

Power BI from Rookie to Rock Star

Power BI for Data Analyst Day 2: Visualization

Reza Rad



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About Reza Rad

DW/BI Consultant, Mentor, Trainer
Microsoft Regional Director
Data Platform MVP
Author of SQL Server and BI books
Author of MSBI webcast series on RADACAD
Microsoft Certified Trainer
Microsoft Certified Professional
Co-Leader of NZ BI User Group



Agenda

- Importance of Visualization
- Basics of Visualizations
- Charts
 - Bar/column Chart
 - Stacked vs Clustered
 - The Power Behind Line Chart
 - Scatter Chart
 - Category Charts: TreeMap, Pie, Dounat
 - Card and Multi-Card Visuals
 - Table and Matrix
- Maps
- Edit Interaction
- Filters and Slicers
- Mobile Reports
- Drill Down/Up
- Grouping and Binning
- Custom Visuals
- Colors



Class Reference Materials

- Power BI from Rookie to Rock Star –Book
 - Reza Rad
 - <http://www.radacad.com/online-book-power-bi-from-rookie-to-rockstar>



Visualization



Importance of Visualization



Find the biggest number

1515	1354	1222	1225	1231	1395	1406	1956	1342	1150	1924
1811	1340	1484	1427	1123	1154	1862	1264	1378	1632	1665
1771	1738	1892	1798	1441	1631	1402	1043	1175	1558	1893
1822	1383	1908	1159	1292	1170	1223	1406	1261	2000	1180
1946	1224	1998	1081	1856	1120	1333	1944	1286	1401	1906
1581	1605	1027	1113	1174	1456	1975	1737	1992	1313	1514
1708	1905	1211	1118	1561	1210	1118	1645	1892	1870	1858
1446	1214	1183	1274	1410	1852	1631	1072	1909	1798	1185
1152	1246	1285	1653	1649	1937	1643	1050	1912	1184	1508
1988	1417	1777	1528	1116	1606	1788	1027	1565	1018	1152
1790	1189	1378	1537	1666	1580	1170	1257	1885	1994	1630
1544	1477	1052	1577	1275	1911	1639	1549	1239	1607	1763
1839	1881	1654	1960	1415	1378	1686	1956	1312	1803	1978
1399	1412	1912	1031	1027	1882	1390	1576	1867	1416	1262
1893	1824	1210	1336	1607	1947	1892	1847	1820	1277	1428
1987	1825	1985	1199	1786	1734	1887	1244	1022	1143	1533
1807	1079	1789	1523	1272	1706	1860	1730	1664	1904	1034
1607	1235	1291	1682	1339	1158	1800	1442	1429	1950	1573
1456	1940	1614	1277	1358	1416	1656	1304	1215	1289	1440
1712	1345	1453	1613	1743	1826	1305	1977	1290	1708	1269
1880	1655	1943	1060	1783	1080	1190	1831	1680	1191	1324

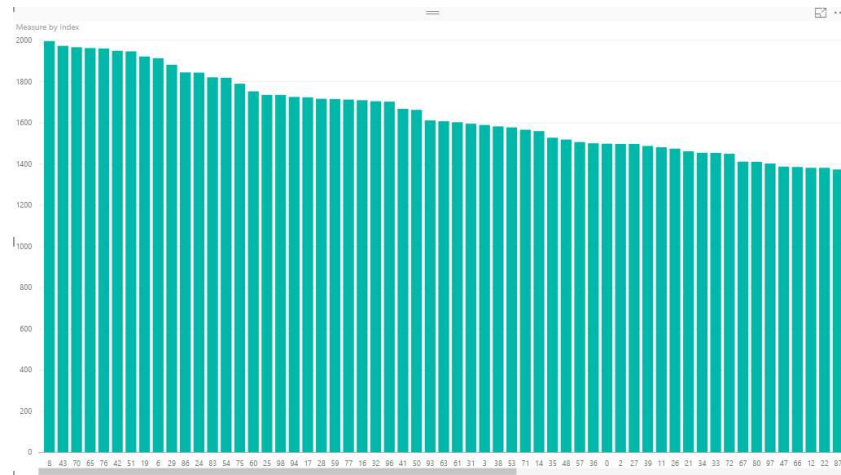


With Variety of Colors

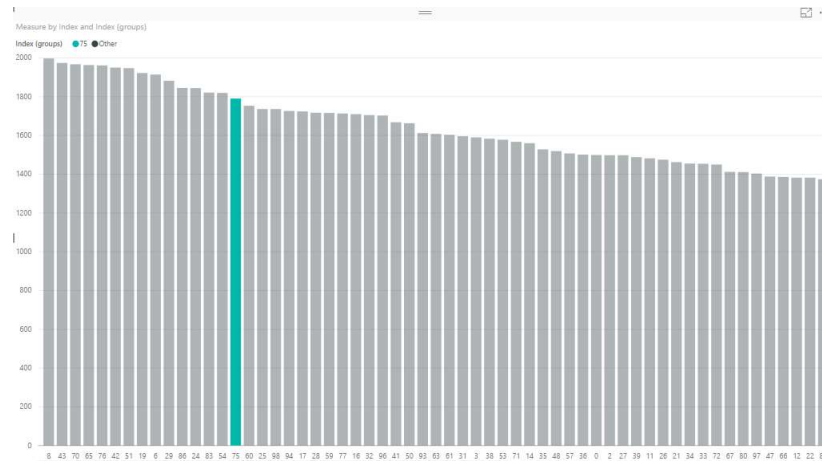
1119	1189	1683	1976	1289	1998	1697	1008	1149	1362	1268	1228	1096
1071	1421	1395	1022	1655	1673	1009	1133	1674	1859	1282	1839	1658
1676	1501	1733	1273	1001	1862	1376	1504	1539	1935	1388	1914	1845
1487	1090	1381	1585	1954	1115	1241	1480	1949	1144	1537	1606	1917
1063	1688	1352	1476	1954	1337	1579	1021	1351	1096	1692	1353	1315
1150	1640	1526	1151	1182	1904	1560	1506	1108	1680	1278	1507	1529
1333	1321	1688	1319	1058	1461	1134	1629	1365	1363	1027	1910	1681
1139	1739	1392	1842	1294	1637	1167	1511	1555	1976	1959	1333	1186
1769	1723	1842	1452	1421	1079	1778	1576	1886	1033	1304	1763	1526
1275	1767	1948	1822	1248	1195	1484	1523	1768	1533	1273	1870	1986
1791	1874	1615	1246	1904	1968	1313	1012	1115	1980	1635	1089	1143
1729	1165	1877	1200	1214	1646	1204	1915	1075	1402	1761	1836	1547
1035	1537	1513	1802	1052	1152	1883	1678	1073	1022	1390	1589	1080
1709	1711	1129	1190	1234	1202	1232	1234	1222	1758	1522	1227	1932
1064	1222	1153	1299	1442	1987	1278	1133	1557	1235	1600	1907	1817
1480	1831	1018	1212	1140	1968	1657	1134	1154	1612	1907	1061	1239
1437	1272	1773	1076	1587	1762	1180	1427	1392	1047	1389	1247	1586
1578	1857	1508	1294	1833	1148	1119	1143	1036	1134	1615	1241	1794
1781	1703	1863	1332	1469	1072	1235	1279	1938	1626	1008	1653	1407
1478	1324	1100	1918	1156	1274	1520	1660	1290	1585	1121	1989	1115
1664	1641	1627	1534	1280	1637	1485	1620	1985	1202	1882	1382	1428
1371	1885	1286	1169	1537	1982	1218	1279	1867	1602	1675	1485	1785
1750	1724	1486	1429	1693	1421	1701	1884	1464	1365	1735	1674	1117
1950	1093	1437	1302	1876	1767	1071	1251	1975	1422	1746	1166	1740



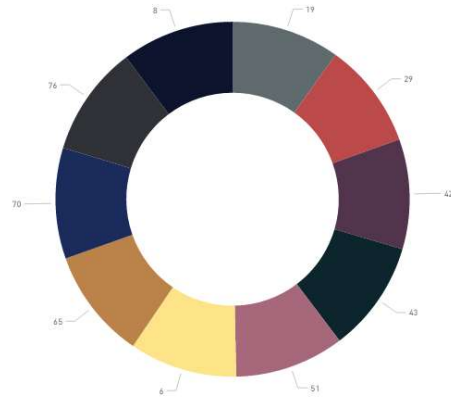
Chart?



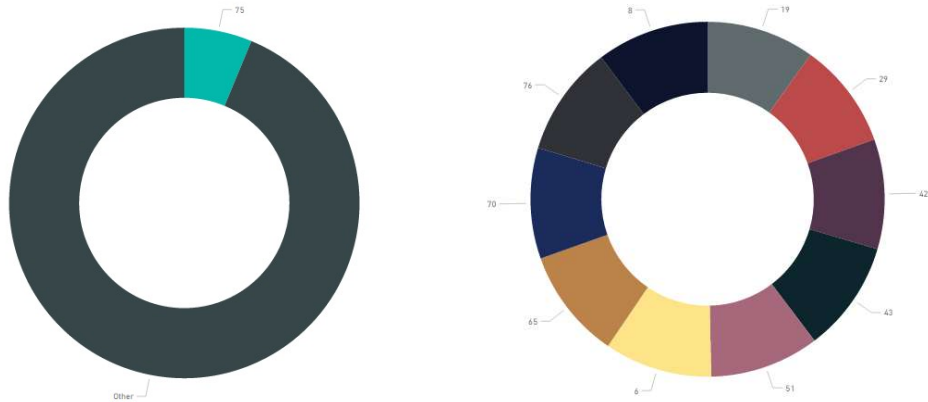
Visualization Can Tell Stories



Bad Visualization = No Insight



Charts Are Not the Problem



Basic Charts

- Column Chart
- Bar Chart

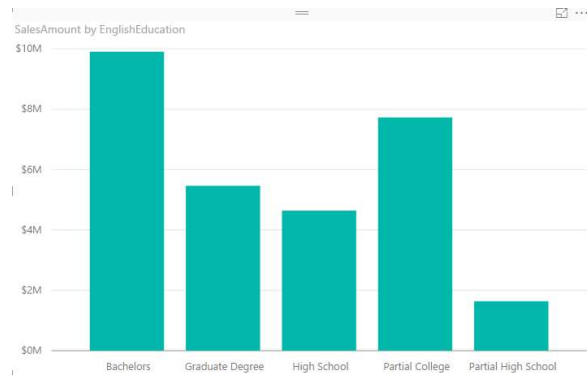


Custom Formatting



Column/Bar Chart

- Shows information in Categories
- Best for Comparing Categories
- Types
 - Clustered
 - Stacked
 - Clustered - Stacked



Gender by Education Diversity



What about Clustered Chart?



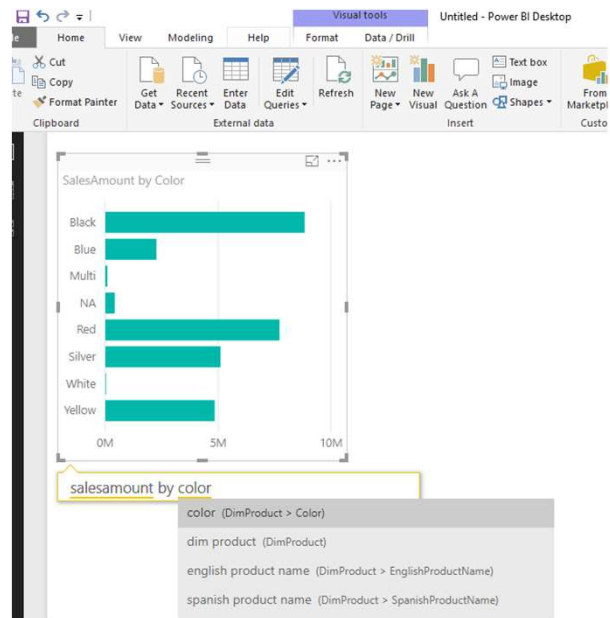
<http://radacad.com/stacked-chart-or-clustered-which-one-is-the-best>

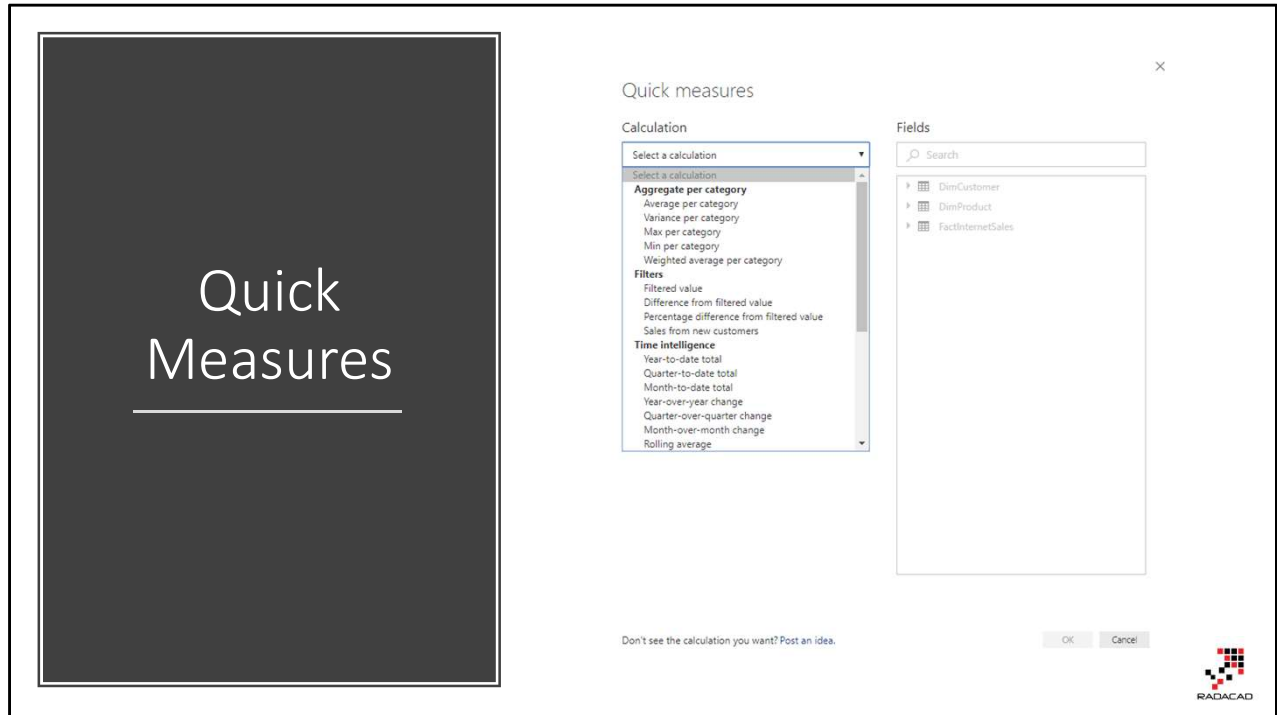
Pages

- Adding Page
- Duplicate Page
- Copy and Paste across pages
- Page Formatting
 - Size
 - Background
 - information



Q&A for Report



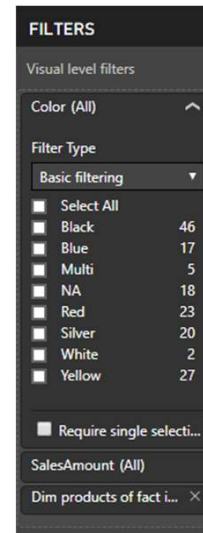


Drill Down/Up

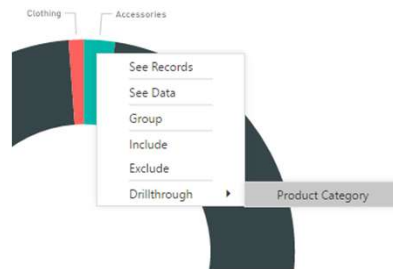


Filters

- Scope:
 - Visual Level
 - Page Level
 - Report Level
- Modes:
 - Basic
 - Advanced
 - TopN



Drill through Filter



Slicer

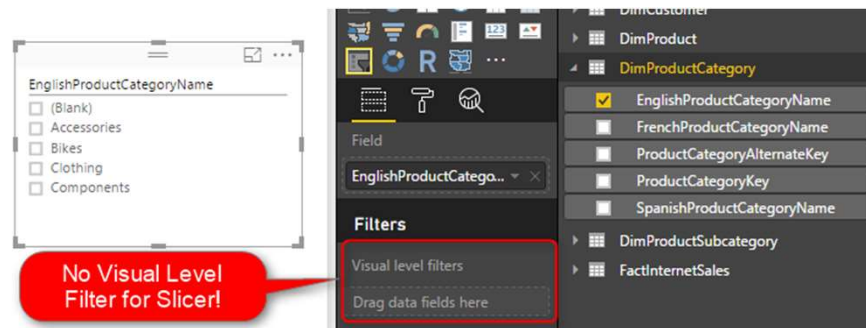
- Types of Slicer
 - Drop Down
 - List
 - Date Range
- Formatting for Slicer
 - Multi-Select
 - Select All
 - Vertical/Horizontal
- Date Slicer
 - Between
 - Relative Date
- Search Box in the Slicer



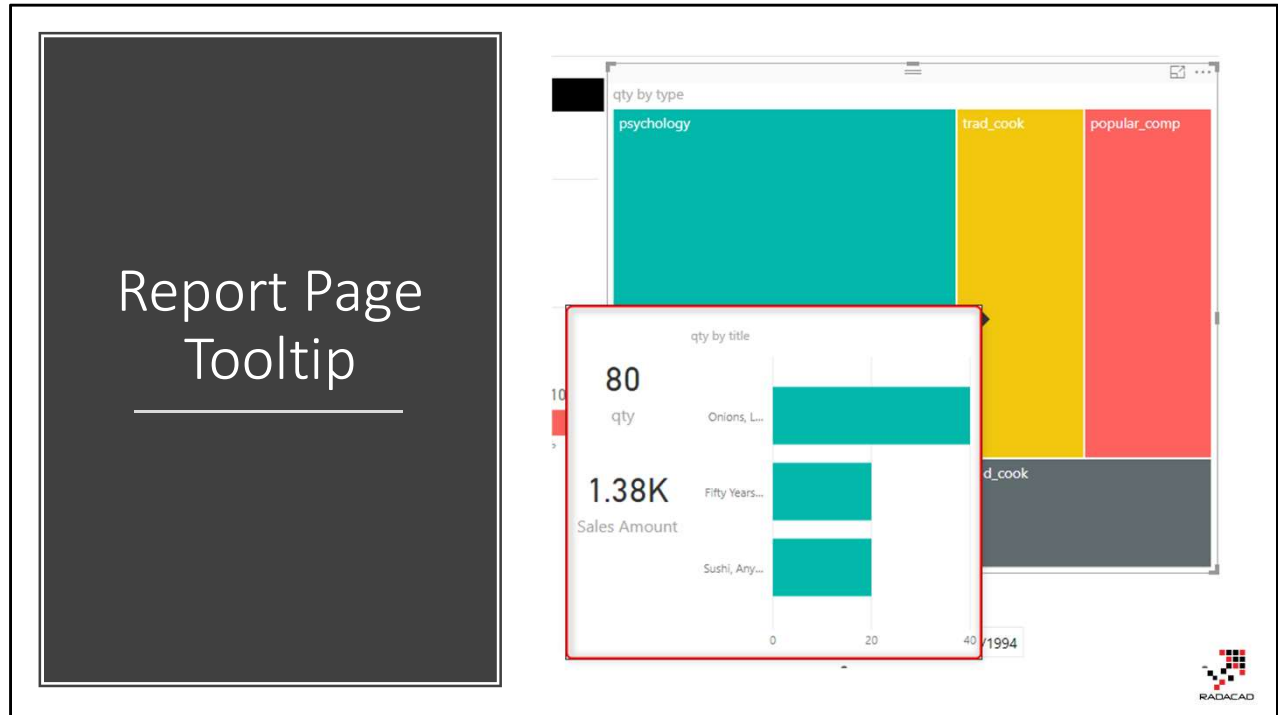
Sync Slicers



Filtering Slicers



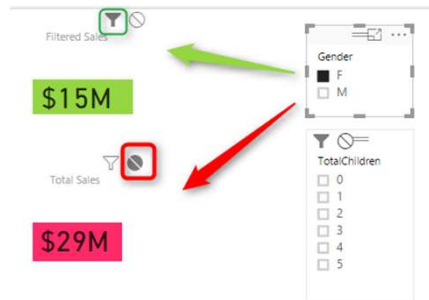
<http://radacad.com/filtering-slicer-resolved-in-power-bi>



<http://radacad.com/report-page-tooltip-revolution-in-visualization-of-power-bi>

Control the Interaction of Visuals

- Filtering
- Highlighting
- None



<http://radacad.com/control-the-interaction-in-power-bi-report>

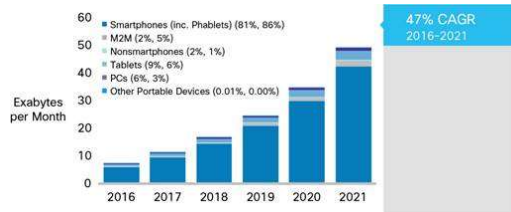
Mobile Reports



Power BI for Mobile

There are officially more mobile devices than people in the world

** Independent Magazine



Global Mobile Traffic Growth by Device Type

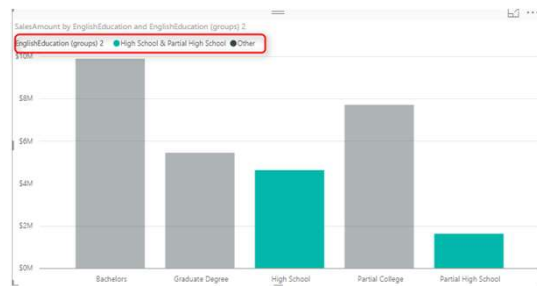
** Cisco

<http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html>



Grouping and Binning

- Creating Groups on the Fly
- Tell Story of one category vs others



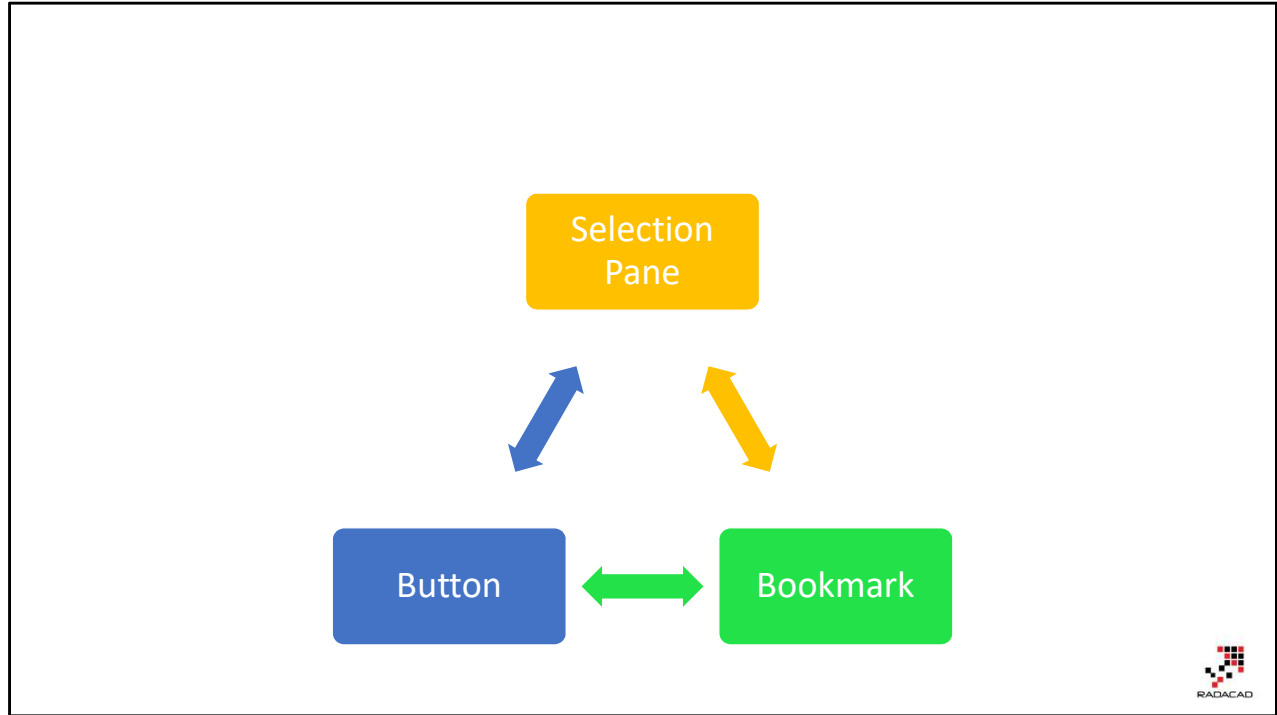
Binning

- Numbers
- Date/Time

YearlyIncome (bins)	YearlyIncome	SalesAmount
\$0	\$10,000	\$1,396,359
\$0	\$20,000	\$2,010,650
\$30,000	\$30,000	\$2,922,275
\$30,000	\$40,000	\$4,226,593
\$30,000	\$50,000	\$805,523
\$60,000	\$60,000	\$4,230,549
\$60,000	\$70,000	\$4,484,239
\$60,000	\$80,000	\$2,391,472
\$90,000	\$90,000	\$2,067,048
\$90,000	\$100,000	\$1,073,018
\$90,000	\$110,000	\$1,019,528
\$120,000	\$120,000	\$760,616
\$120,000	\$130,000	\$1,192,928
\$150,000	\$150,000	\$241,471
\$150,000	\$160,000	\$211,123
\$150,000	\$170,000	\$325,286
Total		\$29,358,677

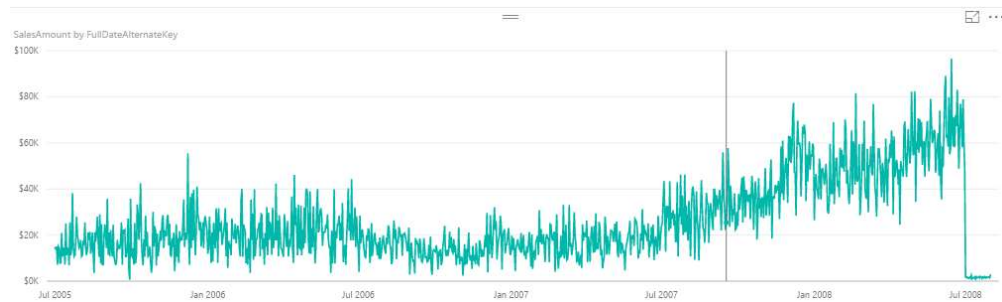


<http://radacad.com/grouping-and-binning-step-towards-better-data-visualization>

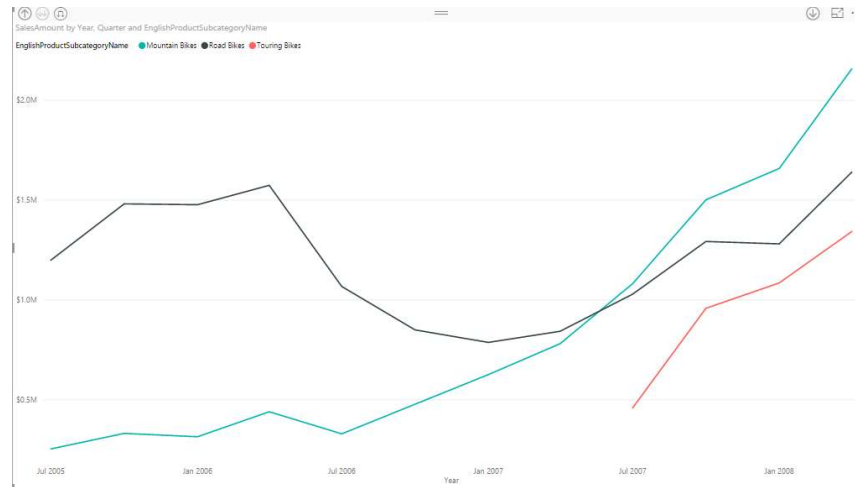


Line Chart

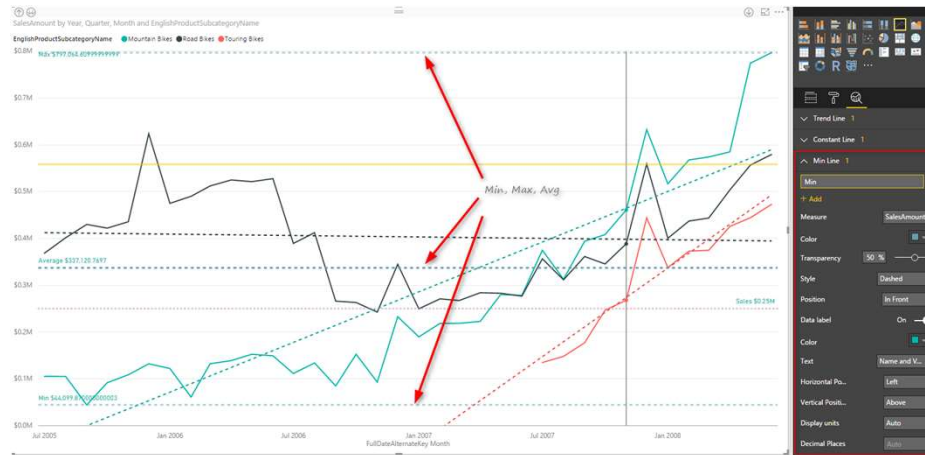
- Trend Analysis



You can show Multiple Measures



Reference Lines: Empower Line Chart

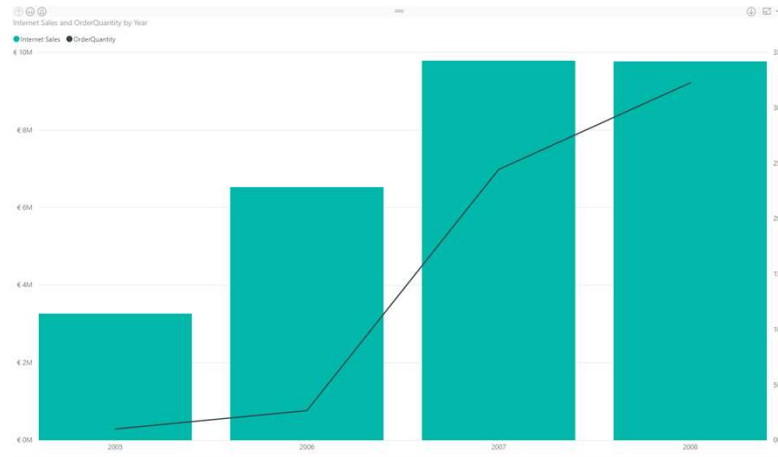


<http://radacad.com/power-behind-the-line-chart-in-power-bi-analytics>

Forecast with Line Chart



Line and Column Chart



When measures are not at the same scale



Combination of two charts: Area and Stacked Column

<http://radacad.com/ribbon-chart-is-the-next-generation-of-stacked-column-chart>

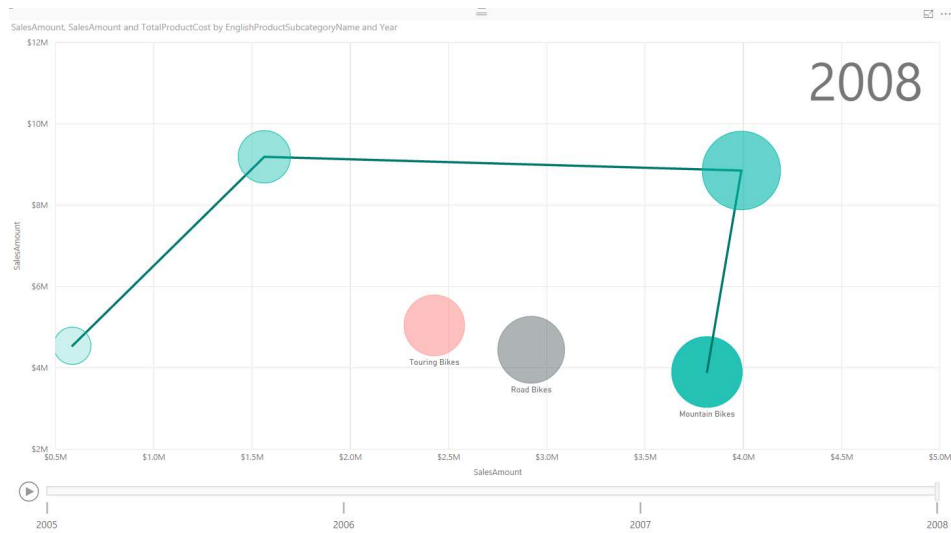
Waterfall Chart; What's That All About?

- Perfect for Cash flow



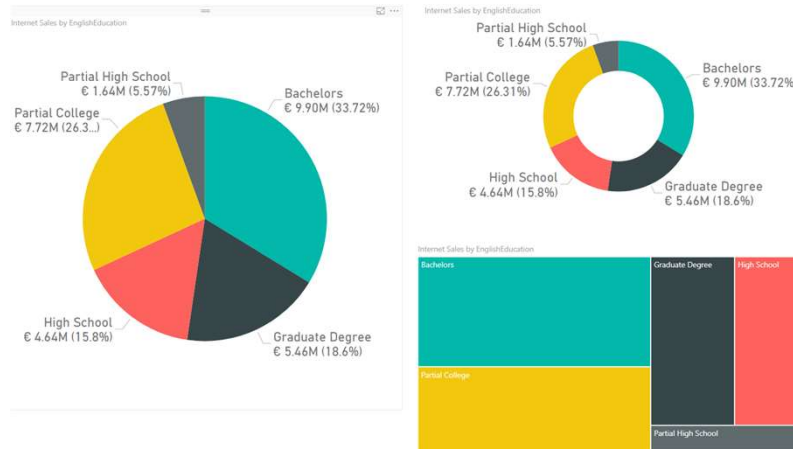
<http://radacad.com/power-bi-waterfall-chart-whats-that-all-about>

Scatter Chart

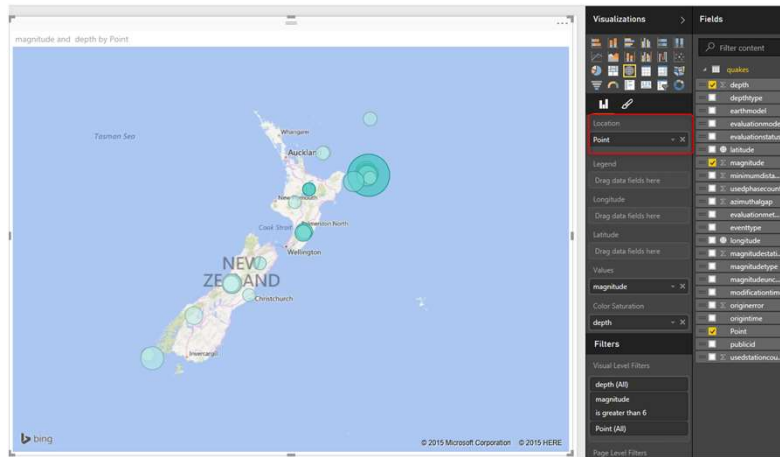


<http://radacad.com/storytelling-with-power-bi-scatter-chart>

Category Charts



Map with Latitude and Longitude



<http://www.radacad.com/how-to-do-power-bi-mapping-with-latitude-and-longitude-only>

Filled Map



<http://radacad.com/power-bi-filled-map-the-good-the-bad-and-the-ugly>

Shape Map

- Custom Map
- No Search Engine
- TOPO JSON Maps



<http://radacad.com/shape-map-better-than-the-filled-map>



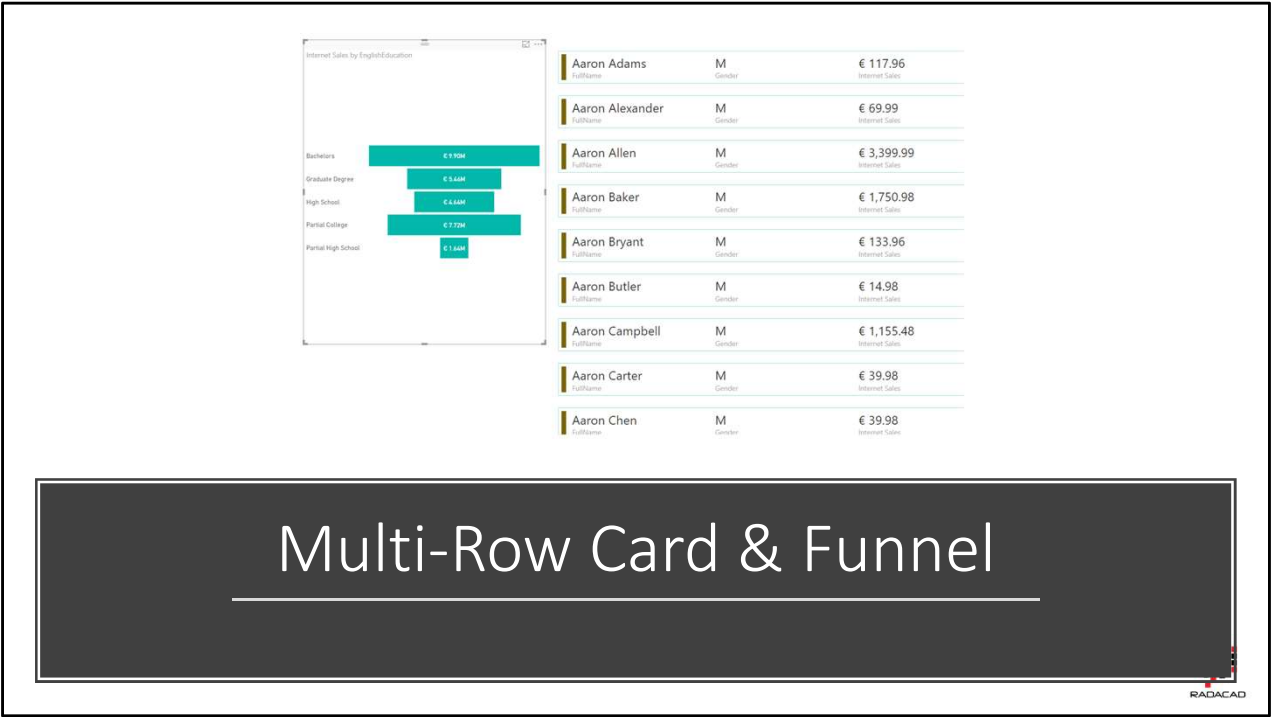
<http://radacad.com/arccgis-map-in-power-bi-simple-but-insightful>

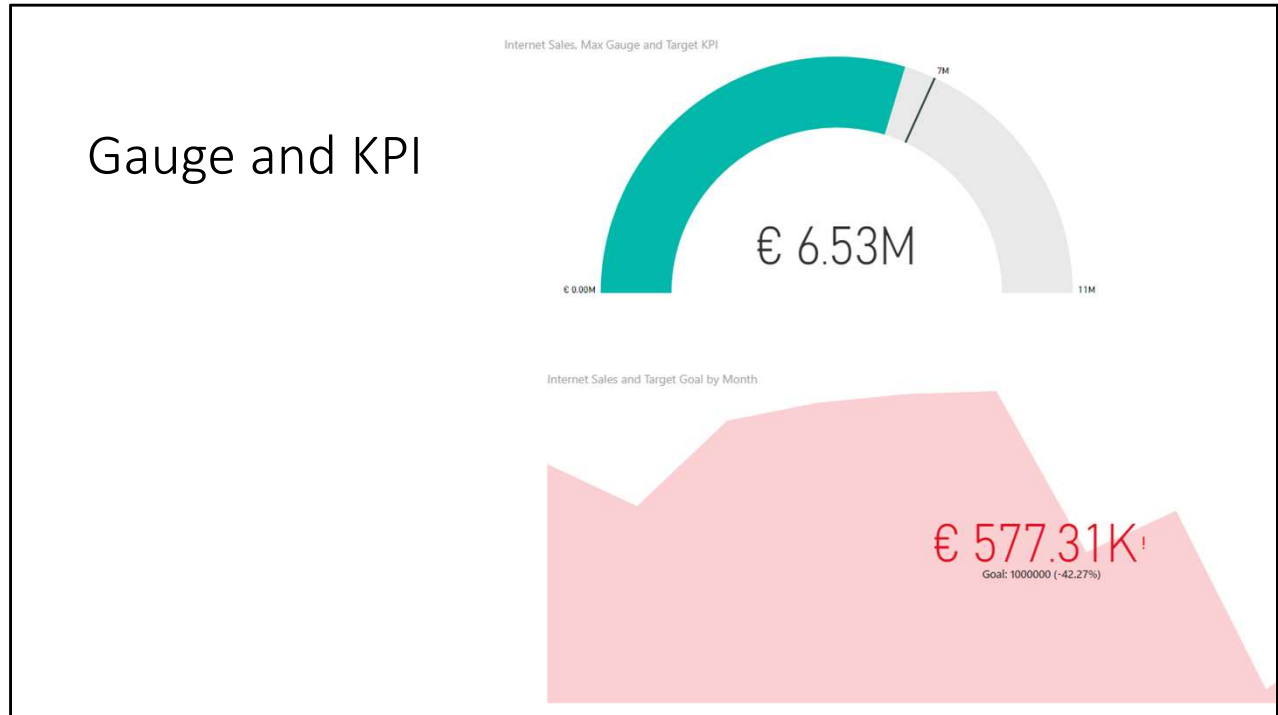
Table

- Layouts
- Conditional Formatting

Aaron Adams	2007	€ 117.96
Aaron Alexander	2008	€ 69.99
Aaron Allen	2006	€ 3,399.99
Aaron Baker	2008	€ 1,750.98
Aaron Bryant	2007	€ 58.98
Aaron Bryant	2008	€ 74.98
Aaron Butler	2008	€ 14.98
Aaron Campbell	2008	€ 1,155.48
Aaron Carter	2008	€ 39.98
Aaron Chen	2008	€ 39.98
Aaron Coleman	2008	€ 61.96
Aaron Collins	2005	€ 3,578.27
Aaron Collins	2008	€ 2,469.05
Aaron Diaz	2005	€ 3,578.27
Aaron Diaz	2007	€ 2,451.30
Aaron Edwards	2007	€ 94.48
Total		€ 29,358,677.22

Matrix	Year	2005	
	Gender	July	August
	F	€ 220,026.42	€ 295,162.55
	Bachelors	€ 61,833.20	€ 73,966.21
	Graduate Degree	€ 17,891.35	€ 65,107.96
	High School	€ 49,332.66	€ 40,516.86
	Partial College	€ 76,834.40	€ 89,710.27
	Partial High School	€ 14,134.80	€ 25,861.25
	M	€ 253,361.74	€ 211,029.14
	Bachelors	€ 83,570.36	€ 79,039.48
	Graduate Degree	€ 22,168.72	€ 33,196.07
	High School	€ 71,476.38	€ 38,751.13
	Partial College	€ 65,793.03	€ 45,932.67
	Partial High School	€ 10,353.25	€ 14,109.80
	Total	€ 473,388.16	€ 506,191.69





<http://radacad.com/kpis-and-power-bi>

Bookmarks

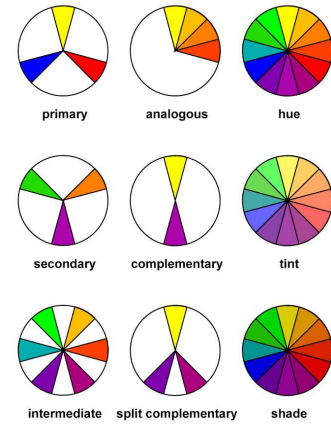
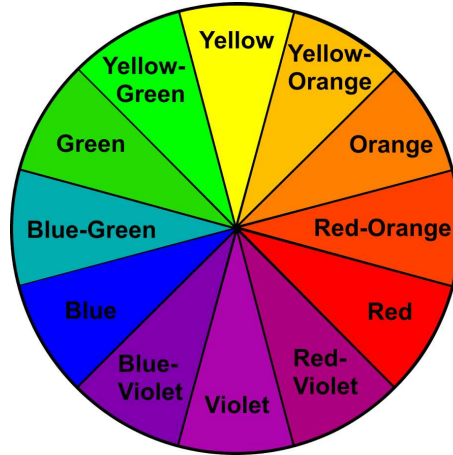


Colors

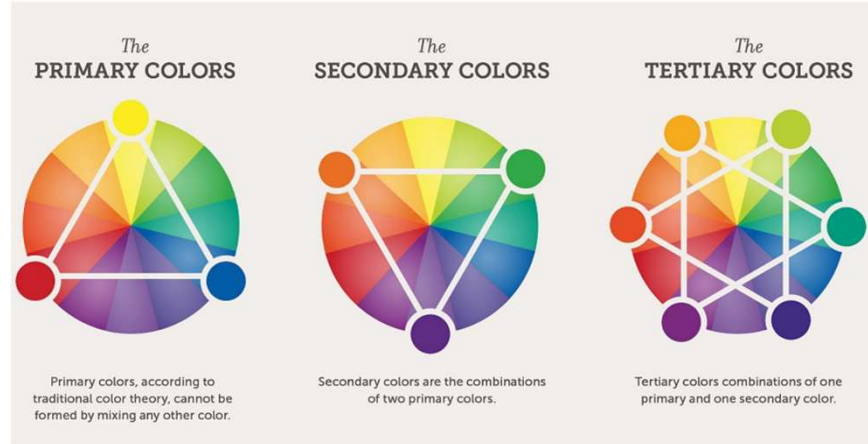


Color Wheel

- Issac Newton 1666



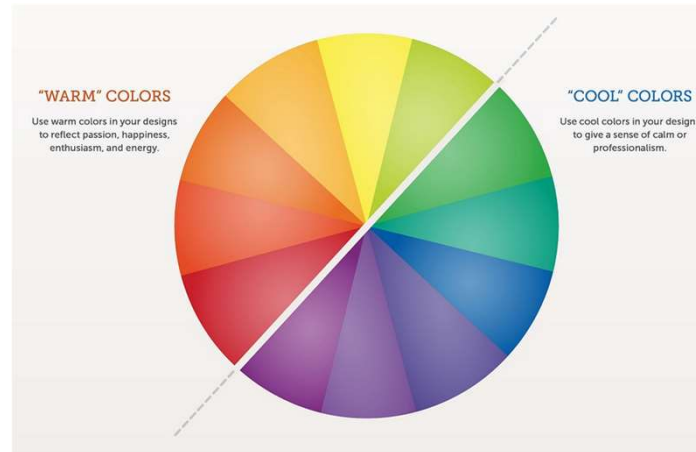
Types of Colors



<https://blog.kissmetrics.com/art-of-color-coordination/?wide=1>



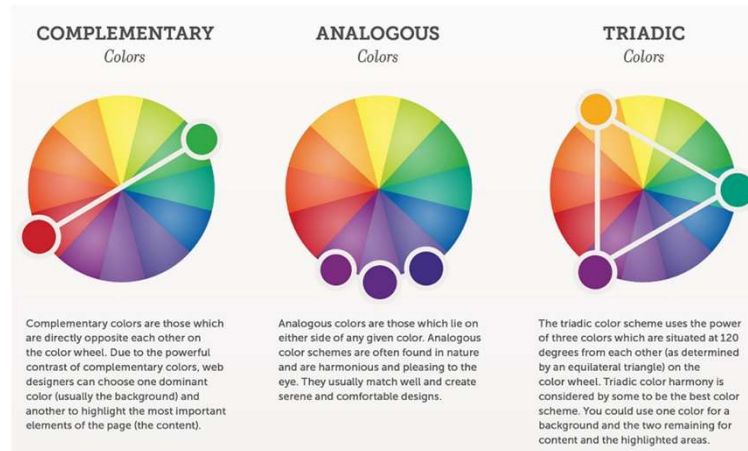
Warm / Cool Colors



- Reference: <http://lifehacker.com/learn-the-basics-of-color-theory-to-know-what-looks-goo-1608972072>



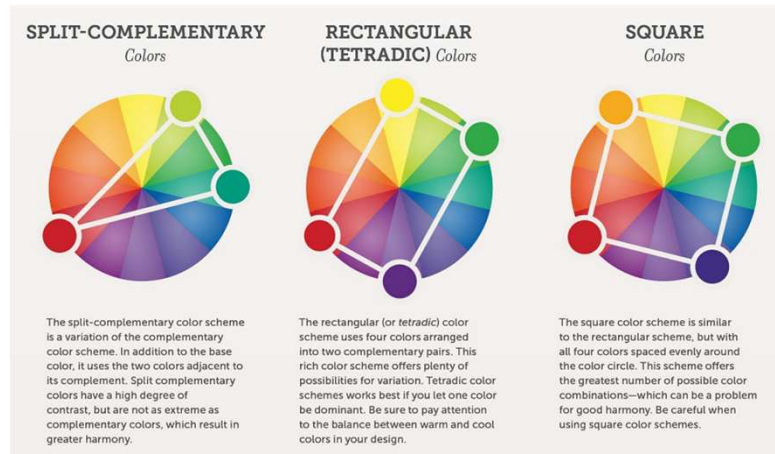
Color Harmonies (Schemes)



<https://blog.kissmetrics.com/art-of-color-coordination/?wide=1>



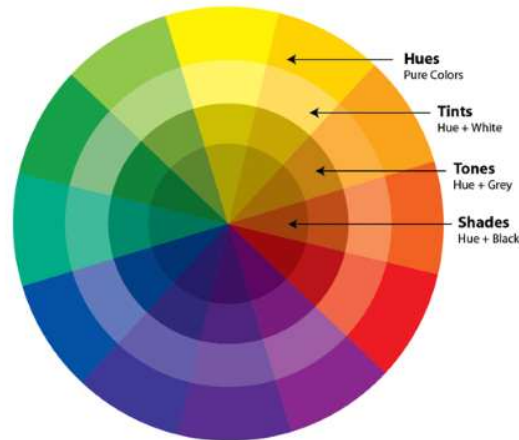
Color Harmonies (Schemes)



<https://blog.kissmetrics.com/art-of-color-coordination/?wide=1>



Variations; Hue, Tint, Tone, Shade



- Reference: <http://lifehacker.com/learn-the-basics-of-color-theory-to-know-what-looks-goo-1608972072>



- <http://www.colourlovers.com/palettes/most-views/all-time/meta>



<https://powerbi.tips/tools/color-theme-generator/>

Color Blindness

- 1 in 12 men (8%)
- 1 in 200 women (0.5%)
- Average: ~ 4%



What Color Blind Would See?



Red/green Color Blind



Red/green Color Blind



Blue/Yellow Color Blind

<http://www.colourblindawareness.org/colour-blindness/>



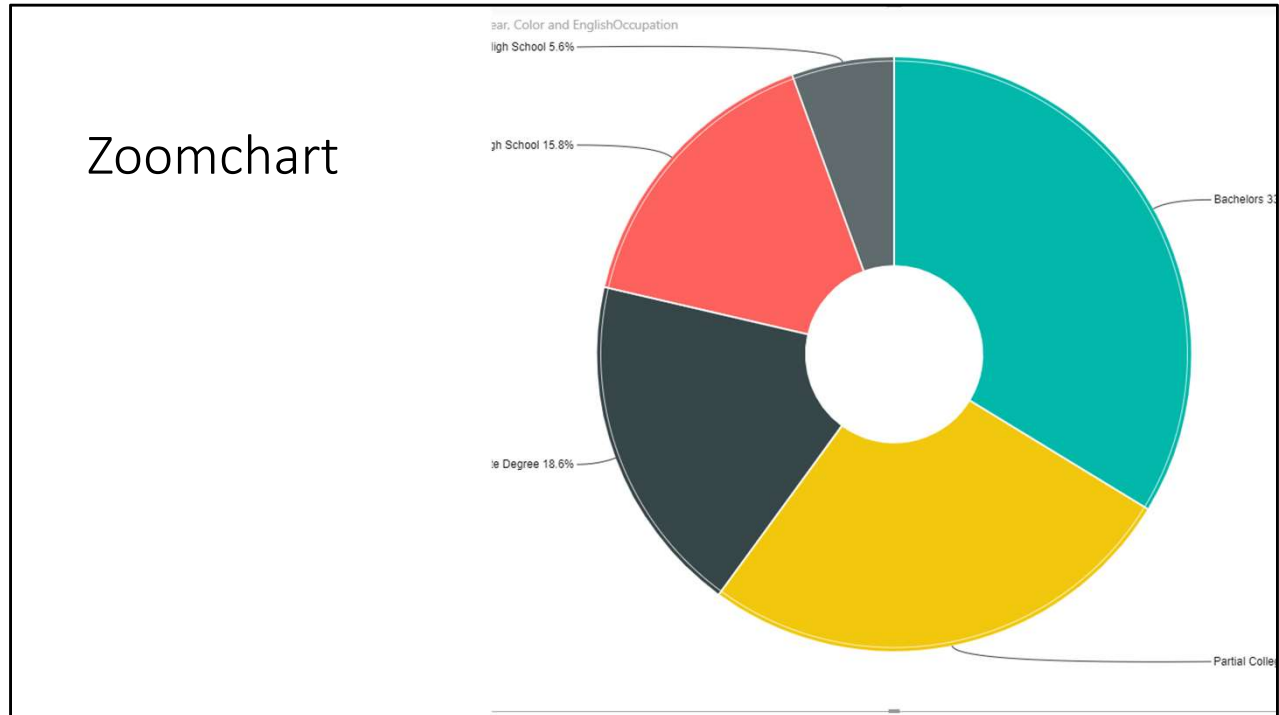
Color Theme in Power BI



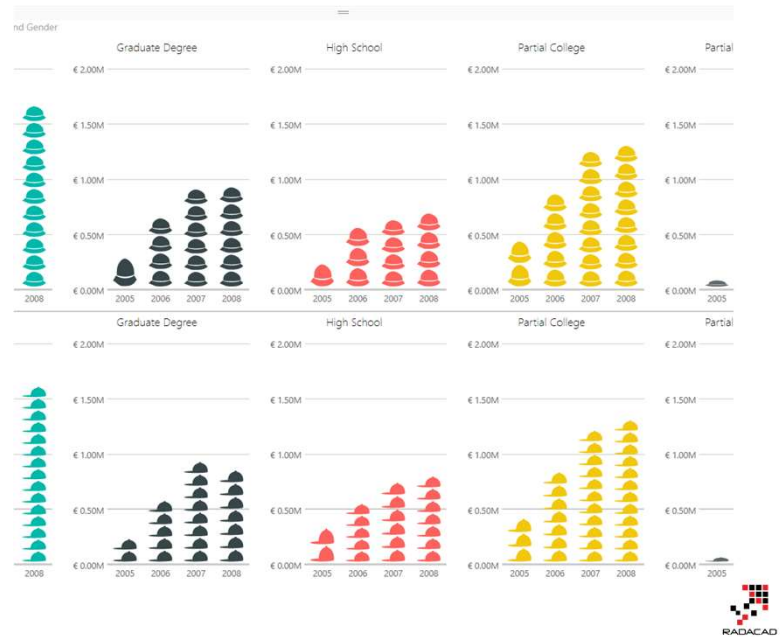
<https://powerbi.tips/tools/color-theme-generator/>

Custom Visuals



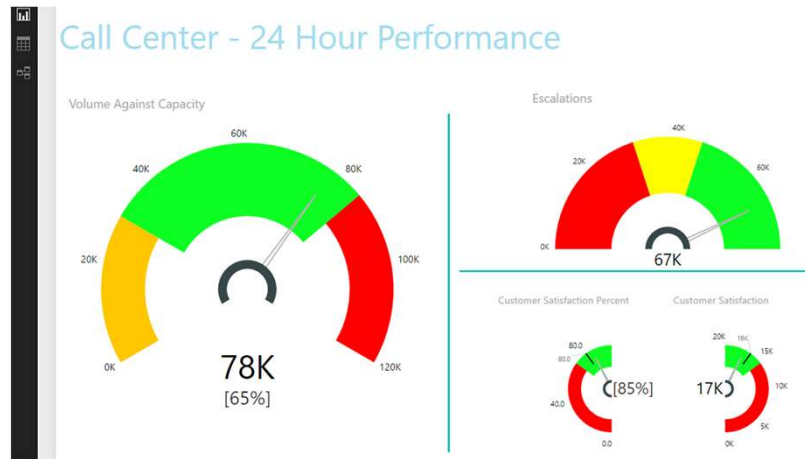


Infographic Designer

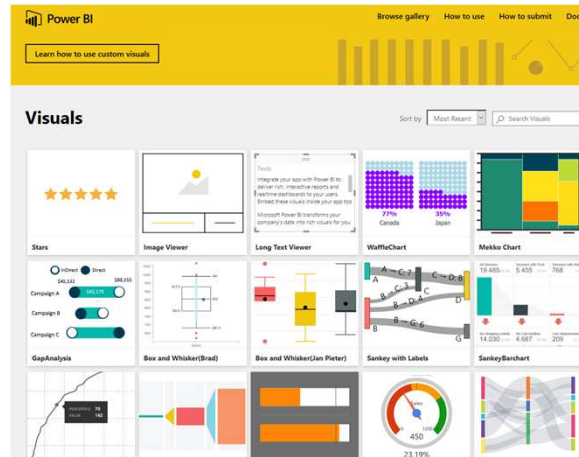


<http://radacad.com/infographic-designer-not-just-another-visual>

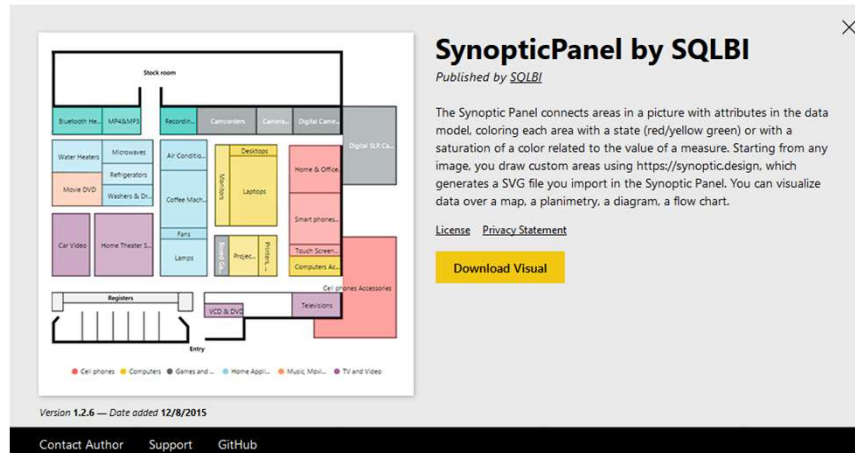
Tachometer



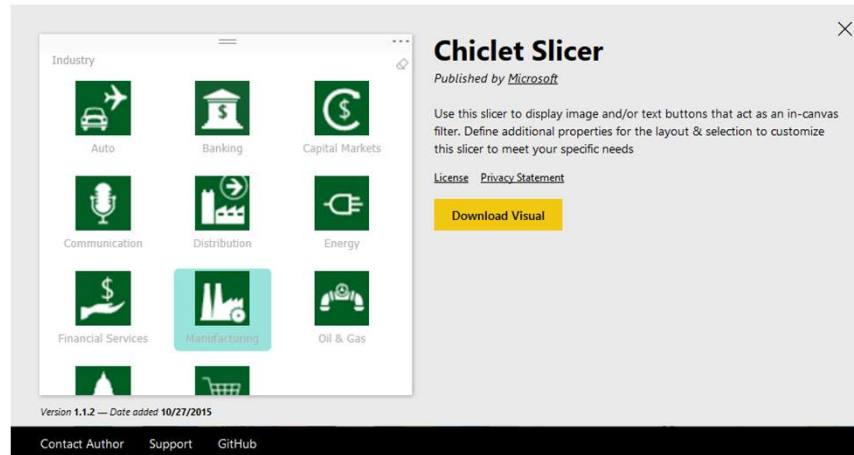
Custom Visuals; Build Whatever You Want



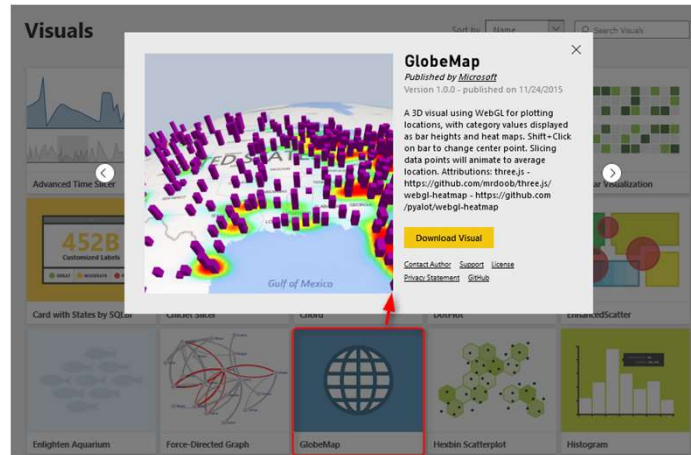
SynopticPanel by OKVIZ



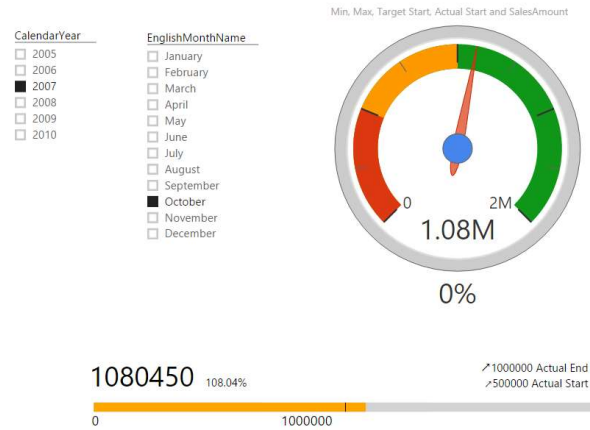
Chiclet Slicer



3D Maps in Power BI



KPIs and Power BI



Class Reference Materials

- Power BI from Rookie to Rock Star – Online Book
 - Reza Rad
 - <http://www.radacad.com/online-book-power-bi-from-rookie-to-rockstar>



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