Integration of PxWeb and SmartDasher

Estimates of tasks, costs, and time

Definitions and goals

SmartDasher

SmartDasher is a JavaScript package which enables the presentation of dynamic dashboards in the browser. The system was originally developed for Economy Doctor, and its main feature is its ability to automatically handle complex data-structures (Showcase of SmartDasher, Appendix 6 - 8).

PxWeb

PxWeb is a web application developed for disseminating statistical tables and graphs. The system has an open-source version, and is free for governmental agencies (Showcase of PxWeb, Appendix 1 - 5).

Goals

Although PxWeb provides a robust solution for the display of statistical tables (Appendix 3) , its graphic capabilities are limited. Users can only select up to a certain number classifying factors (e.g., year, region, etc...) otherwise the graphs cannot be generated (Appendix 5). If the selection of classifying factors is small enough, graphs are displayed as static images (Appendix 4).

SmartDasher comes as a solution to these problems, allowing users to select complex combinations of classifying factors (Appendix 6), and display them as interactive graphs and maps (Appendix 6 - 7). This project outlines the necessary steps to integrate SmartDasher with PxWeb.

Options of implementation

There are two main routes to take if we want to integrate PxWeb and SmartDasher: **The first** consists of building a semi-standalone application, which uses only PxWeb's API and exposes the data to SmartDasher. **The second** consists on translating SmartDasher into the C# programming language, and making it a native part of PxWeb. Ideally, the plugin system would be merged with the source code of PxWeb, therefore becoming available to all of its users, and maintained by all of its developers.

Image 1 - First option

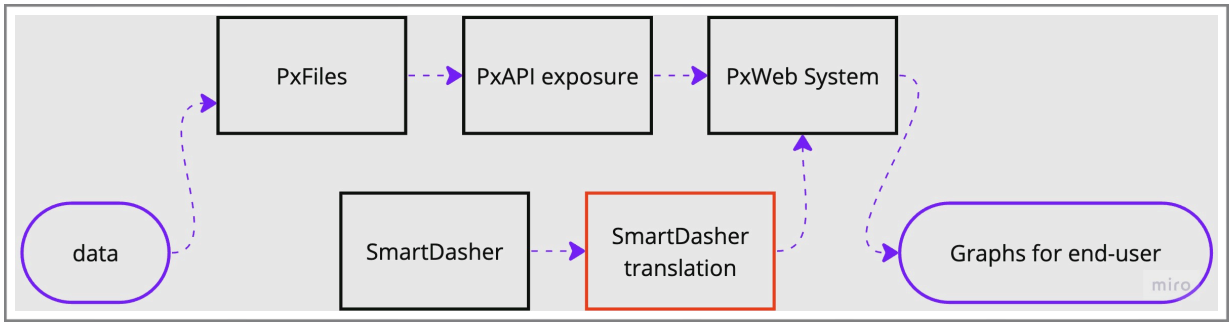
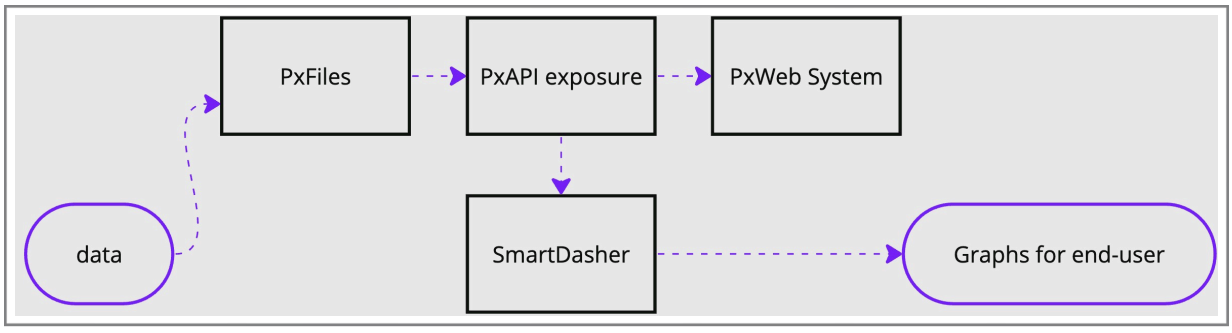


Image 2 - Second option



Time-frames

Time-frames for first and second options are displayed below. In both tables, each column corresponds to 2 months of full-time work for 1 employee.

Table 1 - First option

	1	3	5	7	9	11	13	15	17	19	21	23
Deep familiarization with PxWeb's source code	■	■	■									
Translation of SmartDasher				■	■	■	■					
Merge request with PxWeb's source code							■	■				
Manual and automated testing					■	■	■	■	■	■	■	■
Extension and further development of SmartDasher's functionalities (optional)									■	■	■	■
Documentation				■	■	■	■	■	■	■	■	■

Table 2 - Second option

	1	3	5	7	9	11
Familiarization with PxWeb's API functionality	■					
Full integration of PxWeb's API with SmartDasher		■	■			
Extension and further development of SmartDasher's functionalities (optional)		■	■	■	■	■
Manual and automated testing					■	■
Documentation		■	■	■	■	■

Costs

Costs are mainly composed of employee salaries. Should we face unforeseen technical barriers on PxWeb, there could be consultation costs paid to PxWeb developers. Specific wages and conditions are not specified.

Considerations

First Option

Pros

- More robust system, as it will be integrated with PxWeb's triad and true software;
- By integrating with PxWeb, the system will be distributed and maintained as part of the original source code. This increases visibility, and frees Luke from the obligation of maintaining the software's functionalities alone.

Cons

- Considerably more time consuming than the second option;
- More prone to unforeseen technical barriers;
- Necessity of establishing a relationship with the developing team of PxWeb.

Second Option

Pros

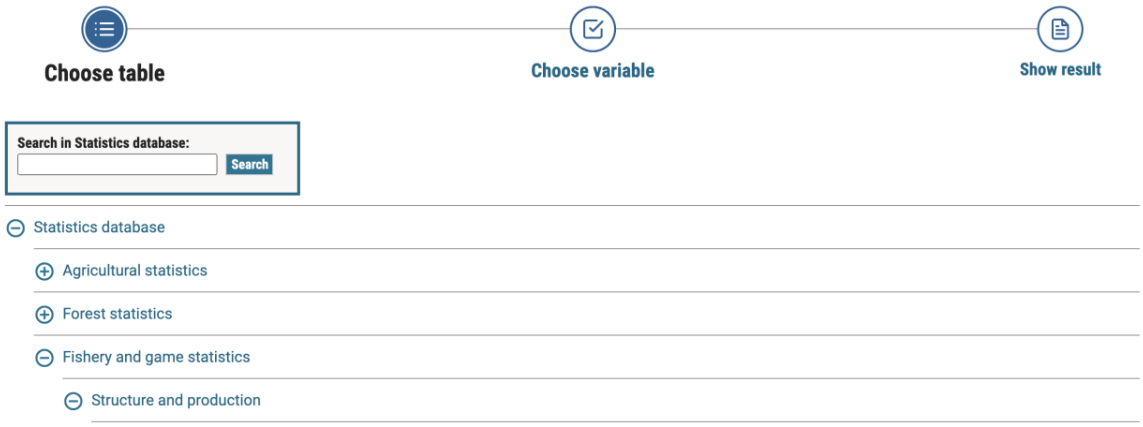
- Straight forward implementation, lowering risk of unforeseen technical barriers;
- More time left to develop SmartDasher's functionalities (e.g., Map visualizations and different graphing models);
- Faster public release

Cons

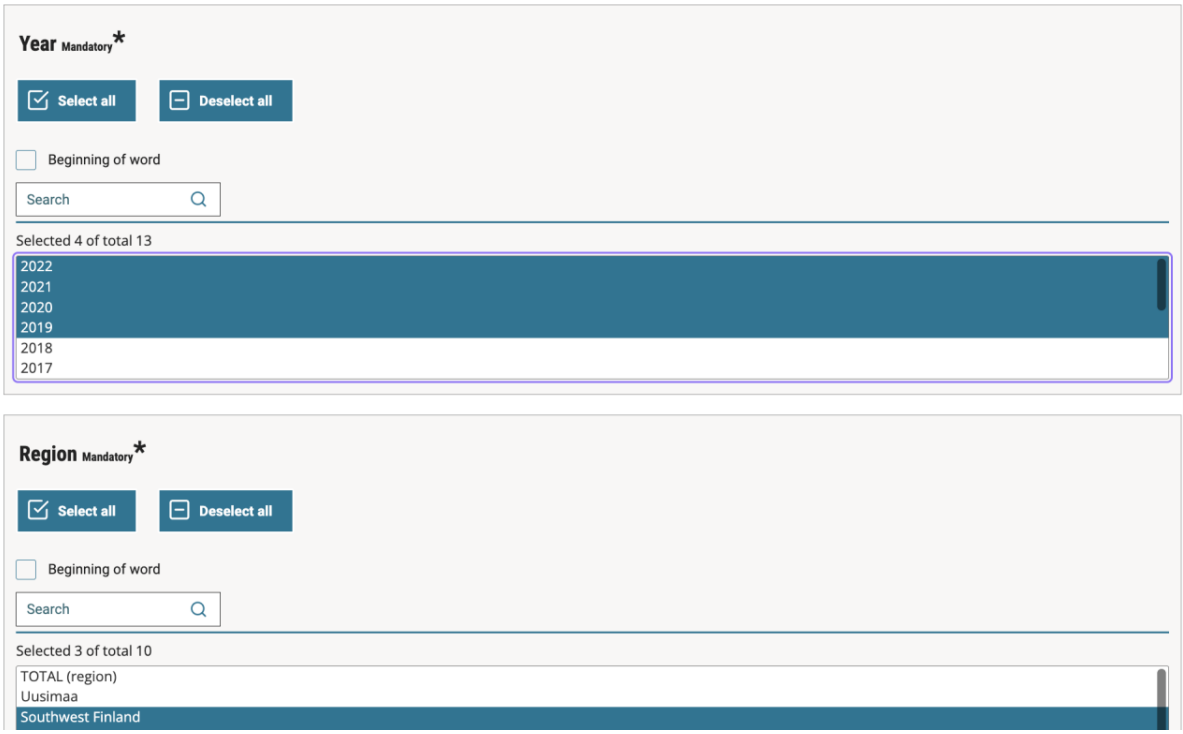
- Subject to changes in PxWeb and browser-specifications, leading to a possibly higher maintenance need;
- System to be released as a parallel website to Luke's current PxWeb implementation. Users would be redirected to another page where SmartDasher is hosted. A similar approach is currently employed for Economy Doctor, which is a parallel website to Luke's main page.

Appendix

Appendix 1 - Selection of report (PxWeb)



Appendix 2 - Selection of variables (PxWeb)



Appendix 3 - Display of results (PxWeb)

Table: Catch and value in Finnish commercial marine fishery by groups of fishermen and by region (1000 kg, 1000 e)

Result

About table | Show result as... | Edit and Calculate | Save result as... | Save your query | Hide empty rows

Pivot manual | Pivot clockwise | Pivot counterclockwise | Excel (xlsx) | Fullscreen

			Group 1		Group 2	
			Catch (1000 kg)	Value of catch (1000 €)	Catch (1000 kg)	Value of catch (1000 €)
2017	Uusimaa	Trap nets	87	214	9	31
		Gillnets	88	239	25	98
		Trawls	12,880	2,392	1,350	253
		Other	1	6	3	3
	Southwest Finland	Trap nets	4,837	1,388	264	74
		Gillnets	239	783	35	117
		Trawls	45,486	8,591	2,211	419
		Other	5	11	2	4

Appendix 4 - Display of graphs (PxWeb)

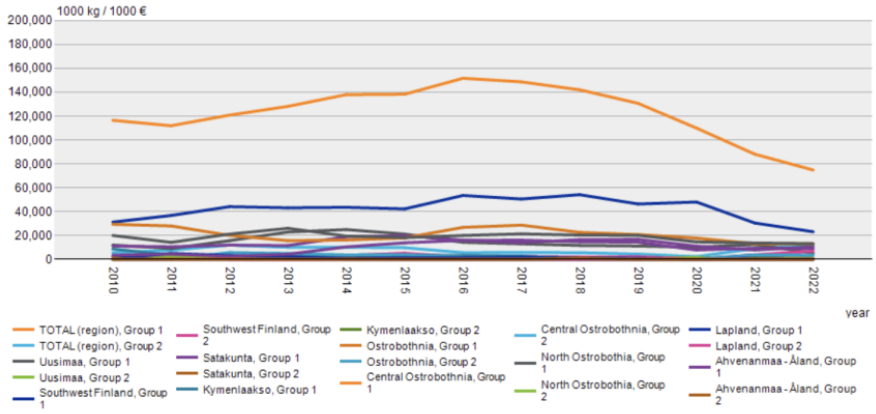
Table: Catch and value in Finnish commercial marine fishery by groups of fishermen and by region (1000 kg, 1000 e)

Result

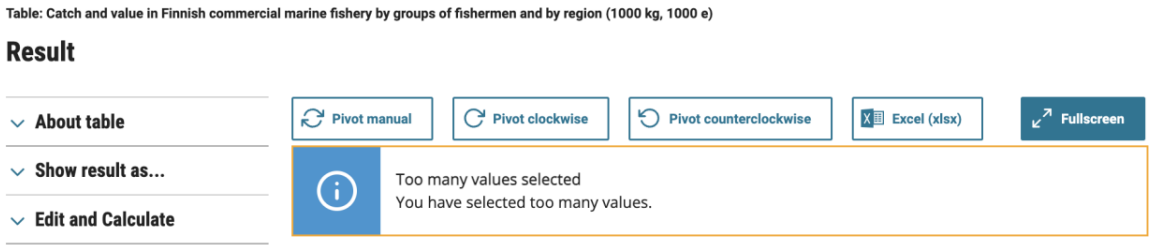
About table | Show result as... | Edit and Calculate | Save result as... | Save your query | Chart settings

Pivot manual | Pivot clockwise | Pivot counterclockwise | Excel (xlsx) | Fullscreen

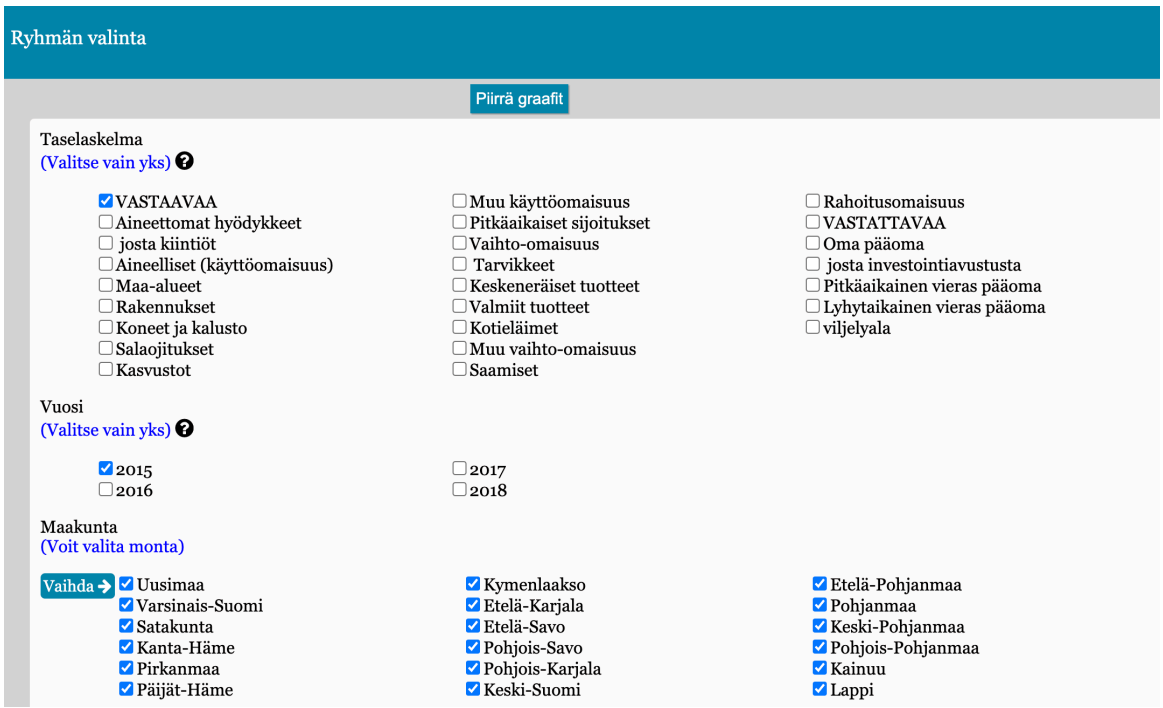
Catch and value in Finnish commercial marine fishery by region, fisherman group and year.
TOTAL (form of fishing), Catch (1000 kg).



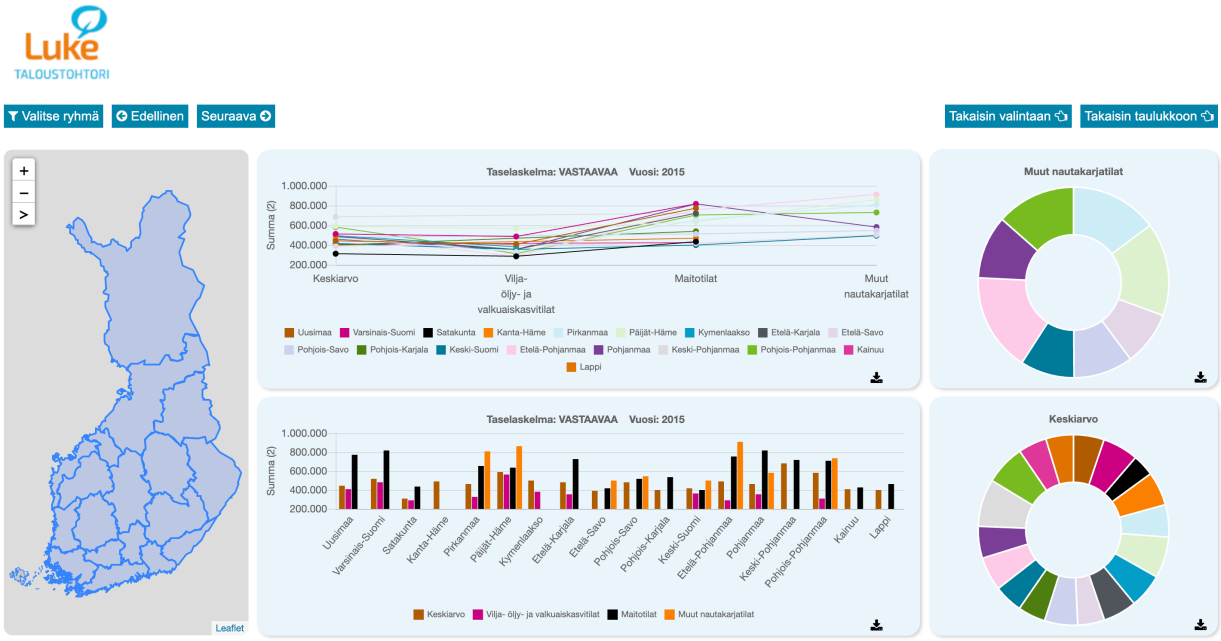
Appendix 5 - Display of graph limitations (PxWeb)



Appendix 6 - Selection of classifying factors (SmartDasher)



Appendix 7 - Display of results (SmartDasher)



Appendix 8 - Map visualizations (SmartDasher)