



TraveLens

An application that visualizes and explores the World Economic Forum's
annual report on Travel and Tourism Competitiveness 2013

Our Team



NICK ANDERSON



Researcher

LINGSHUANG CHEN



User Interface Designer

JINA SUH

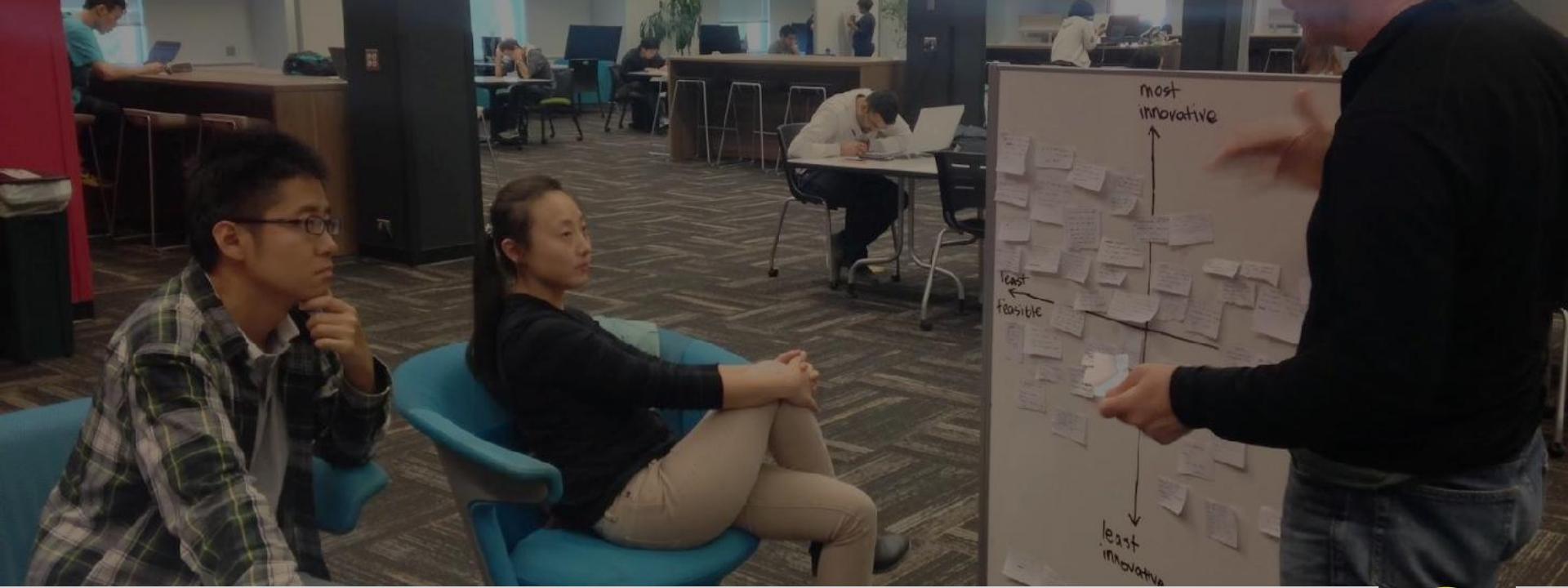


Developer

RUIYI ZHOU



Interaction Designer



Agenda



Agenda



- **Project overview**
- **Design process**
 - Project Re-direction
 - Usability testing
- **Demo**
- **Design Decisions**
 - Choropleth
 - Parallel Coord
 - Contextualization
 - Interaction
 - Color
- **Evaluation (usability, viz principles, data)**
- **Next Steps**

Overview



Design goals

Support inquiry into factors underlying
global tourist travel.

Overview



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Support inquiry into factors underlying global tourist travel.

Users

- Individual travelers
- Global travel researchers
- Investors

Overview



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Data set

- WEF Travel and Tourism Competitiveness, 2013.
- World Bank international tourist arrivals data, 1995-2012.
- WikiTravel Data

Total: 14,840 data points

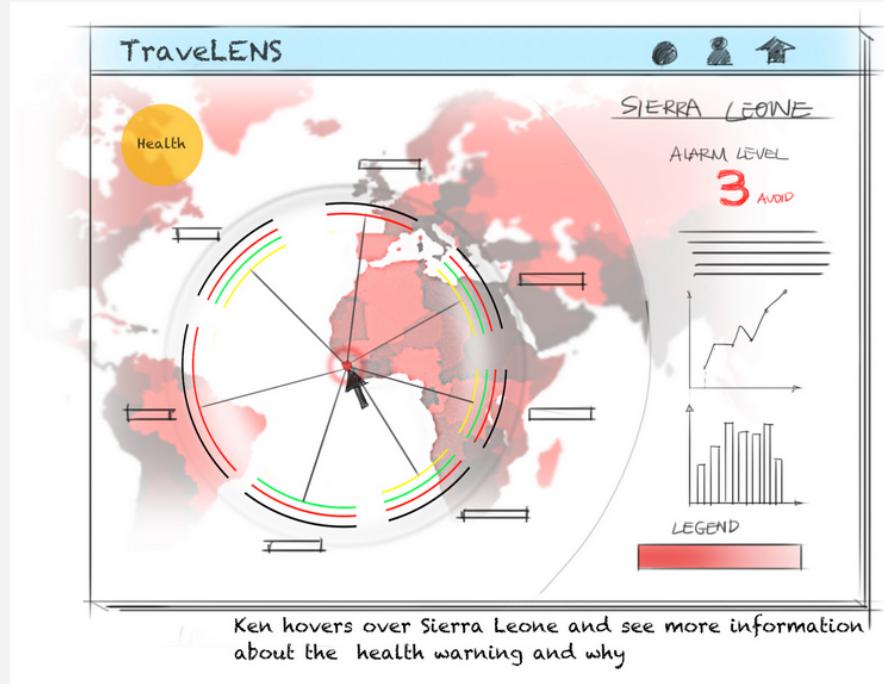


Design Process

Many reversals, many data sets discarded



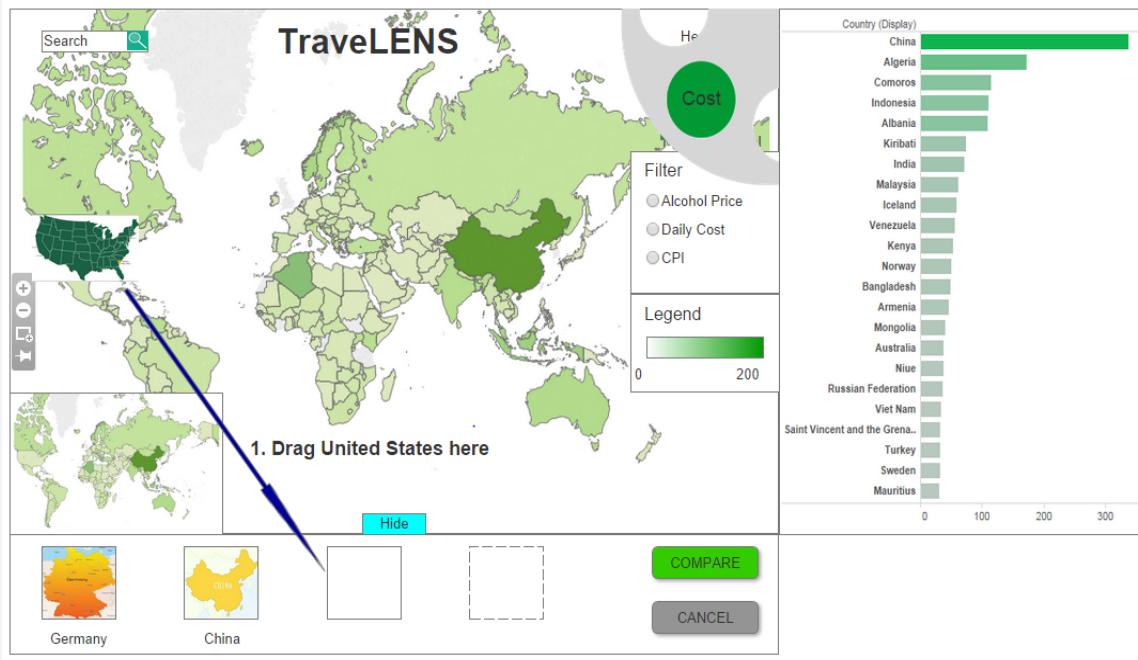
Project direction 1



Many reversals, many data sets discarded



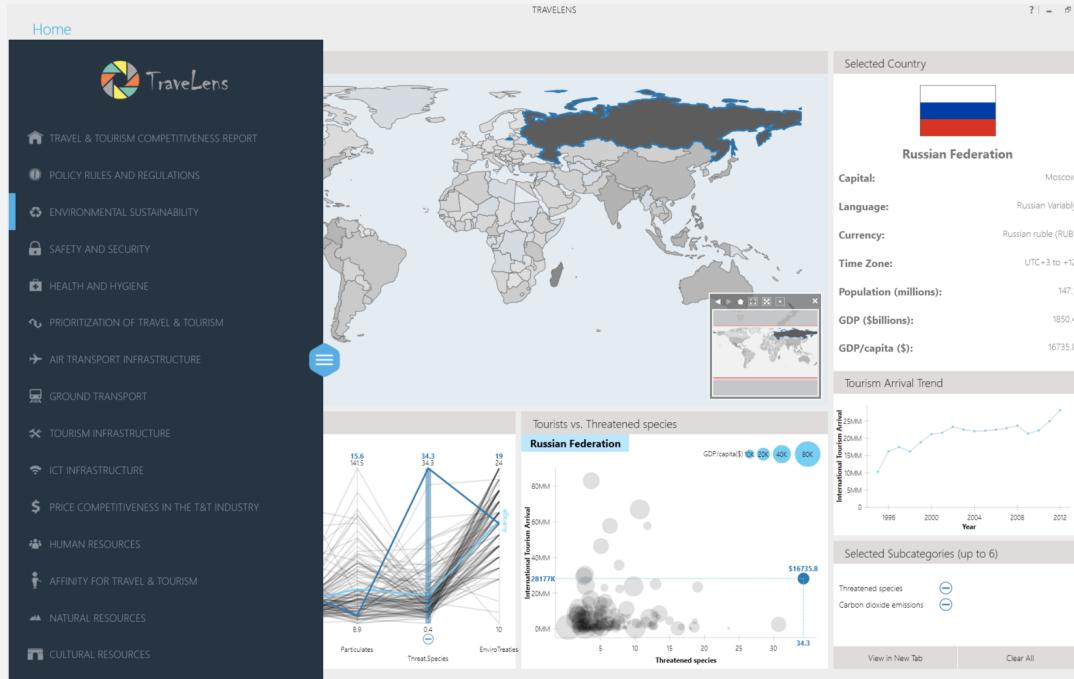
Project direction 2



Many reversals, many data sets discarded



Project direction 3



Usability Testing



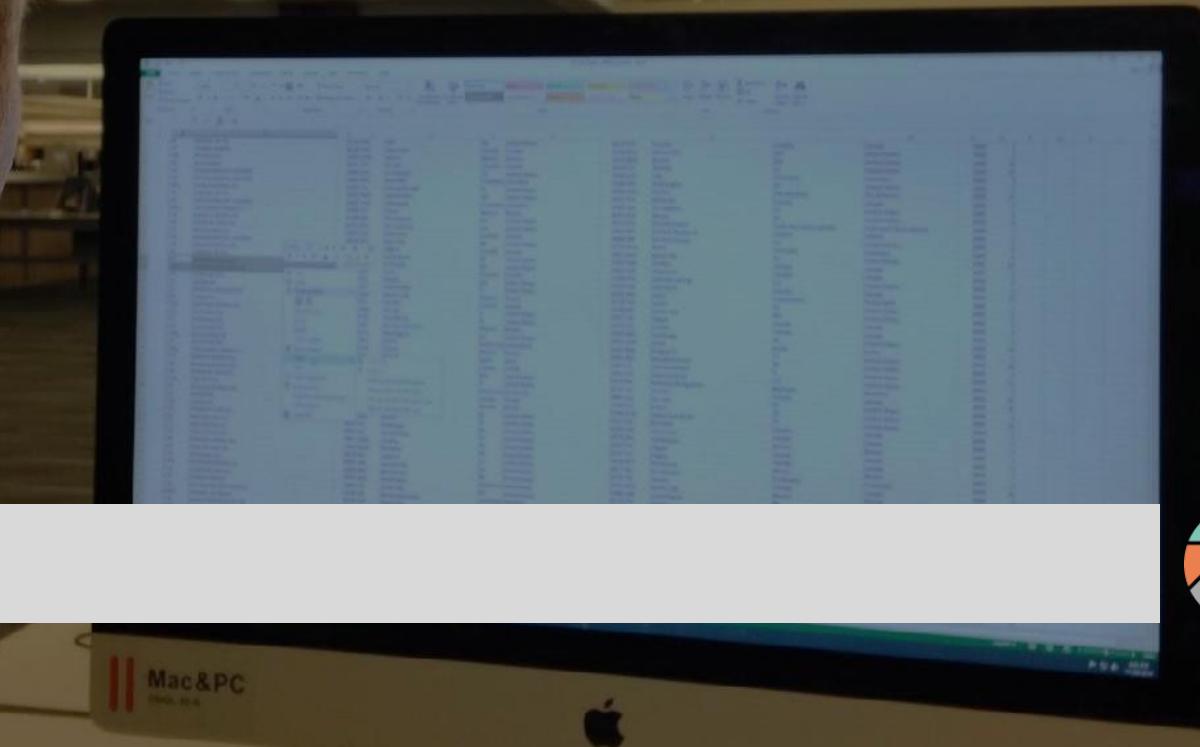
Usability Testing

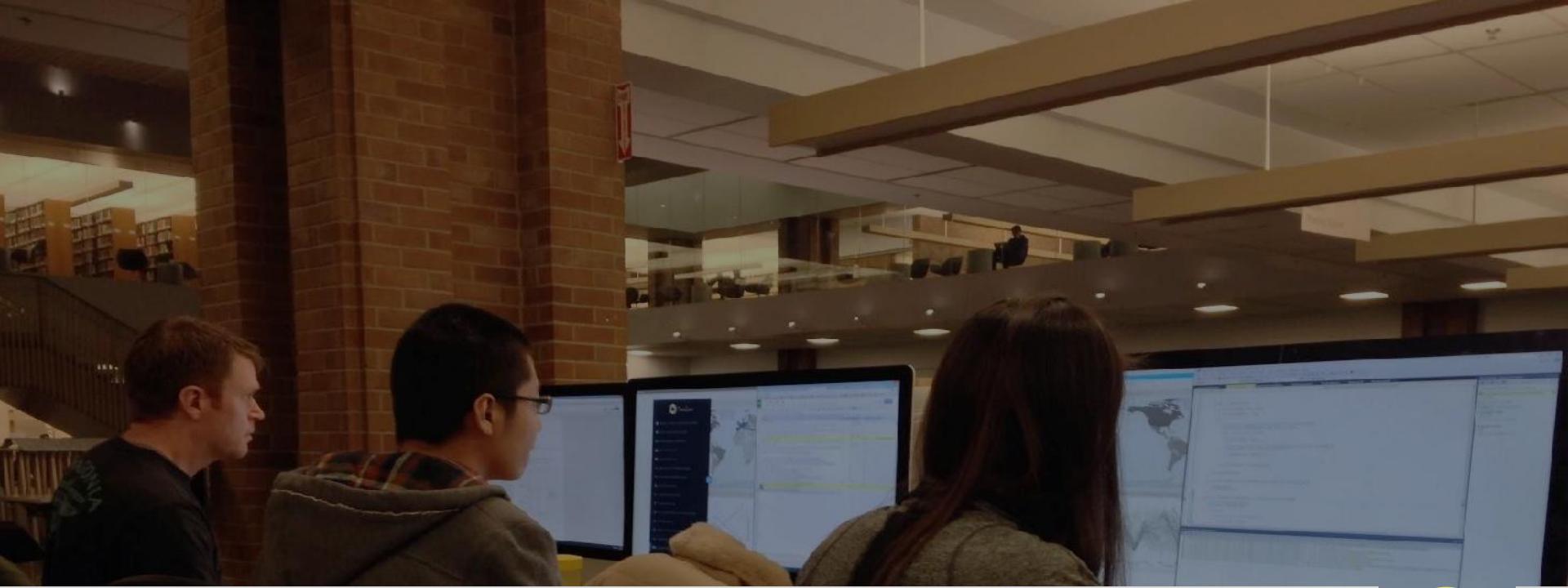


Key Design Changes

- Parallel coordinates instead of bar chart
- Add general country information, like language, currency, time zone.
- Add comparison between different subpillars

Demo

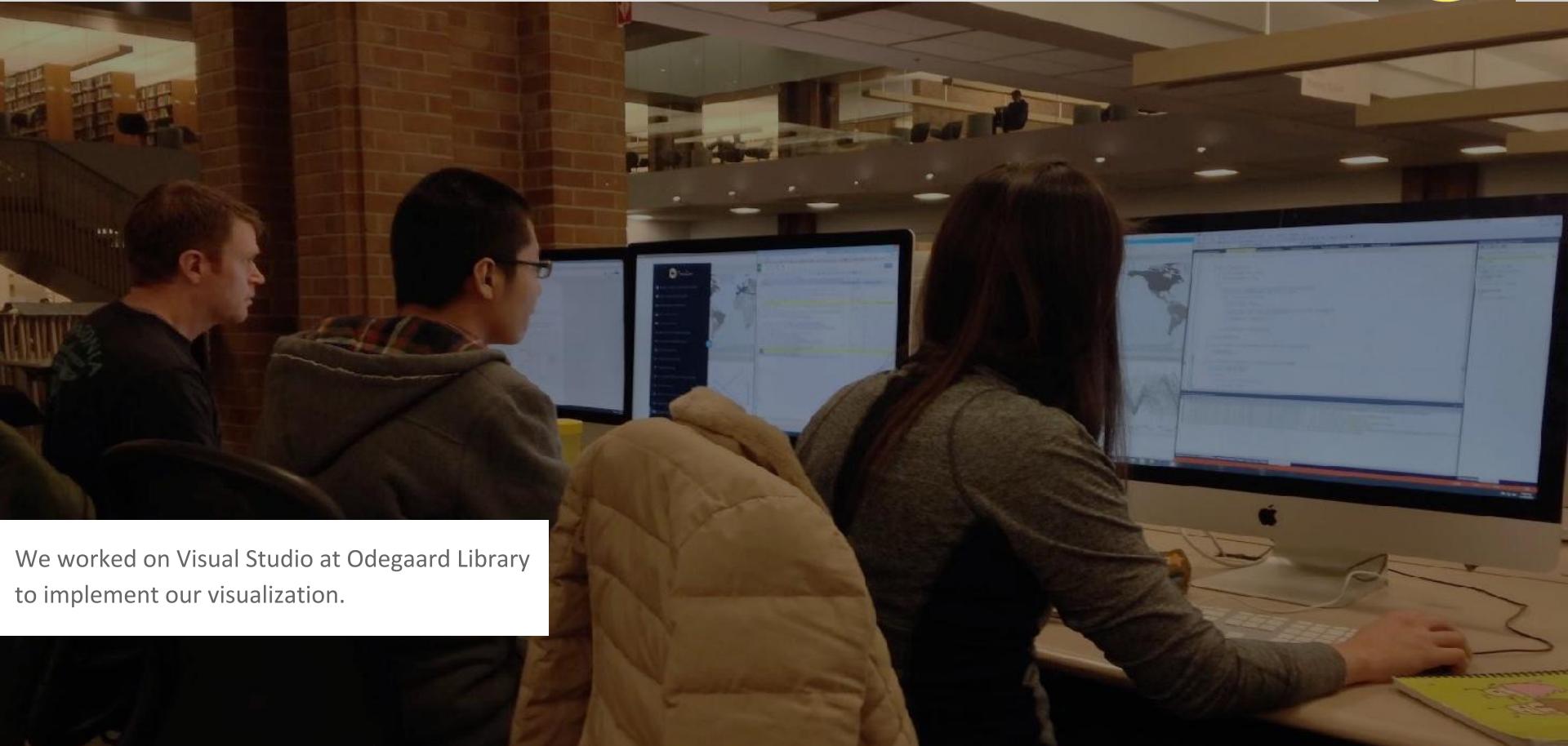




Design Decisions



Design Decisions

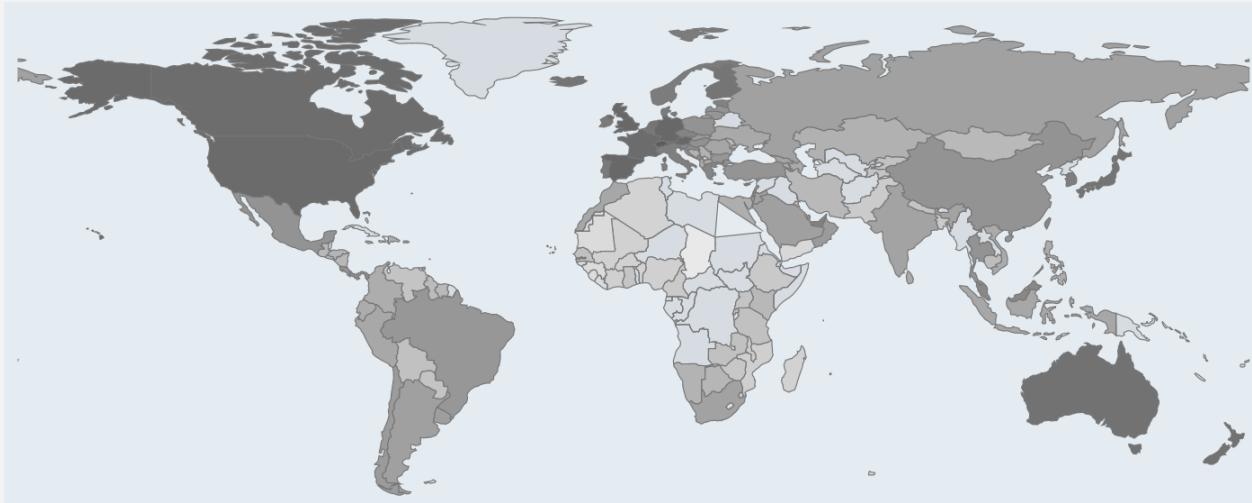


We worked on Visual Studio at Odegaard Library
to implement our visualization.

Design Decisions



Choropleth

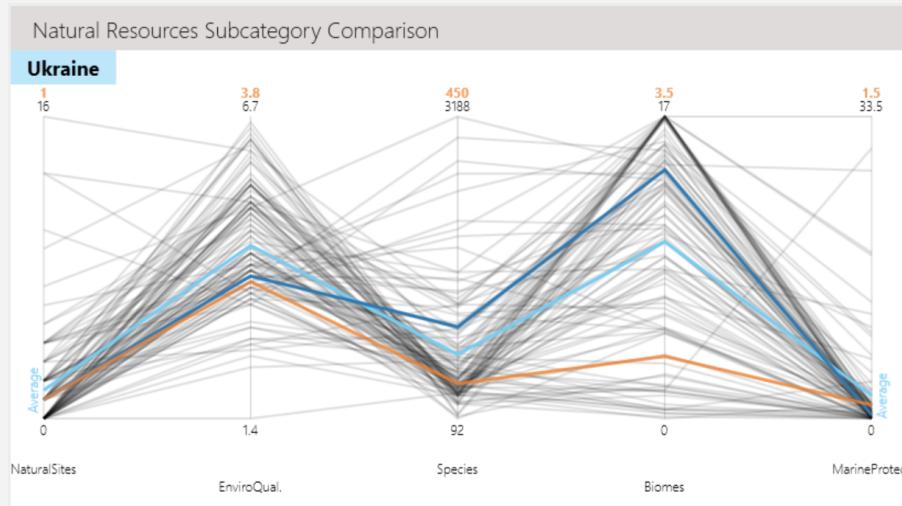


- They're... countries. The map makes sense to users and spatially locates groupings that would otherwise be abstract.
- Comparison: heatmap is never the primary visualization of any dimension, but it supports the other plots.

Design Decisions



Parallel Coordinates

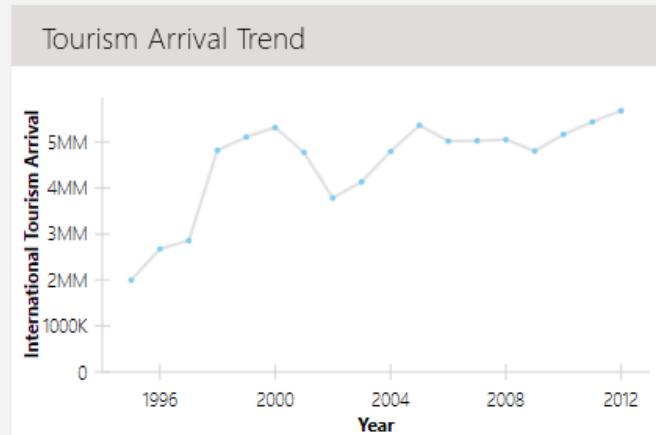
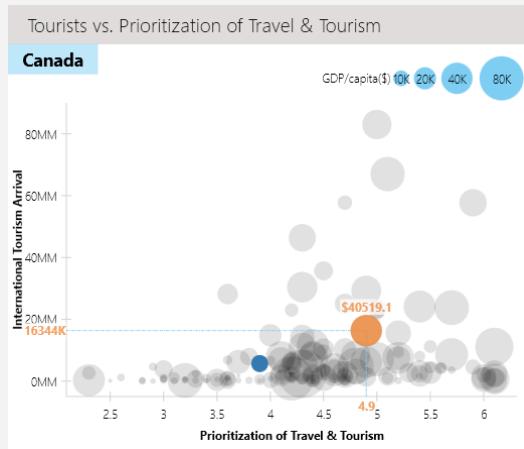


- Comparison of dissimilar measures
- Keeps average in view
- Helps user understand data underlying the aggregates

Design Decisions



Contextualizing with persistent data



Tourist arrivals over time

Primary measure relating back to design question.

GDP/capita

Indicator we most frequently had to rule out when seeking correlations, so we made it persistent. (Tufte on integrity in visualization!)

Design Decisions



Interactions

Category	Interaction	Do we support?	Detail
Data & View Specification	Visualize	Yes	
	Filter	Yes	
	Sort	Yes	Parallel Coordinates
	Derive	Yes	Average Line
View Manipulation	Select	Yes	Single+Multi Selection
	Navigate	Yes	
	Coordinate	Yes	Brushing and Linking
	Organize	Yes	New tab can be added
Process & Provenance	Record	Partly	Many tabs can be added
	Annotate	No	
	Share	No	
	Guide	Yes	Tutorial

Design Decisions



Interactions

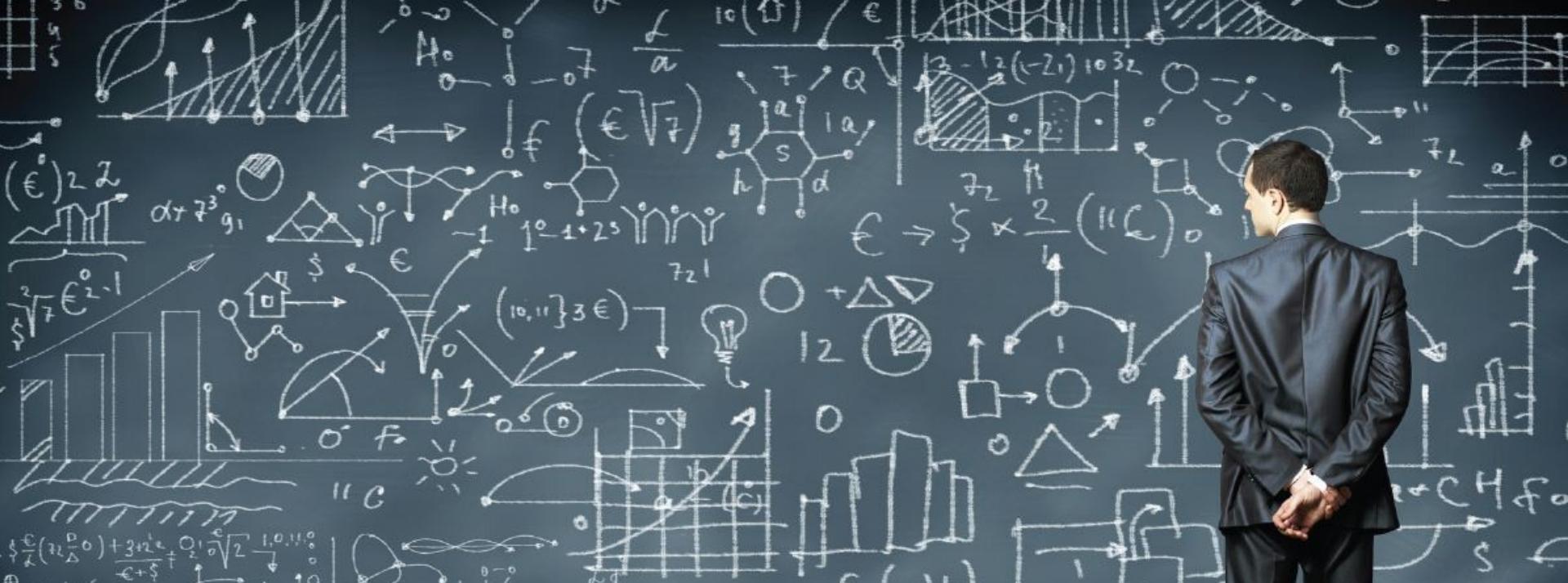
The screenshot displays the TraveLens application interface. On the left, a sidebar menu lists various categories: TRAVEL & TOURISM COMPETITIVENESS REPORT, POLICY RULES AND REGULATIONS, ENVIRONMENTAL SUSTAINABILITY, SAFETY AND SECURITY, HEALTH AND HYGIENE, PRIORITIZATION OF TRAVEL & TOURISM, AIR TRANSPORT INFRASTRUCTURE, GROUND TRANSPORT, TOURISM INFRASTRUCTURE, ICT INFRASTRUCTURE, PRICE COMPETITIVENESS IN THE T&T INDUSTRY, HUMAN RESOURCES, AFFINITY FOR TRAVEL & TOURISM, NATURAL RESOURCES, and CULTURAL RESOURCES. The main area features a world map with the TraveLens logo overlaid. A central callout box contains the text: "Welcome to TraveLens! TraveLens is an application that helps you explore the data from the World Economic Forum's 2013 report on Travel and Tourism Competitiveness. Let's step through the major features of TraveLens." To the right, a dark panel titled "Selected Country" contains the instruction: "Select a country to see its details here." Below this is a cartoon illustration of a woman with red hair. At the bottom right, another panel titled "Selected Subcategories (up to 5)" contains the instruction: "Select 2 to 6 subcategories to inspect them in a new tab."

Design Decisions



Colors

Show Demo



Future Work



Future Work



Improve / Extend

- Provide time series for important data dimensions
- Overview and detail by region
- Detail investigation for cities
- Visualize travel vectors on map



**KEEP
CALM
AND
ASK
QUESTIONS**