Technology Economics

Benchmark Indices for Infrastructure Cost and Labor Productivity: Are you beating the market?

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Financial markets rely on benchmarks – the Dow Jones, S&P, NASDAQ, and more. National economies rely on them too – the Consumer Price Index, the Consumer Confidence Index, GDP/GNP, and more too.

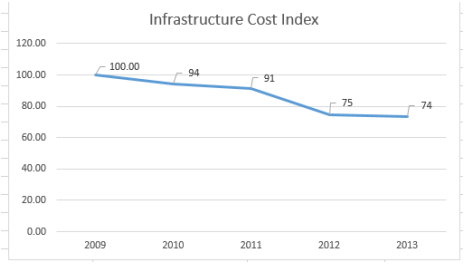
In a "Technology Economy", technology leaders need similar highly transparent benchmarks to calibrate and gauge the position of their company's IT resources, their performance trajectories, and their competitiveness. This is particularly critical in the new world of financial services in which a major component of cost and operating efficiency is driven by technology and the ability of an IT organization to provide commodity services at or below market and competitor rates.

Fortunately with the increased focus on IT efficiency and effectiveness that is evident over the past 5 years as IT demand and cost pressure has risen, we now have accurate and transparent data to create appropriate benchmarks. IT infrastructure is perhaps the proverbial "poster child" for the availability of such data.

Benchmark: Infrastructure Cost Index (ICI)

The basis of this index is a "market basket" of technology platforms which parallels the concepts underlying the consumer price index. As a first cut index consider an IT infrastructure market basket using 2009 as the base year consisting of 100,000 installed MIPS, 10,000 UNIX servers, 20,000 Wintel servers, 25 PB of SAN/NAS storage, 150,000 end user devices (desktops/laptops), a service desk supporting an annual call volume of 300,000, and a data network with 600,000 ports.

Now if one multiplies each of these volumes by the 2009 fully loaded unit cost for each market basket component (drawn from a global database of over 2,000 companies) and then sum up all the volume x unit cost computations, the result is a total market basket cost of $1.415B. If you then take the same volumes and multiply by the 2013 fully loaded unit costs the resulting market basket cost is $1.043B. For purposes of creating the Infrastructure Cost Index, if the base year of 2009 is considering to be 100, then by 2013 the index is at 74. This indicates a 26% reduction in the cost of the market basket (with a no growth scenario) and an annual reduction in cost averaging 6.5%



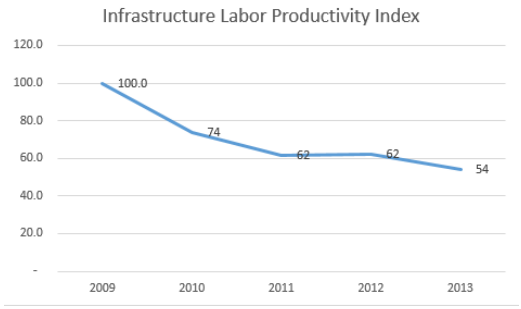
In essence this means that the "market" is improving its economic efficiency by 6.5% a year and that is the "benchmark" rate of improvement!

If you want your organization to be at "the market" that is the pace you need to maintain. If you have an outsourcing agreement supporting your organization for infrastructure services, unless your deal moves at the rate of the market you will likely find yourself non-competitive.

Benchmark: Infrastructure Labor Productivity Index (ILPI)

Using a the same market basket composition, the size the of labor pool needed to support the set of market basket services can be computed by simply dividing each of the volumes by the 2009 support productivity for each platform. Using 2009 data, it would take 3,707 FTE's to support the market basket. Applying 2013 support productivity data yields a 2013 FTE figure of 2,012

Using the same technique as for the ICI, if you set 2009 as the base year at 100, 2013 is at 54.



Overall the benchmark is an 11+% improvement in staff productivity per year.

Benchmark: Deeper Dives

Underlying the indices is platform level data that can actually be used to index/benchmark economic efficiency and labor productivity for each market basket component.

	Annual Change in Unit Cost	Annual Change in Labor Productivity
MIPS	-4.3%	29.1%
UNIX	-1.3%	2.8%
Windows	-6.1%	20.0%
Storage	-16.4%	142.5%
EU Devices	-6.4%	5.4%
Service Desk Calls	-2.5%	9.6%

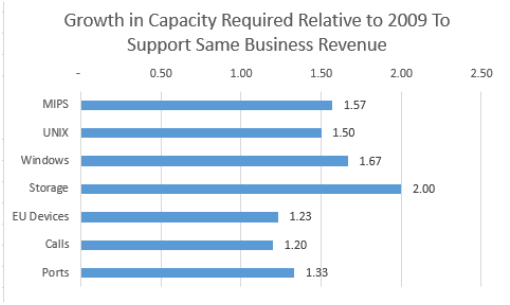
Storage shows the greatest decline in cost on an annual basis during the period 2009 to 2013 along with an astounding increase in support productivity.

As you can easily imagine, it is possible to create individual indices for each of these "commodities" and thereby benchmark your organization at this lower level of analysis.

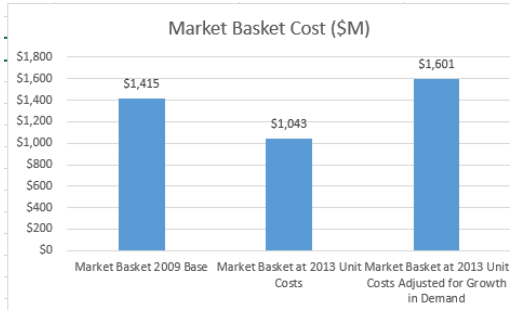
And, as mentioned earlier, if you are relying on outsourcing for any of these services, if your costs are not moving at these rates, you run the risk of not being competitive.

Factoring in Demand

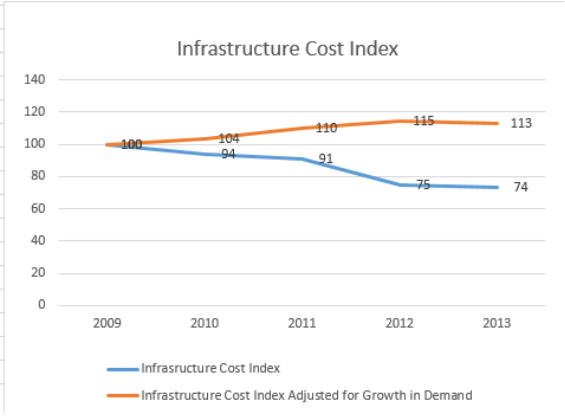
As every IT leader knows, demand for IT is growing. Neither of the indices shown so far consider this. However, creating a demand adjusted index is a simple task. The table that follows show the pattern of demand increase across a sample set of large financial services companies (Net Revenue >$25B) for the period 2009 to 2013



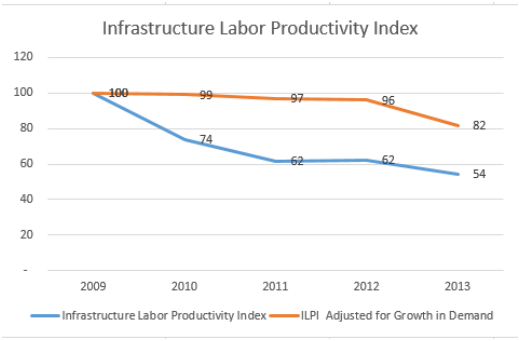
Creating "demand adjusted indices" requires computing revised market basket volumes for 2013 using these multiplier factors (e.g. the original 2009 100,000 MIPS would grow to 157,000 MIPS)



The interpretation of the demand adjusted ICI is as follows – The market basket which cost $1.415B to process in 2009 would cost $1.043B to process at 2013 unit rates holding the 2009 volumes constant. However, business demand drives increases in volumes by 2013 and with the revised volumes at 2013 unit costs, the new market basket would cost $1.601B to process. Therefore despite the improvements in economic efficiency at the platform level, the overall net effect of business demand offsets this and results in higher total cost – about 13% above 2009 as the adjusted index climbs from 100 to 113.



The ITLPI behaves somewhat differently as volume growth is lower than the increase in productivity Though it may be somewhat counter intuitive, the total labor needed to support the 2009 volumes plus the increased demand to 2013 in less than the labor needed in 2009.



Here is a summary of the basic numbers

	2009	2013	2013 Adjusted for Demand
Market Basket Cost ($M)	$ 1,415	$ 1,043	$ 1,601
Market Basket FTEs	3,707	2,012	3,028

So, What Do I Do With All This?

The first step is to answer the question, “Are we beating the benchmark”?
Use your 2009 and 2013 unit costs and apply them to the market basket.
Are you maintaining an efficiency trajectory at a run rate averaging 6.5% a year?

Next do the same for labor productivity.
Use your 2009 and 2013 platform support ratios and apply them to the market basket.
Is your average annual productivity improvement at a run rate average of 11+% a year?

Other questions that you should be asking include:
Is my total market basket cost for 2009 and/or 2013 above or below the benchmark?
Is my total staff size for 2009 and/or 2013 above or below the benchmark?
How does my growth in demand compare with the platform growth benchmark rates?
Are my vendor “deals” keeping pace with the market changes in unit costs and productivity?

But more importantly, if you don’t have the data to apply the indices or pose the questions, you need to ask “How can I be managing my infrastructure effectively?”

APPENDIX: UNIT COSTS AND LABOR PRODUCTIVITY DATA AND COMPUTATIONS

Annual Unit Cost Data					
	2009	2010	2011	2012	2013
Cost per MIPS	$4,496	$5,048	$5,575	$3,566	$3,718
Cost per UNIX OS	$26,962	$25,421	$25,520	$25,077	$25,581
Cost per Windows OS	$8,261	$7,763	$6,349	$6,225	$6,260
Cost per Storage TB	$9,309	$6,889	$4,876	$3,879	$3,212
Cost per EU Device	$1,267	$1,143	$1,039	$1,044	$944
Cost per Call	$20	$20	$19	$17	$18
Cost per Active LAN Port	$170	$117	$111	$110	$104

Annual Productivity Data					
	2009	2010	2011	2012	2013
MIPS per FTE	104	129	150	194	225
UNIX OS per FTE	15.9	21	22.5	16.5	17.7
Windows OS per FTE	31.3	34.6	50.1	46.4	56.3
Storage TB per FTE	30	81	126	181	201
EU Device per FTE	257	280	285	263	313
Calls per FTE	4964	5412	5364	7003	6865

		Total Costs at Benchmark Annual Costs				
Infrastructure Market Basket	Profile	2009	2010	2011	2012	2013
MIPS	100,000	$449,600,000	$504,800,000	$557,500,000	$356,600,000	$371,800,000
UNIX	10,000	$269,620,000	$254,210,000	$255,200,000	$250,770,000	$255,810,000
Windows	20,000	$165,220,000	$155,260,000	$126,980,000	$124,500,000	$125,200,000
Storage	25,000	$232,725,000	$172,225,000	$121,900,000	$96,975,000	$80,300,000
EU Devices	150,000	$190,050,000	$171,450,000	$155,850,000	$156,600,000	$141,600,000
Calls	300,000	$6,000,000	$6,000,000	$5,700,000	$5,100,000	$5,400,000
Ports	600,000	$102,000,000	$70,200,000	$66,600,000	$66,000,000	$62,400,000
	Total Cost	**$1,415,215,000**	**$1,334,145,000**	**$1,289,730,000**	**$1,056,545,000**	**$1,042,510,000**
		Relative to 2009	**94%**	**91%**	**75%**	**74%**

		Total Staff at Benchmark Annual Productivity				
Infrastructure Market Basket	Profile	2009	2010	2011	2012	2013
MIPS	100,000.00	962	775	667	515	444
UNIX	10,000.00	629	476	444	606	565
Windows	20,000.00	639	578	399	431	355
Storage	25,000.00	833	309	198	138	124
EU Devices	150,000.00	584	536	526	570	479
Calls	300,000.00	60	55	56	43	44
Ports	600,000.00					
	Total Cost	**3,707**	**2,729**	**2,291**	**2,304**	**2,012**
		Relative to 2009	**74%**	**62%**	**62%**	**54%**