



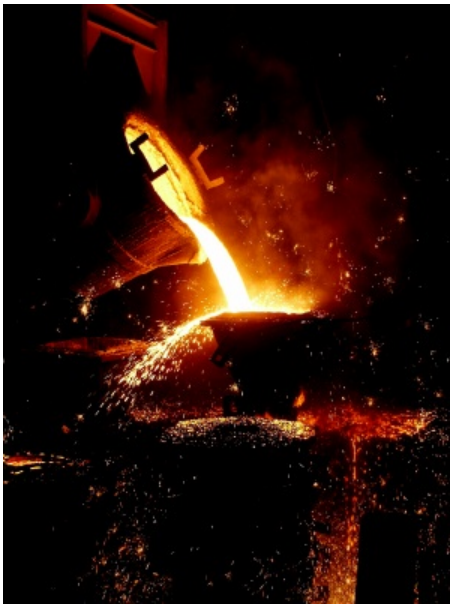
Data Visualization and Dashboards with Adobe Flex

Tom Gonzalez
Managing Director
BrightPoint Consulting, Inc.

Who should be here



- **Intermediate/
Advanced Flex
Developer**
- **Have used the Flex
Charting Controls**
- **Know what a SQL
statement looks
like**
- **Understand
Design Patterns**



Flex gives us the raw materials, but it is up to us put them together and make them sing.



*.... frameworks,
architectures, and
design patterns*

**Just give
me some
cool
components**

.... and let me code.

Painting the picture
Presenting your Data

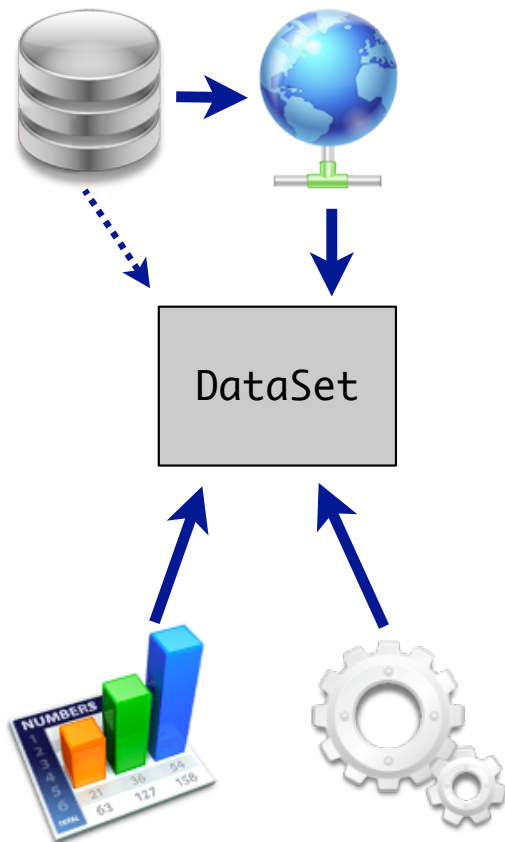
Putting the puzzle together
Data Management

Making it come alive
Adding User Interaction





- **ETL**
- **CSV format**
- **Normalize Data on Client**
- **Client Side Queries**



- **Load**
 - `processCsvSource()`
 - `processArraySource()`
 - **Future - Adapters (RPC, OLE-DB, SQL, ODBC)**
- **Query**
 - `SELECT * WHERE Sales < 1000`
 - **Using inline conditionals and expressions**
 - **Cache and Cache Alias**
- **Transform**
 - **Pivot**
 - **Future - Inline expressions**
`SELECT (Sales-Cost) as 'Profit' WHERE ...`

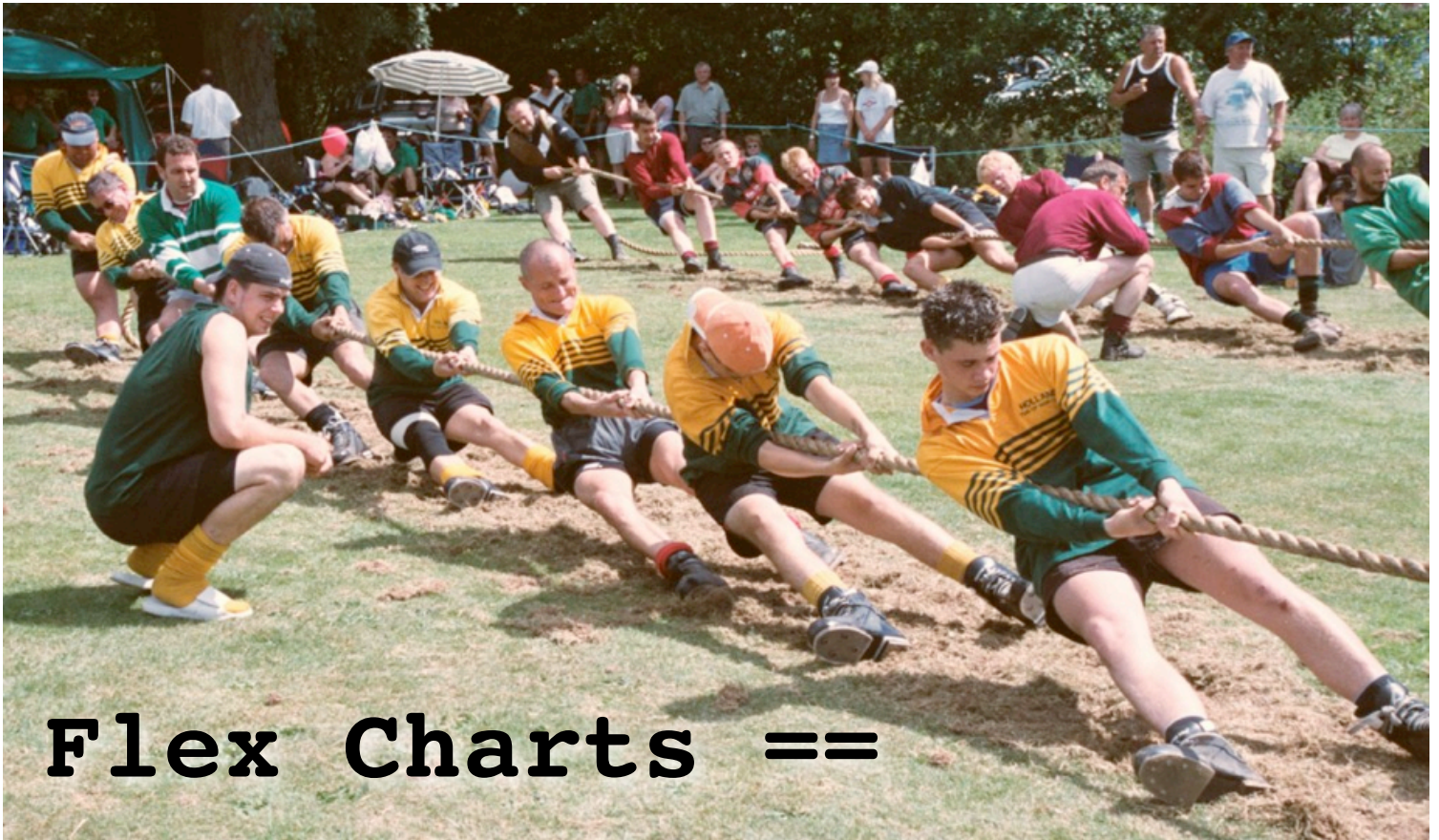
Demo - DataSet Example



By Region		North America		Filter By Country		2003-2005		Pivot	Reset																					
Region	Country	Fipscd	[1980]	[1981]	[1982]	[1983]	[1984]	[1985]	[1986]	[1987]	[1988]	[1989]	[1990]	[1991]	[1992]	[1993]	[1994]	[1995]	[1996]	[1997]	[1998]	[1999]	[2000]	[2001]	[2002]	[2003]	[2004]	[2005]	[2006]	[2007]
North Ar	Bermud	BD	3.8	3.3	3.5	3.7	3.6	3.52	3.33	4.69	5.13	6.24	4.43	3.93	3.19	3.63	3.62	3.61	3.66	3.67	3.67	3.67	3.66	3.63	3.67	3.98	4.25	4.4	4.57	NA
North Ar	Canada	CA	1873	1768	1578	1448	1520	1526	1531	1607	1681	1754	1733	1673	1720	1746	1767	1811.04	1864.32	1952.27	1942.96	2027.36	2026.67	2056.84	2078.35	2207.15	2299.67	2296.86	2264.26	2342.87
North Ar	Greenla	GL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.25	3.36	3.4	3.4	3.44	3.53	3.58	3.58	3.65	3.77	3.81	3.83	3.86	3.88	3.93	NA
North Ar	Mexico	MX	1270	1399	1476	1350	1395	1476	1523	1576	1598	1715	1754	1830	1855	1836	1934	1818.58	1788.54	1854.05	1948.64	1957.44	2036.36	2008.69	1949.76	1948.58	1995.92	2045.19	1996.68	2045.69
North Ar	Saint Pie	SB	1	1	0.9	1	1	0.9	1.13	1.43	1.49	1.7	1.67	1.59	1.5	0.82	0.86	0.58	0.58	0.39	0.46	0.46	0.5	0.46	0.5	0.54	0.55	0.56	NA	
North Ar	United S	US	17056	16058	15296	15231	15725.6	15726.4	16280.6	16665.0	17283.3	17325.1	16988.5	16713.8	17032.8	17236.7	17718.1	17724.5	18308.9	18620.3	18917.1	19519.3	19701.0	19648.7	19761.3	20033.5	20731.1	20802.1	20687.4	20697.5
North Ar	North Ar	r1	20203.8	19229.3	18354.4	18033.7	18645.2	18732.8	19339.0	19854.1	20568.9	20802.1	20481.6	20222.3	20615.8	20826.5	21427.0	21361.7	21969.4	22434.2	22816.4	23511.8	23771.9	23722.1	23797.3	24197.5	25035.4	25153.0	24957.4	NA
Central E	Virgin I	VQ	117	105	75.8	54	63	70.52	46.79	54.79	39.33	59.98	54.96	55.55	55.37	53.45	55.85	56.57	56.9	58.26	60.3	62.44	66.08	91.7	93.24	108.78	110.9	98	100.52	91.68
Central E	Saint Vin	VC	0.27	0.25	0.27	0.27	0.25	0.29	0.29	0.32	0.38	0.56	0.59	0.56	0.6	0.56	0.89	0.94	0.94	1.01	1.19	1.19	1.21	1.23	1.31	1.38	1.47	1.5	1.57	NA
Central E	Venezue	VE	400	433	427	400	379	383.24	401.56	404.41	396.93	387.65	395.59	405	413.81	426.95	440.28	448.47	443.81	454.57	456.76	461.21	499.71	544.47	570.67	540.64	552.85	598	620.13	NA
Central E	Puerto R	RQ	200	219	158.8	152	167	144.58	155.52	161.79	147.46	143.07	140.16	175.61	155.58	162.16	165.37	169.07	174.87	179.25	183.54	189.14	201.35	213.86	212.05	217.81	222.76	230	235.73	214.99
Africa	Libya	LY	100	115	124	125	120	128.28	124.69	134.23	142.01	147	155	165.97	149.72	160.07	165.64	178.51	186.83	198.91	187.21	191.56	210.28	225.17	233.35	244.09	254.51	266	278.75	NA
Asia & O	Burma	BM	23	23	24	23	24	22	17.28	16.39	16.66	16.65	15.24	15.66	16.44	16.53	18.92	18.36	19.75	25.35	29.95	36.48	36.75	33.65	34.52	35.97	40.29	42	43.14	NA
Middle E	Iraq	IZ	217	214	205	250	240	258.31	279.22	285.03	319.72	349.97	400	262.8	341.44	409.13	456.6	474.13	469.46	443.35	447.36	451.29	462.32	489.08	497.37	457.38	502.66	545	570.1	NA
Middle E	Middle E	r5	2044.46	2181.99	2334.39	2591.39	2648.33	2832.63	2952.81	3026.96	3130.43	3242.74	3469.43	3526.68	3756.47	3924.24	4098.57	4131.93	4215.1	4422.46	4538	4619.49	4780.75	4943.41	5107.25	5286.23	5539.41	5853	6165.52	NA
Eurasia	Ukraine	UP	--	--	--	--	--	--	--	--	--	--	--	--	812.71	569.59	495.31	484.38	392.99	372.45	365.88	288.51	260.14	304.46	308.03	322.46	325.34	328	364.05	NA
Central E	Guaddek	GP	3.47	4.93	6.2	6.5	7.1	6.5	6.69	7.46	8.14	9.1	9.78	10.23	9.56	10.99	11.37	11.67	11.55	11.76	11.76	11.76	12.43	12.66	12.88	13.39	13.72	14	14.34	NA
Central E	Saint Luc	ST	0.8	0.63	0.76	0.7	0.7	0.88	0.88	0.98	1.2	1.2	1.2	1.2	1.24	1.22	1.39	1.41	1.4	1.47	1.47	1.47	2.33	2.44	2.49	2.74	2.68	2.7	2.78	NA
Europe	Denmar	DA	290	243	230	219	220	226	222	214	204	196	192	194	192	199	211	222.72	234.95	226.62	222.85	220.25	210	213.41	197.16	188.27	185.33	183.46	190.48	194.1
Central E	Colomb	CO	160.7	163.7	167.6	171.8	174	171.47	171.82	184.57	198.44	208.53	196.91	204.88	229.53	240.22	244.41	250.63	278.13	286.51	289.02	277.4	277.49	271.18	261.2	265.36	267.52	264	265.42	NA
Africa	Benin	BN	3	3	2	3	3	3.5	3.46	2.66	3.22	3.45	4.08	4.69	5.24	5.79	6.1	6.68	7.18	7.84	8.46	9.22	11.37	11.4	12.13	14.16	16.77	16	17.13	NA
Africa	Congo I	CG	19.1	20.4	21.4	21.3	19.5	18.9	20.54	18.53	23.34	21.95	20.42	21.52	24.27	25.37	19.97	20.55	21.32	20.92	19.79	16.93	14.16	9.53	8.09	8.13	11.32	11	10.46	NA
Europe	Slovenia	SI	--	--	--	--	--	--	--	--	--	--	--	--	35.4	41.06	42.26	47.27	54.39	55.91	53.54	53.51	52.28	52.02	51.04	52	52.62	54	54.31	NA
Europe	Croatia	HR	--	--	--	--	--	--	--	--	--	--	--	--	65.44	62.82	78.63	88.46	77.88	80.86	89.61	90.9	85.54	85.54	89.49	91.34	95.5	99	101.85	NA

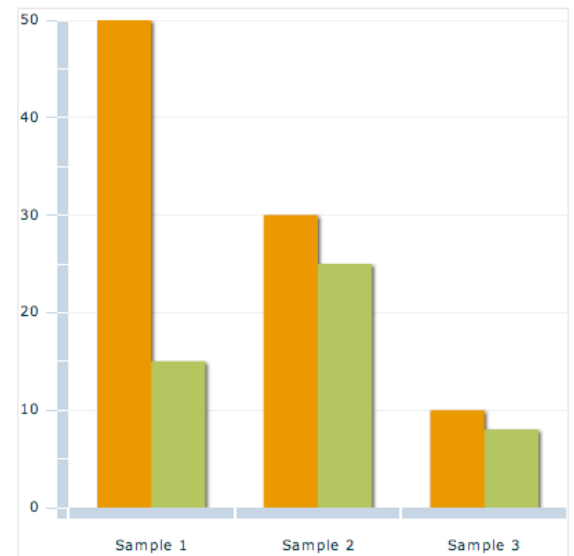


- **Flex Charts**
- **CSS**
- **Customizing**

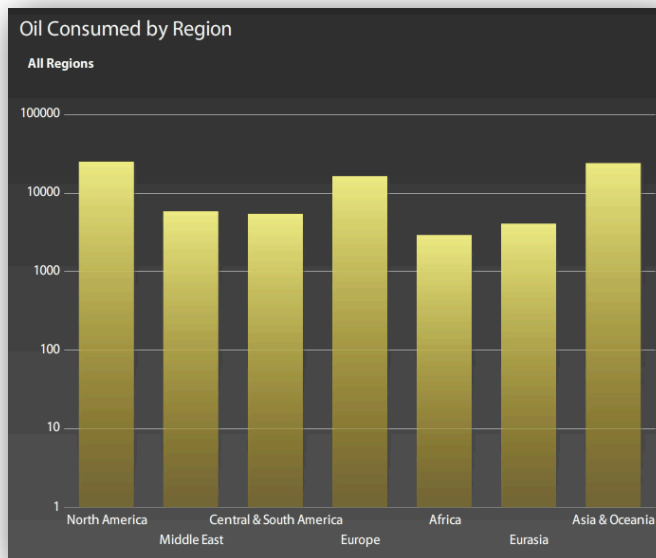


Flex Charts ==

Monkey Patching the Flex Charts

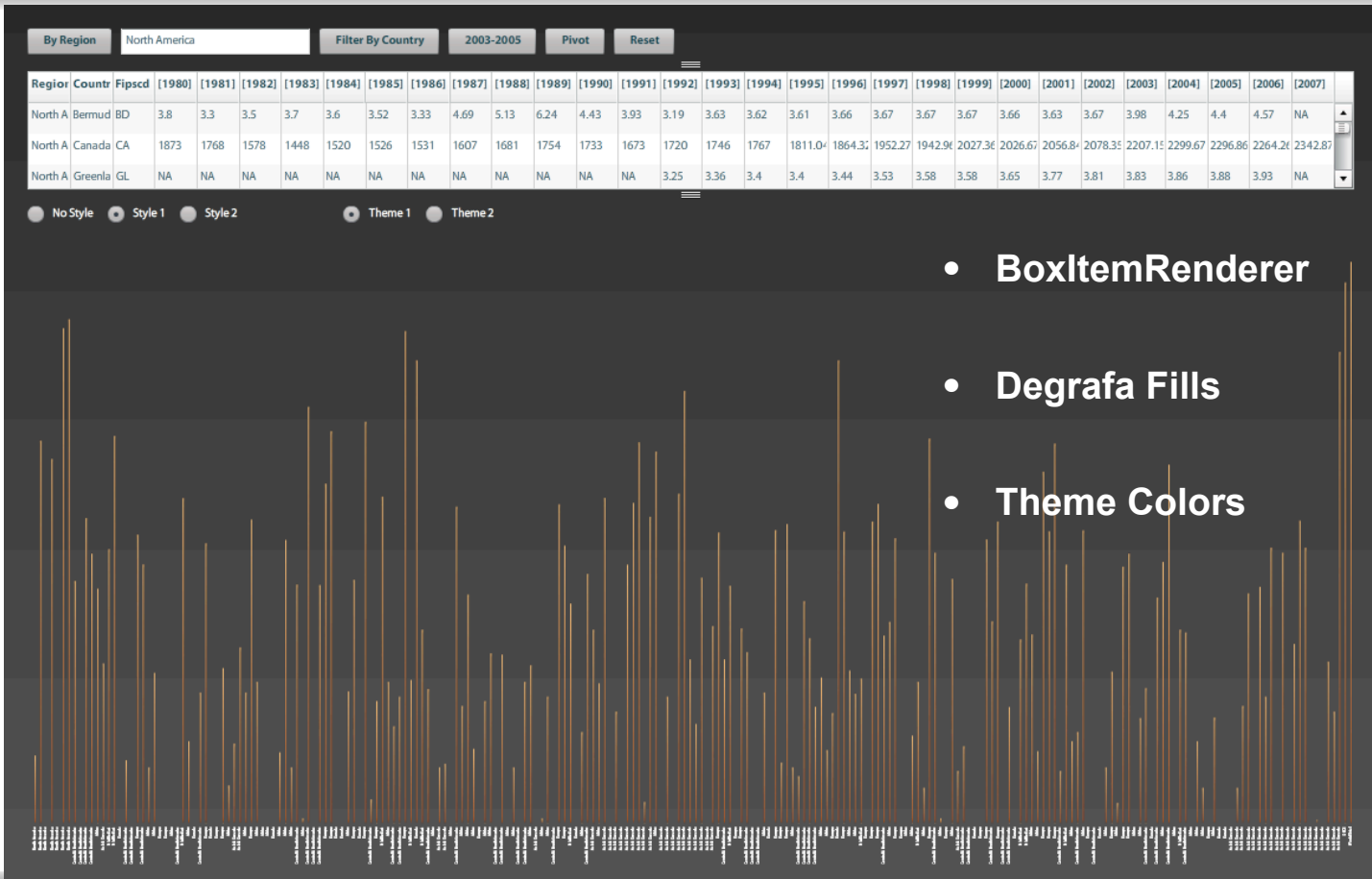


Making Charts Stylable



```
[Style(name="seriesItemRenderer", type="class", inherit="yes")]  
[Style(name="seriesItemFill", type="class", inherit="yes")]  
[Style(name="themeColors", type="Array", inherit="no")]
```

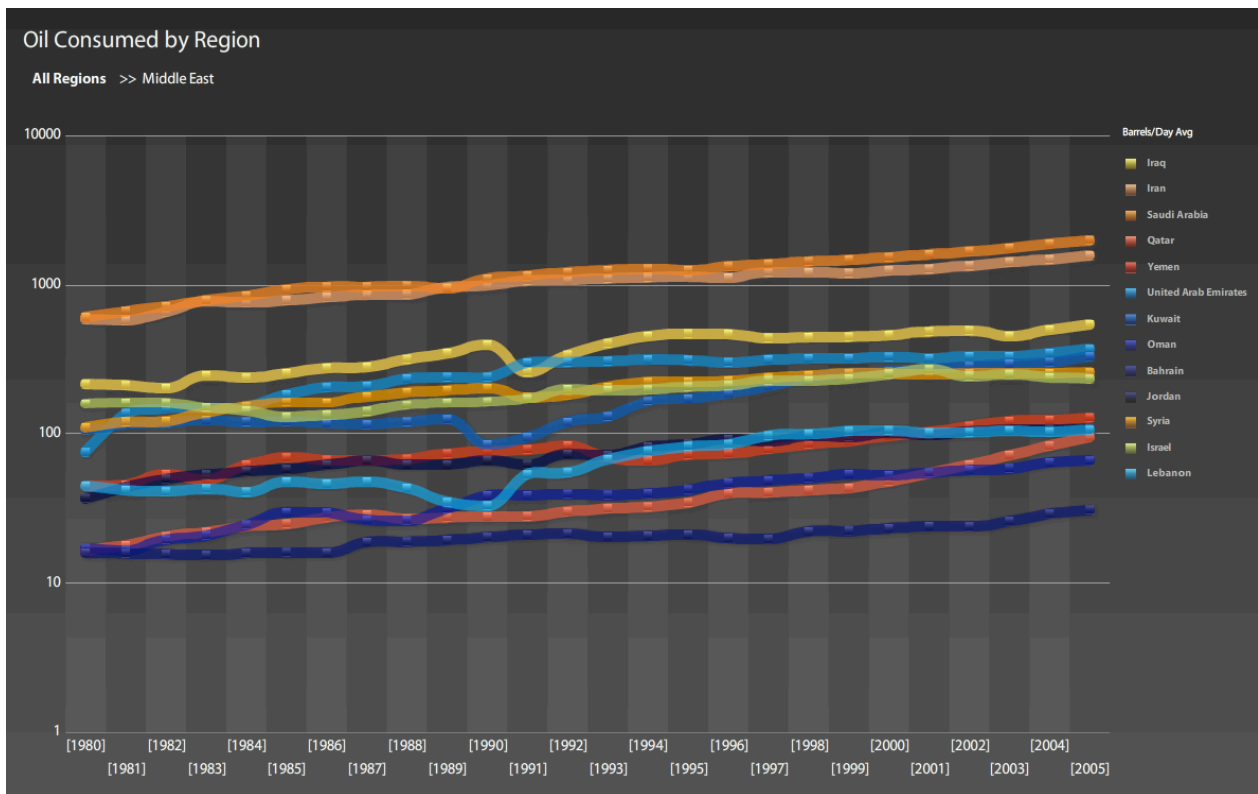
Demo - Styling & Customization Example



- BoxItemRenderer
- Degrafa Fills
- Theme Colors



- **Filtering - Slicing Down**
- **Filtering - Slicing Across**
- **Comparative Analysis**



Google Finance - Work in Progress Case Study



Adobe Systems Incorporated (Public, NASDAQ:ADBE) - [Add to Portfolio](#) - [Discuss ADBE](#)

45.39 Open: 45.48 Mkt Cap: 24.08B P/E: 30.23 Dividend: -
 High: 45.89 52Wk High: 48.47 F P/E: - Yield: -
 Low: 45.01 52Wk Low: 30.70 Beta: 1.70 Shares: 530.45M
 Real-time: 11:51AM EDT Vol: 2.01M Avg Vol: 6.65M EPS: 1.50 Inst. Own: 88%



[NASDAQ:ADBE] Income Statement Balance Sheet Cash Flow		View: Quarterly Data Annual Data				
In Millions of USD (except for per share items)	3 months Ending 2008-05-30	3 months Ending 2008-02-29	3 months Ending 2007-11-30	3 months Ending 2007-08-31	3 months Ending 2007-05-31	
Revenue	886.89	896.45	911.21	851.69	745.58	
Total Revenue	886.89	896.45	911.21	851.69	745.58	
Cost of Revenue, Total	82.87	82.47	88.80	92.82	91.21	
Gross Profit	804.02	807.97	812.42	758.87	654.36	
Selling General Admin. Expenses, Total	356.44	343.32	336.04	322.38	305.00	
Research & Development	170.30	168.49	162.85	163.22	120.05	
Depreciation/Amortization	17.10	17.10	17.89	17.89	18.92	
Interest Expense (Income)	0.00	1.43	0.00	0.56	0.00	
Other Operating Expenses, Total	0.00	0.00	0.00	0.00	0.00	
Total Operating Expense	636.71	613.81	616.78	596.66	566.19	
Operating Income	267.31	294.16	295.63	262.21	188.17	
Interest Income (Expense), Net Non-Operating	17.44	19.73	14.45	21.97	25.24	
Gain (Loss) on Sale of Assets	0.39	0.48	-	-	0.49	
Income Before Tax	279.81	295.44	298.68	277.80	265.12	
Income After Tax	214.91	219.38	222.21	205.24	152.59	
Minority Income	-	-	-	-	-	
Equity in Affiliates	-	-	-	-	-	
Net Income Before Extra. Items	214.91	219.38	222.21	205.24	152.59	
Accounting Change	-	-	-	-	-	
Discontinued Operations	-	-	-	-	-	
Extraordinary Item	-	-	-	-	-	
Net Income	214.91	219.38	222.21	205.24	152.59	
Preferred Dividends	-	-	-	-	-	
Income Available to Common Incl. Extra Items	214.91	219.38	222.21	205.24	152.59	
Basic EPS	0.40	0.39	0.38	0.34	0.28	
Basic EPS Excluding Extraordinary Items	-	-	-	-	-	
Diluted EPS	0.40	0.39	0.38	0.34	0.28	
Diluted EPS Excluding Extraordinary Items	-	-	-	-	-	
Dividend per Share - Common Stock	0.00	0.00	0.00	0.00	0.00	
Gross Dividends - Common Stock	-	-	-	-	-	
Net Income after Stock Based Comp. Expense	-	-	-	-	-	
Basic EPS after Stock Based Comp. Expense	-	-	-	-	-	
Diluted EPS after Stock Based Comp. Expense	-	-	-	-	-	
Depreciation, Supplement	-	-	-	-	-	
Total Special Items	-	-	-	-	-	
Normalized Income Before Taxes	-	-	-	-	-	
Effect of Special Items on Income Taxes	-	-	-	-	-	
Income Taxes (Ex. Incentive of Special Items)	-	-	-	-	-	
Normalized Income After Taxes	-	-	-	-	-	
Normalized Income Available to Common	-	-	-	-	-	
Basic Normalized EPS	-	-	-	-	-	
Diluted Normalized EPS	0.40	0.39	0.38	0.34	0.28	



More things to come



- Gauge
- MicroCharts
- Pie Chart Styling
- ChartDataSlicer

- **My Blog:** <http://form-function.blogspot.com/>
- **Email:** tgonzalez@brightpointinc.com
- **Degrafa:** www.degrafa.com
- **Ely's Blog:** <http://www.quietlycheming.com/blog/>