Data Management and Visualization with Tableau

Jeremy Buhler, University of British Columbia
March 10, 2015
Webcast Series

• March 3, 2015: Sarah Anne Murphy, Ohio State University
• March 10, 2015: Jeremy Buhler, University of British Columbia
• March 17, 2015: Rachel Lewellen, University of Massachusetts Amherst
• April 21, 2015: Discussion and Q&A
Tableau at UBC Library

Jeremy Buhler
Assessment Librarian
University of British Columbia Library
jeremy.buhler@ubc.ca
What’s Tableau?

A visual data analysis and presentation layer that connects to multiple data sources (e.g. databases, spreadsheets)
Why visual analysis?

• To explore and understand our data
• To communicate findings
“By thinking about visualization as a **process** instead of an **outcome**, we arm ourselves with an incredibly powerful thinking tool.”

Jer Thorp, former NYT Data Artist in Residence

[https://hbr.org/2013/04/visualization-as-process/](https://hbr.org/2013/04/visualization-as-process/)
Attentive processing

Preattentive processing

From Stephen Few, Tapping the Power of Visual Perception
From Stephen Few, Tapping the Power of Visual Perception
LibQUAL: visualizing results

LibQUAL service levels

- **desired**
- **perceived**
- **minimum**

**orange band** is the range between minimum (6.8) and desired (8.2) service levels

**blue dot** shows perception of the service UBC Library provides
LibQUAL: seeing change over time
The printed library materials I need for my work
ARL investment index rank
Top quartile of public academic institutions

Canada: Toronto 3, UC Berkeley 5, Alberta 12, Washington 16, Minnesota 17, Virginia 24, UBC 25, McGill 26, Montreal 33

USA: California, Los Angeles 2011
Investment Index: 6

Legend:
- Canadian
- UBC
- US peers
ARL statistics
Median expenditures per full time student and faculty

Showing top quartile of public academic institutions by Investment Index ranking

All figures in USD

UBC expenditures per full time student and faculty member drift below ARL peers

Canadian
UBC
US peers
UBC Library Tableau ‘proof of concept’ project

• document Tableau’s strengths and limitations as a report creation and publication platform

• help determine whether it’s a good investment for UBC Library
## ILS circulation report

**SQL query to Voyager (Oracle db)**

### Monthly transactions by branch

<table>
<thead>
<tr>
<th>Branch</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koerner</td>
<td>10,753</td>
<td>6,274</td>
<td>6,823</td>
<td>6,930</td>
<td>5,238</td>
<td>11,870</td>
<td>13,416</td>
<td>17,139</td>
<td>6,706</td>
<td>10,743</td>
<td>6,065</td>
<td>101,977</td>
</tr>
<tr>
<td>Barber</td>
<td>5,175</td>
<td>2,948</td>
<td>2,505</td>
<td>3,150</td>
<td>2,753</td>
<td>6,932</td>
<td>6,965</td>
<td>7,573</td>
<td>2,996</td>
<td>5,666</td>
<td>2,947</td>
<td>49,610</td>
</tr>
<tr>
<td>Okanagan</td>
<td>2,853</td>
<td>1,327</td>
<td>1,515</td>
<td>1,379</td>
<td>1,207</td>
<td>3,823</td>
<td>4,309</td>
<td>4,753</td>
<td>1,695</td>
<td>3,463</td>
<td>1,982</td>
<td>28,306</td>
</tr>
<tr>
<td>Education</td>
<td>1,471</td>
<td>1,332</td>
<td>1,315</td>
<td>2,105</td>
<td>1,161</td>
<td>2,573</td>
<td>2,762</td>
<td>2,259</td>
<td>1,021</td>
<td>2,589</td>
<td>1,325</td>
<td>19,913</td>
</tr>
<tr>
<td>Woodward</td>
<td>1,701</td>
<td>1,571</td>
<td>1,331</td>
<td>1,158</td>
<td>1,126</td>
<td>2,912</td>
<td>2,715</td>
<td>2,348</td>
<td>1,102</td>
<td>2,440</td>
<td>1,083</td>
<td>19,487</td>
</tr>
<tr>
<td>Lam Library</td>
<td>1,061</td>
<td>414</td>
<td>422</td>
<td>331</td>
<td>236</td>
<td>1,542</td>
<td>1,869</td>
<td>2,233</td>
<td>629</td>
<td>1,790</td>
<td>840</td>
<td>11,367</td>
</tr>
<tr>
<td>Asian</td>
<td>667</td>
<td>515</td>
<td>474</td>
<td>494</td>
<td>590</td>
<td>772</td>
<td>886</td>
<td>833</td>
<td>649</td>
<td>617</td>
<td>314</td>
<td>6,811</td>
</tr>
<tr>
<td>Law Library</td>
<td>744</td>
<td>308</td>
<td>431</td>
<td>364</td>
<td>264</td>
<td>687</td>
<td>831</td>
<td>1,005</td>
<td>489</td>
<td>759</td>
<td>369</td>
<td>6,251</td>
</tr>
<tr>
<td>Rare Books</td>
<td>367</td>
<td>327</td>
<td>267</td>
<td>354</td>
<td>371</td>
<td>263</td>
<td>538</td>
<td>321</td>
<td>185</td>
<td>487</td>
<td>265</td>
<td>3,745</td>
</tr>
<tr>
<td>XWM</td>
<td>263</td>
<td>180</td>
<td>352</td>
<td>271</td>
<td>124</td>
<td>325</td>
<td>524</td>
<td>420</td>
<td>115</td>
<td>230</td>
<td>178</td>
<td>2,982</td>
</tr>
<tr>
<td>BMB</td>
<td>233</td>
<td>209</td>
<td>171</td>
<td>214</td>
<td>210</td>
<td>339</td>
<td>232</td>
<td>218</td>
<td>170</td>
<td>277</td>
<td>139</td>
<td>2,412</td>
</tr>
<tr>
<td>Robs on</td>
<td>43</td>
<td>72</td>
<td>52</td>
<td>67</td>
<td>52</td>
<td>61</td>
<td>57</td>
<td>56</td>
<td>42</td>
<td>81</td>
<td>54</td>
<td>637</td>
</tr>
<tr>
<td>Hamber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25,331</td>
<td>15,477</td>
<td>15,658</td>
<td>16,817</td>
<td>13,332</td>
<td>32,099</td>
<td>35,104</td>
<td>39,159</td>
<td>15,799</td>
<td>29,142</td>
<td>15,581</td>
<td>253,499</td>
</tr>
</tbody>
</table>
## ILS circulation report

### SQL query to Voyager (Oracle db)

<table>
<thead>
<tr>
<th>Location</th>
<th># of trans. fiscal YTD</th>
<th>% change, prev. YTD</th>
<th>% of lib. total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koerner</td>
<td>101,977</td>
<td>-17.0%</td>
<td>40.2%</td>
</tr>
<tr>
<td>Barber</td>
<td>49,610</td>
<td>7.5%</td>
<td>19.6%</td>
</tr>
<tr>
<td>Okanagan</td>
<td>28,306</td>
<td>-14.5%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Woodward</td>
<td>19,487</td>
<td>-19.3%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Education</td>
<td>19,913</td>
<td>-14.7%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Lam Library</td>
<td>11,367</td>
<td>21.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Asian</td>
<td>6,811</td>
<td>-20.6%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Law Library</td>
<td>6,251</td>
<td>-4.1%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Rare Books</td>
<td>2,745</td>
<td>-16.5%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

### % self service:

- Koerner: 58%
- Barber: 22%
- Okanagan: 28%
- Woodward: 52%
- Asian: 48%
- Law Library: 48%
- Rare Books: 48%
Strengths of Tableau in UBC Library context

• Alignment with campus partners
• Publishing and authentication options
• Automatic updating of reports
• Interoperability (connect to multiple data types)

…but effective implementation requires a service ‘owner,’ measurable objectives, and a commitment to staff training and development
Tableau report creation workflow at UBC

1. Data source
2. Report creation
3. Publishing
4. End user

- Oracle
- MySQL etc.
- Access
- Excel
- CSV

- Tableau Desktop
- Tableau Desktop
- Tableau Desktop
- Tableau Server
- Browser
Tableau report creation workflow (free/public)

- **Data Source**
  - Oracle
  - MySQL
  - etc.
  - Access
  - Excel
  - CSV

- **Report Creation**
  - Tableau Public

- **Publishing**
  - Tableau Public
  - Tableau Public
  - Tableau Public

- **End User**
  - Browser

**Flow:**
- Cannot save work on local drive
- Size limit; data stored on public server

---

The University of British Columbia

A place of mind

THE UNIVERSITY OF BRITISH COLUMBIA
This is all new to me… where to start?

Free trial version of Tableau desktop to test report building interface

Browse Tableau Public dashboards for ideas and inspiration
Questions
IT support requests: number and status by creation date

Limit by creation date
- 1 February, 2015
- 10 March, 2015

Target days to resolve: 14
Target % (dark band): 0%

Requests by type
- General
- ILS/ASRS
- DI support
- Other
- IT admin
- LOCR
- Data management
- EZproxy

Requests by week
1 February, 2015
8 February, 2015
15 February, 2015
22 February, 2015
1 March, 2015
8 March, 2015

Legend:
- past target
- unresolved, but still within target
- resolved within target
If you are using Tableau or other data analytics platforms, please join and post your examples in arl-assess@arl.org

ARL-ASSESS Google group