technology used in this project has to be a solid front-end technology that communicates well with REST API's. Other than that the technology chosen has to be accessible for a variety of users since the statbank is intended to the public.

Code maintainment is an important factor in picking the right technology since this prototype is intended to all statistical offices.

Many technologies have been considered relevant to the project's web interface prototype.

In the end, Javascript² has with related advanced Javascript frameworks has been chosen as the main programming language. JavaScript is one of the worlds most used front-end programming language³ supported and implemented in all modern browsers with the support of new versions of the language. Addition to this, the React⁴ library will be used for building the user interface. *React* main maintainer is Facebook.

JavaScript

JavaScript is one of the worlds most used front-end programming language supported and implemented in all modern browsers with the support of new versions of the language which is relevant since the user interface has to be accessible to a variety of users.

One of the advantages of using JavaScript in this project is that JavaScript is not compiled and therefore can be run immediately within the client-side browser. Not only is it an advantage for the users but makes it easy for other statistical offices to implement and try out the prototype user interface.

The data from the PX WEB API is served in JSON⁵. JavaScript is highly compatible with JSON since the syntax of JavaScript Object Notation is based on JavaScript object syntax. It consists of a metadata part and a data part. Metadata is structured in a hierarchical node tree, where each node contains information about subnodes that are below it in the tree or, if the nodes are at the bottom of the tree structure, the data referenced by the node as well as what dimensions are available for the data at that subnode.

²[JavaScript](#)

³[Top 10 programming languages used in web development](#)

⁴[Reactjs](#)

⁵[JSON](#)

Other programming languages were considered, among them TypeScript⁶ and ASP.NET⁷.

TypeScript

TypeScript is a strongly typed, object oriented, compiled language. TypeScript is both a language and a set of tools. TypeScript is a typed superset of JavaScript compiled to JavaScript. In other words, TypeScript is JavaScript plus some additional features. This means that TypeScript has a steeper than JavaScript with new syntax of typescript and strict typing.

ASP.NET

ASP.net is a framework for running web applications on the server. Applications that run on the server are used for processing data that you don't want to user to have access to. This project is a client-side project.

⁶TypeScript

⁷ASP.NET