

# **MAKING ANALYTICS HUMAN**

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December 31, 2015

# OUTLINE

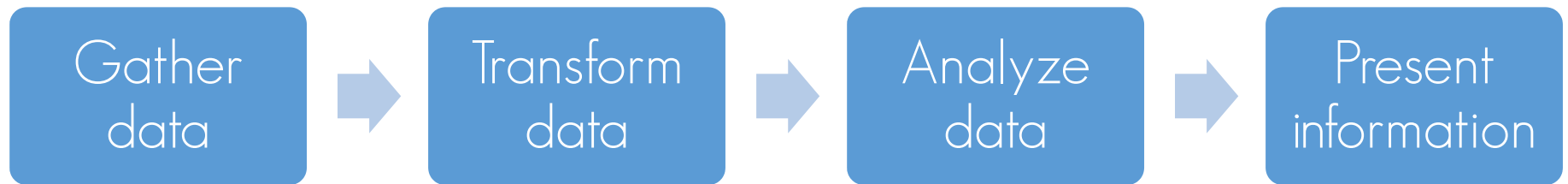
- Convergence happens
- Analytics: The next big thing
- Making analytics human
  - The representation problem
  - The out-of-the-box approach
  - The tried and tested approach
  - A different tried and tested approach
  - Thinking outside the box
- Parting thoughts

# CONVERGENCE HAPPENS

- An example: OnStar
  - Accurate GPS
  - Wireless communication technology
  - Sensors in vehicles
  - GIS
  - High computing power
  - Computer-telephony integration
- Precursor to the Internet of Things (IoT)
  - Anything can be a source of data (Cars, homes, phones, refrigerators, etc.)
  - Yields lots of unstructured and semi-structured data

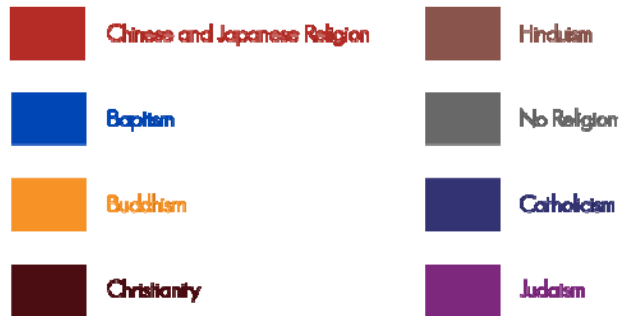


# ANALYTICS: THE NEXT BIG THING



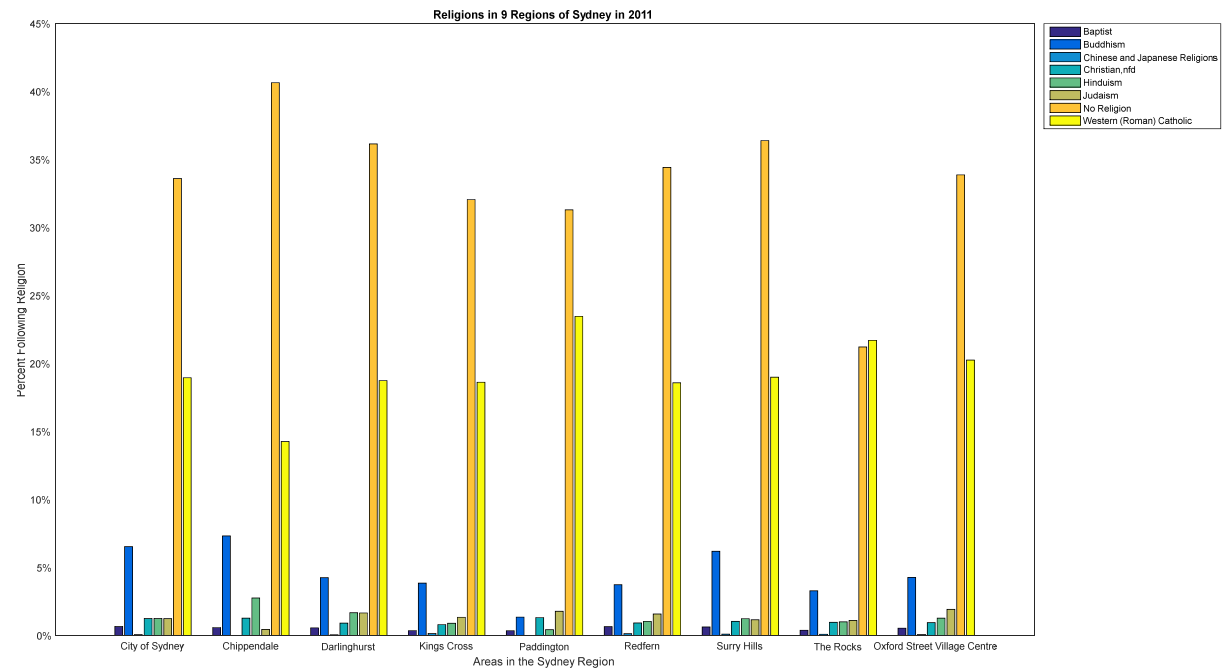
# THE REPRESENTATION PROBLEM

- The task: visualize a dataset
- The dataset
  - Religion data for 8 different religions
  - Divided by Sydney suburbs
  - Three years of data (2001, 2006, 2011)



# THE OUT-OF-THE-BOX APPROACH

- Used MATLAB to import raw data
- Simply generated bar charts on the data
- The outcome
  - Hard to see any variations in the data
  - Not particularly useful



# THE TRIED AND TESTED APPROACH

- Used tables to represent data
- Everyone knows how to read a table
- Sorted the data from left to right with arrows showing the next cell
- Color coded the table to represent religions
- The outcome
  - Can't read any of the data quickly
  - Table is too dense
  - Random colors make it hard on the eyes
  - Looks almost like output from MATLAB, SAS or SPSS

Percent of population following 8 religions in 9 suburbs of Sydney in 2001, 2006 and 2011

	2001							
City of Sydney	0.1027	0.5755	0.6789	0.8439	1.3992	4.9459	20.5997	21.8852
Chippendale	0.1002	0.4341	0.5009	0.5843	0.6678	7.1424	18.5622	26.7831
Darlinghurst	0.0706	0.3060	0.4449	0.5273	1.2805	3.6320	18.6376	23.1640
Kings Cross	0.0893	0.3466	0.4091	0.6605	0.6680	4.7294	18.2615	21.7486
Paddington	0	0.2315	0.4630	0.6944	2.2377	2.2377	21.4120	21.5278
Redfern	0.2186	0.4626	0.6557	0.7558	2.4223	3.6517	21.2618	21.5131
Surry Hills	0.1082	0.4690	0.7000	0.7433	1.2917	4.0915	19.5411	23.9501
The Rocks	0.1519	0.5570	0.7089	0.8101	1.6709	3.1899	13.7722	26.1772
Oxford Street	0.0805	0.3957	0.4426	0.5164	1.7905	3.4603	19.5480	21.6403

	2006							
City of Sydney	0.0741	0.6317	0.7652	1.0174	1.2793	5.2194	18.2136	23.6967
Chippendale	0.0749	0.0749	0.5270	0.8185	0.9533	5.7914	11.1746	24.1099
Darlinghurst	0.2207	0.3993	0.4615	0.5151	1.2113	2.7027	14.5108	21.4017
Kings Cross	0.1075	0.2003	0.3764	0.5700	1.2973	4.4484	17.4872	22.8403
Paddington	0	0.2312	0.3854	0.8478	1.6956	1.9653	21.6185	26.5125
Redfern	0.2115	0.5552	0.7561	0.8813	1.9124	4.0468	19.1783	24.8502
Surry Hills	0.0665	0.6381	0.6714	0.7644	1.3228	4.9056	17.2428	25.6315
The Rocks	0	0.2347	0.5030	0.5701	0.9725	2.1462	12.6090	17.5721
Oxford Street	0.1328	0.4251	0.4461	0.5576	1.8248	3.0968	16.9353	22.2517

	2011							
City of Sydney	0.0667	0.6643	1.2431	1.2549	1.2554	6.5404	18.9604	33.6128
Chippendale	0	0.4443	0.5924	1.2836	2.7647	7.3315	14.2681	40.6566
Darlinghurst	0.0597	0.5672	0.9154	1.6617	1.6816	4.2587	18.7463	36.1592
Kings Cross	0.1468	0.3669	0.8018	0.9050	1.3441	3.8588	18.6304	32.0665
Paddington	0	0.3566	0.4280	1.3195	1.3552	1.7832	23.4665	31.3124
Redfern	0.1411	0.6559	0.9298	1.0378	1.5857	3.7360	18.5886	34.4292
Surry Hills	0.1042	0.6319	1.0423	1.1596	1.2378	6.2020	18.9967	36.3974
The Rocks	0.0977	0.3906	0.9766	1.0091	1.1068	3.2878	21.2240	21.7122
Oxford Street	0.0771	0.5456	0.9468	1.2768	1.9252	4.2709	20.2575	33.8800

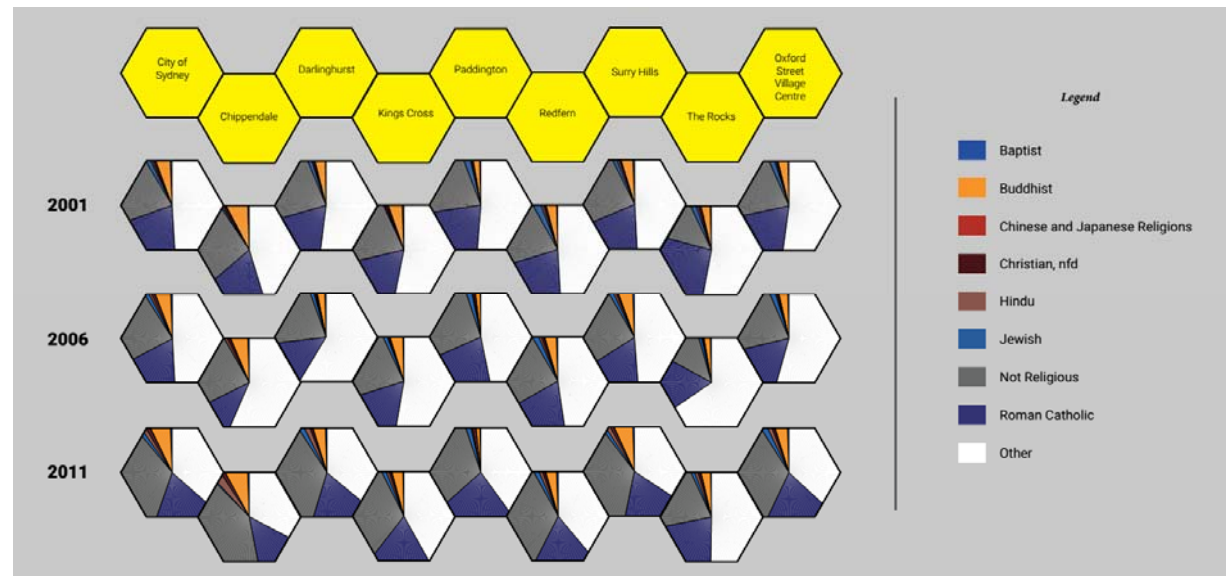
Legend

- Baptist
- Buddhist
- Chinese and Japanese Religions
- Christian, nfd
- Hindu
- Jewish
- Not Religious
- Roman Catholic

Note: Each row in the table is arranged from the least prominent to the most prominent religion for the area.

# A DIFFERENT TRIED AND TESTED APPROACH

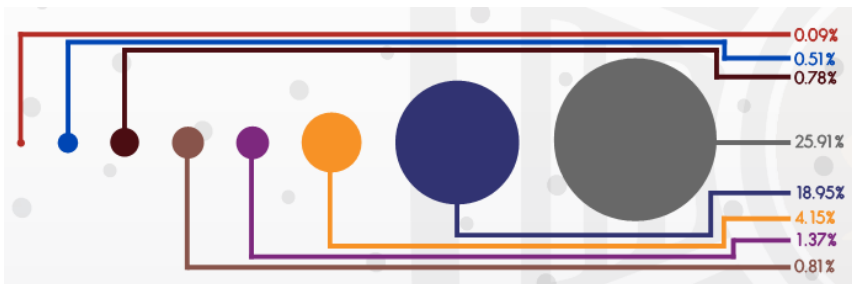
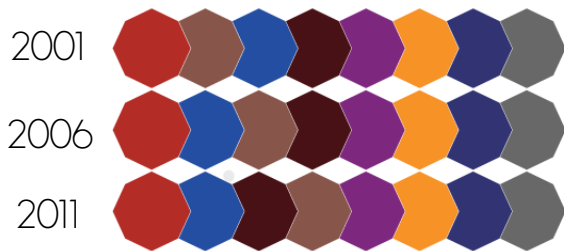
- Used pie charts
- Visuals can communicate better than text in many cases
- Still in a somewhat tabular form
- Used hexagons to make the image look more cohesive
- The outcome
  - Can't get many insights out of the charts
  - Hexagons are unnecessary and make it difficult to read the pie chart
  - Variations in the data aren't clear





# THINKING OUTSIDE THE BOX

An analysis on **BAPTISM**, **BUDDHISM**, **CHINESE AND JAPANESE RELIGIONS**, **OTHER CHRISTIAN DENOMINATIONS**, **HINDUISM**, **JUDAISM**, **ROMAN CATHOLICISM** and **NO RELIGION** during the years 2001, 2006 and 2011.



The raw data for the different religions in all 9 regions for this analysis. The values shown are percentages of the regional population.

Year	Region	Other Christian Denominations	Buddhism	Chinese and Japanese Religions	Other	Other Christian Denominations	Buddhism	Chinese and Japanese Religions	Other
2001	City of Sydney	0.6789	4.9459	0.1027	0.8439	0.5755	1.3992	21.8852	20.5997
	Chippendale	0.5843	7.1404	0.1002	0.6678	0.4341	0.5009	26.7831	18.5622
	Darlinghurst	0.3060	3.6320	0.0706	0.5273	0.4449	1.2805	23.1640	18.6376
	Kings Cross	0.6680	4.7294	0.0893	0.6605	0.4091	0.3466	21.7486	18.2635
	Paddington	0.4630	2.2377	0	0.6944	0.2315	2.2377	21.5278	21.4120
	Redfern	0.4626	3.6517	0.2186	0.6557	0.7558	2.4223	21.5131	21.2638
	Surry Hills	0.7000	4.0915	0.1082	0.4690	0.7833	1.2917	23.9501	19.5411
	The Rocks	0.5570	3.1899	0.1519	0.8101	0.7089	1.6709	13.7722	26.1772
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	Paddington	0.2312	1.6956	0	0.8478	0.3854	1.9653	26.5125	21.6185
	Redfern	0.5502	4.0468	0.2115	0.8813	0.7561	1.9124	24.8502	19.1783
	Surry Hills	0.6381	4.9056	0.0665	0.6714	0.7644	1.3228	25.6315	17.2428
	The Rocks	0.5030	2.1462	0	0.5701	0.2347	0.9725	12.6090	17.5721
	Oxford Street	0.4461	3.0968	0.1328	0.5576	0.4251	1.8248	22.2517	16.9353
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	Oxford Street	0.5456	4.2709	0.0771	0.9468	1.2768	1.9252	33.8800	20.2575



# PARTING THOUGHTS

“An organization's ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage”

*- Jack Welch, Former CEO at General Electric*

**QUESTIONS?**