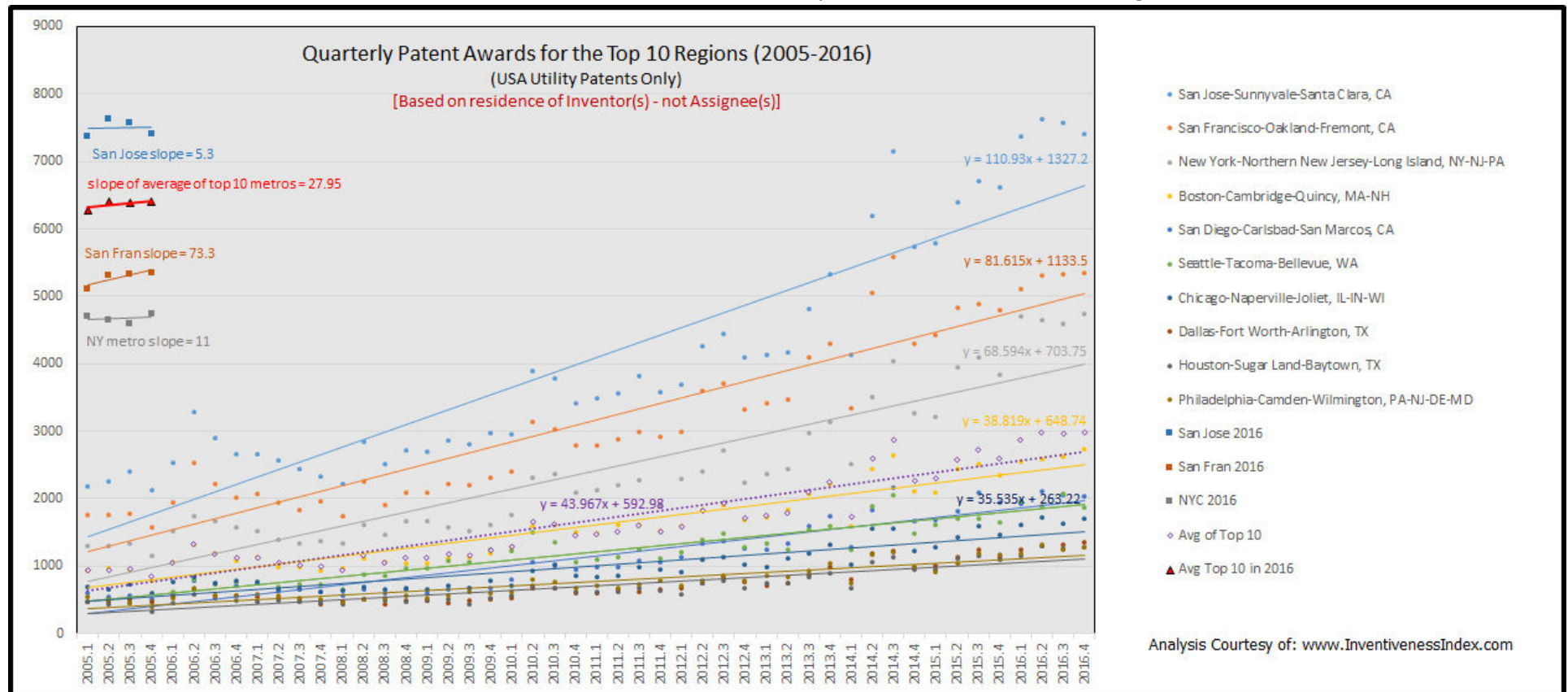


## How Fort Collins Executed a Turnaround

The InventivenessIndex.com and (soon) PatentIdx.com are both part of an ongoing effort to illuminate (and foster) inventiveness and, ostensibly, economic growth across our great nation. These databases answer questions like: “Across the 250 regions tracked, what is the ‘growth of invention’ by metro, and which are the highest performing metros?” In other words, which regions are accelerating, decelerating, or flat over time – in patent production. Additionally, “Are there any regions that are ‘awakening’ or represent a ‘turnaround’ that are worthy of mention?” The answers to these questions then lead to the real and deeper question I offer at the end of the article.

This analysis looks at patents and geography through the lens not of the location of the owner of the patent (the Assignee) which is the conventional view – but through the lens of the location of the inventor(s) who produced the invention. The data proves that the Assignee and the Inventors(s) are not in the same place more often than they are. So if you want to know where the inventing is happening – you have to slice the data by the inventors, not the assignees. Though, the assignees are certainly a major factor and I’ll touch on this shortly. The following chart illustrates the top ten performing metros. Let’s unpack this information-dense chart a bit as it uses some unconventional methods of illustration in order to pack the most answers into a single chart for convenience.



Patent (utility only) awards are shown as dots for each of the top ten regions. Each region also has a solid line (linear regression) that shows their trend performance over the 12 year history. No surprise, Silicon Valley (the San Jose metro region) is ranked first with a slope of 111 which means that, on average, that inventors in that region are awarded 111 more patents every quarter than they were in the prior one... over the 12 year history.

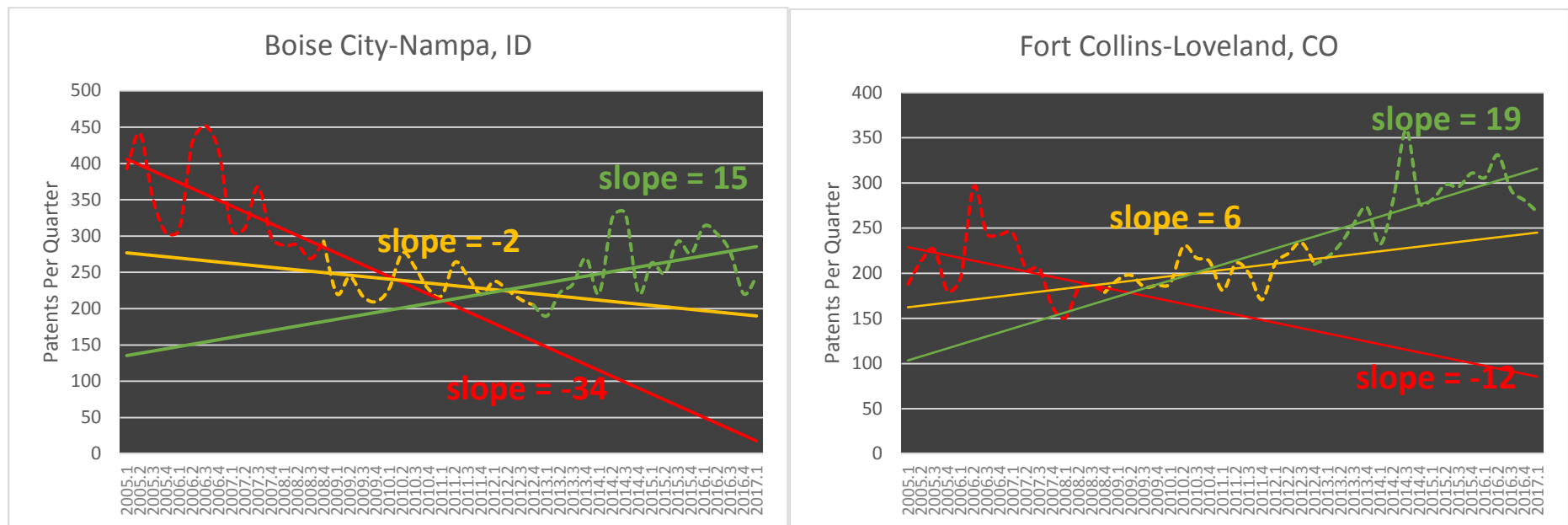
The dashed purple line is the average performance of the top ten metro regions. This is about 44 more patents per quarter than the prior quarter. Only three of the top ten metros outperform this average over the 12 years: San Jose, San Francisco and New York City.

However, a regression over 48 quarters can hide a lot of ups and downs and doesn't necessarily represent the most recent trend. So, in the upper left portion of the chart, the four quarters of 2016 only are shown and for just these top three performers. Compare these to the average of those quarters for the top 10 overall. As you can see, the top ten average growth for 2016 was a slope of 28 which is materially less than the average growth of 44 over the 12 year period – which suggests that patent production overall has “waned” in the last four quarters across these 10 regions.

Looking closer at San Jose, San Francisco and NYC regions relative to this four quarter period, we see that San Jose was “flat” at a very anemic growth of 5 per quarter. In fact, if you look closely, San Jose’s performance for the last three quarters of 2016 was a significant decline. NYC clocked in at a growth of 11 relative to the average of 28. San Francisco, registering a slope of 73, was the only region to outperform our top ten average for the period – and by a wide margin. In short, San Francisco was carrying the rest of the bunch over the last year.

Now, what about the second question relative to the “sleepers that might be awakening or regions that executed a turnaround?”

There are two “turnarounds” in the country: “Boise City – Nampa, ID” and “Fort Collins – Loveland, CO.” Here are their charts:



For all 250 regions, the 12 year history was divided into three equal four year chunks with the trend derived in each four year period. Two regions showed a clear “turnaround” trend from a very negative slope in the first four years to either a flat or positive slope in the second four years, then a remarkable positive trend in the most recent four years.

Boise City/Nampa seemed to turn the corner around 2010-2011 which suggests the real turnaround was about three years before as that is likely when the patent application trend reversed. For Fort Collins-Loveland, that elbow in the curve was about three years prior to 2008-2009.

Congratulations to greater Boise City and Fort Collins! Keep up the good work! But why? What caused these turnarounds? Simple: new growth companies. To explain that, let’s look at Fort Collins – Loveland a little closer.

Over the 12 year period, 417 Assignees (for this part of the analysis we have to look at assignee rather than inventor) in that region generated 2,548 patents across a broad spectrum of patent art classes. There were some companies that “fell off the map” by way of invention assignment such as Maxtor Corporation (acquired by Seagate in 2006) – and this accounted for a significant portion of the downturn of that region in the first four year period. But as Maxtor was “winding down” (pun intended) – new companies and one university were ramping up.

Here’s a table of patent awards for the “winners” (note the positive slope column):

Patent Assignee	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Slope
Otter Products, LLC	1	9	7	3	9	19	51	18	60	52	51	56	5.74
Colorado State University Research Foundation	4	2	5	4	4	8	9	14	19	20	24	26	2.28
TerraLUX, Inc.						1	2	7	5	10	12	11	1.89
Woodward, Inc.							5	16	13	6	9	23	1.77
Impact Weapons Components, LLC									2	4	3	8	1.70
JCBD, LLC										1	2	4	1.50

And another one for the “losers” (note the negative slope column):

Patent Assignee	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Slope
Bison Designs, LLC		10	5	6	11	11	4	4	2	8	9	5	-0.25
Hewlett-Packard Company	2	3	1										-0.50
Dot Hill Systems Corporation					4	17	4	8	3	9	8	2	-0.58
Heska Corporation	5	8	14	9	9	6	4	2					-0.77
Sunrise Medical HHG Inc.	4	6	7	4	3	1	1						-0.82
Hewlett-Packard Development Company, L.P.	3	1	1										-1.00
NanoProducts Corporation	6	3	7	1									-1.10
Case Logic, Inc.	8	4	3										-2.50
Maxtor Corporation	56	87	47	29	17	3							-14.09

As is clear, Otter Products and Colorado State University are leading the charge for inventiveness in that region. But they are not alone, every year or so since 2010, a new company has emerged with new patents. Together, a tech ecosystem is growing in that region even while some other companies are failing, leaving or being acquired.

Which brings me to the real and final reason I took the time to do all the analysis and to write this article. It is still the reason I continue to look at “inventiveness” and its connection with economic growth/development. How do communities foster growth like one of our leading regions or navigate a turnaround like Fort Collins, CO did? What are your thoughts? Do you have any experiences to share about your region’s “inventiveness” and how that is connected to economic growth?

In particular, if you work for Otter, CSU, TerraLux or any other company (or economic development entity) in Fort Collins – Loveland, I’d love to hear your perspectives.