Business Intelligence is for Everyone: 
Up and Running with Self-Service BI Tools in Less than One Hour

AIRS Conference
May 23, 2016 – St. Louis, Missouri
Andrew Benson, Toronto, Canada

Make the Connection. Call 2-1-1
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www.211Ontario.ca
Workshop Objectives

• Describe the main features and benefits of implementing business intelligence

• Understand the key capabilities and uses of Microsoft’s new self-service BI application and service – PowerBI

• Learn how to extract data from I&R/211 systems such as iCarol and inContact and import/transform data to create a basic data model for reporting

• Understand how to build a dashboard and basic set of reports using the PowerBI tool
Overview of Presentation

• Setting the Context

• Demos: 211 Ontario BI

• Behind the Curtain: Self-Service BI Features and Capabilities

• Build Report in Less than 20 minutes

• Q&A
Context: Network to System
Ontario Context

211 in Ontario
By the Numbers
2016

Web & Social Media Growth

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website visits</td>
<td>200,378</td>
<td>387,882</td>
<td>94%</td>
</tr>
<tr>
<td>Web pageviews</td>
<td>958,969</td>
<td>1,127,305</td>
<td>18%</td>
</tr>
<tr>
<td>Mobile views</td>
<td>35,692</td>
<td>114,679</td>
<td>221%</td>
</tr>
<tr>
<td>New Followers, RT, Mentions (Twitter)</td>
<td>2,691</td>
<td>3,866</td>
<td>44%</td>
</tr>
<tr>
<td>Facebook Reach</td>
<td>135,700</td>
<td>640,772</td>
<td>372%</td>
</tr>
<tr>
<td>Youtube, New views</td>
<td>3,166</td>
<td>5,520</td>
<td>74%</td>
</tr>
<tr>
<td>Linked In Pageviews</td>
<td>0</td>
<td>551</td>
<td></td>
</tr>
</tbody>
</table>

Major Source of Income
(People Calling 211)

- Don’t know: 4%
- Employment Insurance: 2%
- Full time work: 9%
- Old Age Security: 9%
- Ont. Disability Support: 25%
- Ontario Works: 8%
- Part time: 7%
- Pension: 0%
- Refused: 4%
- Self employed: 3%
- Welfare/Food Assistance: 4%
- Other: 25%

75% of callers are female
24% of callers are male

98% of callers were given referral info to follow up on.
83% of these followed up on the referral information and 74% received help from the agency.

There are 32,412 organizations in 211 Ontario's database listing 61,342 programs and services.

Age of People Needing Help

- 13 years - 21 years: 3%
- 22 years - 35 years: 19%
- 36 years - 54 years: 33%
- 55 or older: 41%
- 6 or under: 1%
- 7 - 12 years: 1%
- Don't know: 1%

Top 5 Caller Needs

- Health: 75,193
- Income & Financial Assistance: 55,154
- Housing: 49,499
- Legal & Public Safety: 40,469
- Food & Meals: 38,522
Ontario Transformation & Pan-Canadian Alignment

**ESTABLISH**
- 211 launched by United Way of Atlanta
- CRTC designated 211 to improve access for Canadians to community services
- First 211 call centre opened in Toronto
- Government of Ontario and Trillium funding begins
- Ontario 211 Services founded to develop a province-wide 211 service

**EXPAND**
- 211 service available to 56% of Ontarians
- 7 call centres funded to deliver 211 phone service
- 35+ data providers sharing local data to support 211 service delivery
- 211 service available to 100% of Ontarians as of late 2011

**TRANSFORM**
- Community Up service delivery model for 211
- Open211 infrastructure and service platform
- 211 Ontario system governance
- Sustainable funding
- High-quality, standards-based data for referral, analysis and reporting
- Integrated communications and partnership development

**ALIGN**
- 2-1-1 is the front door to human services in Ontario
- Highly valued and recognized brand
- High public awareness
- National alignment of 211 infrastructure and practices
- National integration of 211 specialists

Funding secured to expand service

100% service coverage in Ontario

Integrated provincial system

Integrated pan-Canadian system
Business Strategy -- Community Up

Professional and effective information & referral relies heavily on the quality of the resource data collected and knowledge of the local landscape.

- Community Up is a principled approach to designing a system where local service delivery agencies, United Ways, government decision-makers and municipal partners have a role in the 211 system.

- Community Up leverages the capacity and relationships of organizations, and the expertise of their people to build a stronger system, and improve the user experience.

- Community Up, in the context of information management, envisages data being collected locally, managed regionally, governed provincially, and aligned nationally.

For more information, download the ‘211 in Ontario: Vision and Road Map’ document at: www.211ontario.ca/aboutus
211 Technology Framework is a conceptual framework of technical components and business capabilities that enables an integrated model of 211 service delivery.

- **Open Data**: a single data repository that enables collection and sharing information and referral records.

- **Integrated Phone**: a cloud-based contact management platform that enables load balancing and skills based routing of callers.

- **Knowledge Mobilization**: a content management and business intelligence system that enables cross-sector collaboration and reporting on unmet needs and service gaps.

- **211 Online**: a web platform that enables easier access to online resources for the public and improved coordination of social media channels.
211 Ontario Value Proposition

1. Public Inquiry
2. Online Directories
3. Caller Needs
Business Intelligence

Resource Database
- Services
- Agencies

Phone System
- Number of calls
- Abandoned
- Time to answer
- Length of calls

Call Reports
- Location of caller
- Needs of caller
- Referrals given
- Follow ups

Surveys
- Caller satisfaction
- Service impact
- Penetration rate

System Administration
- Cost per call
- Cost per record
- Funding

Online Portal
- Number of visitors
- Location of visitors
- Needs
Business Intelligence VS Reports

Business Intelligence

Extract → Clean → Model → Use

Reporting

Cloud

Files
BI Governance and Deployment Model

Bimodal BI

Mode 2
- Bottom-Up Approach
- Exploratory and nonlinear, emphasizing agility and speed
- Prototyping activities: Tactical
- Aligns with: Business-Led Self-Service BI

Mode 1
- Top-Down Approach
- Traditional and sequential, emphasizing safety and accuracy
- Prototyping activities: Strategic
- Aligns with: Corporate BI and IT-Managed Self-Service BI

Ownership Transfer
DEMOS:
211 Ontario Self-Service BI
DEMO – Call Centre Performance

Calls to 211 (Answered)
211,766

Calls Answered by Month (Ontario)

<table>
<thead>
<tr>
<th>Month</th>
<th>211 Central</th>
<th>211 Central East</th>
<th>211 Central South</th>
<th>211 Eastern</th>
<th>211 North</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>3,216</td>
<td>3,119</td>
<td></td>
<td>3,174</td>
<td></td>
<td>9,509</td>
</tr>
<tr>
<td>February</td>
<td></td>
<td></td>
<td></td>
<td>3,174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td></td>
<td></td>
<td></td>
<td>450</td>
<td>3,821</td>
<td>4,271</td>
</tr>
<tr>
<td>April</td>
<td></td>
<td></td>
<td></td>
<td>2,029</td>
<td>3,410</td>
<td>5,439</td>
</tr>
<tr>
<td>May</td>
<td>7,314</td>
<td>1,876</td>
<td>3,410</td>
<td>1,887</td>
<td>1,334</td>
<td>15,317</td>
</tr>
<tr>
<td>June</td>
<td>15,065</td>
<td>2,001</td>
<td>3,196</td>
<td>1,970</td>
<td>1,446</td>
<td>23,708</td>
</tr>
<tr>
<td>July</td>
<td>14,768</td>
<td>2,153</td>
<td>3,170</td>
<td>2,092</td>
<td>1,455</td>
<td>23,638</td>
</tr>
<tr>
<td>August</td>
<td>14,128</td>
<td>2,841</td>
<td>2,759</td>
<td>1,974</td>
<td>1,376</td>
<td>23,078</td>
</tr>
<tr>
<td>September</td>
<td>14,861</td>
<td>2,190</td>
<td>3,030</td>
<td>2,108</td>
<td>1,596</td>
<td>23,605</td>
</tr>
<tr>
<td>October</td>
<td>15,160</td>
<td>2,034</td>
<td>3,012</td>
<td>2,393</td>
<td>1,603</td>
<td>24,202</td>
</tr>
<tr>
<td>November</td>
<td>14,636</td>
<td>2,357</td>
<td>3,117</td>
<td>5,525</td>
<td>1,835</td>
<td>27,471</td>
</tr>
<tr>
<td>December</td>
<td>15,704</td>
<td>2,286</td>
<td>2,600</td>
<td>6,775</td>
<td>2,656</td>
<td>29,971</td>
</tr>
<tr>
<td>Total</td>
<td>111,697</td>
<td>20,217</td>
<td>37,214</td>
<td>27,975</td>
<td>14,413</td>
<td>211,516</td>
</tr>
</tbody>
</table>

Regular vs After-Hours

- Regular Hours: 195,627
- After Hours: 6,129
DEMO – Resources

Data Source: iCarol
Talk Time by Caller Need
Average Number of Minutes on Call

Average Call Minutes by Needs Category

- Arts, Culture and Recreation: 4.1
- Clothing/Personal/Household Needs: 4.9
- Disaster Services: 3.2
- Education: 3.6
- Employment: 5.0
- Food/Meals: 4.0
- Health Care: 3.7
- Housing: 4.5
- Income Supports/Assistance: 3.6
- Individuals, Family and Community Support: 4.3
- Information Services: 3.6
- Legal, Consumer and Public Safety Services: 4.1
- Mental Health/Addictions: 4.1
- Other Government/Economic Services: 4.1
- Transportation: 4.0
- Utility Assistance: 4.4
- Volunteers/Donations: 4.4

Average Call Minutes by Caller Gender
- Female: 0.3
- Male: 3.4
- Transgender: 4.8
- Unknown: 1.3

Average Call Minutes by Caller Age Category
- Adolescent: 3.9
- Adult: 3.3
- Child: 1.0
- Older Adult: 4.5
- Unknown: 2.2
- Youth: 3.2

Average Call Minutes by Caller Language
- Arabic: 17.3
- Assame: 12.4
- Chinese: 16.0
- Dutch: 7.7
- English: 16.1
- French: 11.6
- German: 21.6
- Hindi: 8.0
- Italian: 8.7
- Polish: 5.4
- Portuguese: 8.3

Data Source: inContact + iCarol
## Calls Dashboard

### Summary of 211 Calls - New

<table>
<thead>
<tr>
<th>Category</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls Received</td>
<td>109,873</td>
<td>236,886</td>
</tr>
<tr>
<td>Regular Hours Calls</td>
<td>84,145</td>
<td>217,325</td>
</tr>
<tr>
<td>After Hours Calls</td>
<td>25,728</td>
<td>19,561</td>
</tr>
<tr>
<td>Calls Answered</td>
<td>98,594</td>
<td>211,766</td>
</tr>
<tr>
<td>Percent After Hours</td>
<td>23.4%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Abandonment Rate</td>
<td>10.3%</td>
<td>10.6%</td>
</tr>
</tbody>
</table>

### Total Calls Received by Month (Ontario) - 2016

<table>
<thead>
<tr>
<th>Month</th>
<th>Total Calls</th>
<th>Total Calls Previous Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>25,767</td>
<td>7,102</td>
</tr>
<tr>
<td>February</td>
<td>26,085</td>
<td>6,842</td>
</tr>
<tr>
<td>March</td>
<td>30,338</td>
<td>12,034</td>
</tr>
<tr>
<td>April</td>
<td>27,763</td>
<td>10,617</td>
</tr>
<tr>
<td>May</td>
<td>29,976</td>
<td>8,729</td>
</tr>
<tr>
<td>June</td>
<td>26,834</td>
<td>10,771</td>
</tr>
<tr>
<td>July</td>
<td>25,849</td>
<td>10,715</td>
</tr>
<tr>
<td>August</td>
<td>26,185</td>
<td>10,714</td>
</tr>
<tr>
<td>September</td>
<td>27,161</td>
<td>10,825</td>
</tr>
<tr>
<td>October</td>
<td>31,959</td>
<td>11,029</td>
</tr>
<tr>
<td>November</td>
<td>33,737</td>
<td>11,029</td>
</tr>
</tbody>
</table>

### Abandoned Calls - 2016

- **211 Centre That Answered**: 58,548
- **211 Central**: 8,842
- **211 Central East**: 12,034
- **211 Central South**: 10,617
- **211 North**: 8,729

### Percent of Time Call in Each State - 2016

<table>
<thead>
<tr>
<th>Month</th>
<th>Average InQueue Seconds</th>
<th>Average Talk Seconds</th>
<th>Average Hold Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2018</td>
<td>65%</td>
<td>30%</td>
<td>28%</td>
</tr>
<tr>
<td>Feb 2018</td>
<td>67%</td>
<td>28%</td>
<td>22%</td>
</tr>
<tr>
<td>Mar 2018</td>
<td>71%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Apr 2018</td>
<td>72%</td>
<td>28%</td>
<td>22%</td>
</tr>
</tbody>
</table>

### Total Abandoned Calls, Percent Abandoned Calls - 2016

<table>
<thead>
<tr>
<th>Month</th>
<th>Total Abandoned Calls</th>
<th>Percent Abandoned Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2016</td>
<td>2,272</td>
<td>12.3%</td>
</tr>
<tr>
<td>Feb 2016</td>
<td>2,669</td>
<td>10.2%</td>
</tr>
<tr>
<td>Mar 2016</td>
<td>2,915</td>
<td>9.6%</td>
</tr>
<tr>
<td>Apr 2016</td>
<td>2,468</td>
<td>8.9%</td>
</tr>
</tbody>
</table>

Data Source: inContact
DEM0 – Public Reports

Data Source: inContact + iCarol
Behind the Curtain:

**Power BI ---**

Features and Walk-Through
PowerBI – Video Overview

Source: https://www.youtube.com/watch?v=OOyJfszJXY
Power BI Desktop – Model Data

1. Connect and Query Source Data (ETL)

2. Import into Tables (import fields + create calculations)

3. Create Relationships between Tables (lookup and filter)

4. Design Reports and Publish to Cloud
Power BI – Build a Report in 20 Minutes
Platform Capabilities

1. SCHEDULE REFRESH
2. Manage personal storage
3. Admin Portal
4. Publish to web
5. Power BI Desktop

Manage embed codes
Power BI for Mobile
Power BI publisher for Excel
Analyze in Excel updates
Thank You

Questions?

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More Resources

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Power BI Architecture

Source: https://sqldusty.com
PowerBI Features

Source: http://sqlchick.com
Power BI Learning

Guided Learning for Power BI

Welcome to Guided Learning for Power BI. This self-paced online course explains Power BI in a sequential way, so you can build your knowledge from the ground up.

The course is designed to provide guidance in understandable chunks, with logical flow that helps you absorb concepts, details, and examples. It includes lots of visuals and videos to help you learn, too.

This Guided Learning course contains many sections, and each section has many topics. After the first few topics in this Getting Started section, nearly every topic includes a video describing what you’ll learn. The content below the video further explains the concept, letting you review and learn at your own pace.

If you’re a beginner with Power BI this course will get you going, and if you’re a Power BI veteran this course will tie concepts together, and fill in the gaps. We hope you enjoy the course, and look forward to including more content in the future.

What is Power BI?

Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Whether your data is a simple Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses, Power BI lets you easily connect to your data sources, visualize (or discover) what’s important, and share that with anyone or everyone you want.

Source: http://powerbi.com
PowerBI YouTube Channel

Source: https://www.youtube.com/user/mspowerbi/
BI Governance and Deployment Models

Power BI Delivery Approaches

**Business-Led Self-Service BI**
- Bottom-Up Approach
- Analysis using any type of data source; emphasis on data exploration and freedom to innovate
- **Ownership:** Business supports all elements of the solution
- **Scope of Power BI use by business users:** Data preparation, data modeling, report creation & execution
- **Governed by:** Business

**IT-Managed Self-Service BI**
- Blended Approach
- A “managed” approach wherein reporting utilizes only predefined/governed data sources
- **Ownership:** IT: data + semantic layer, Business: reports
- **Scope of Power BI use by business users:** Creation of reports and dashboards
- **Governed by:** IT: data + semantic layer, Business: reports

**Corporate BI**
- Top-Down Approach
- Utilization of reports and dashboards published by IT for business users to consume
- **Ownership:** IT supports all elements of the solution
- **Scope of Power BI use by business users:** Execution of published reports
- **Governed by:** IT

**Ownership Transfer**