

Benchmarking Competitiveness

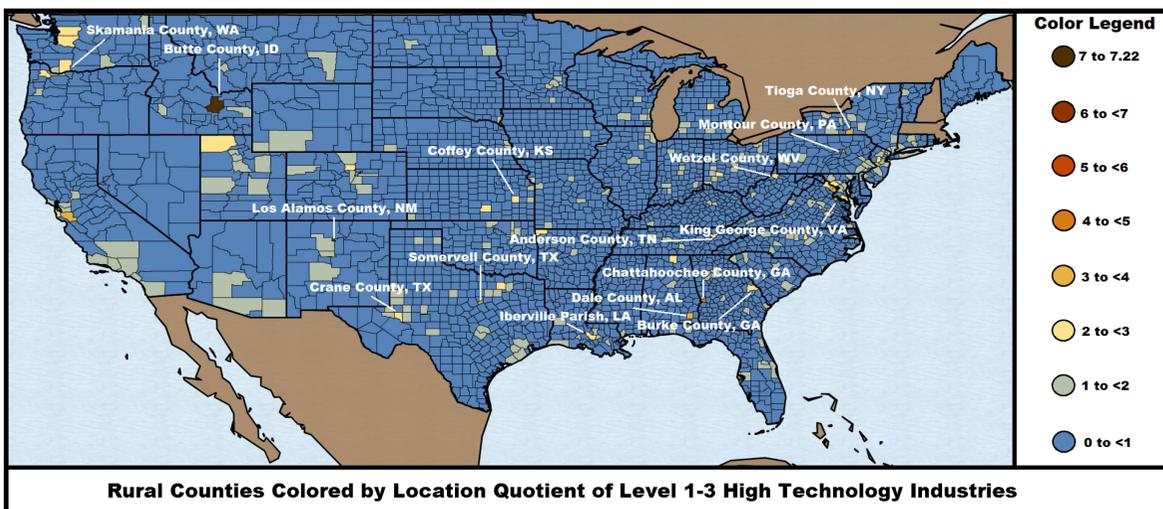
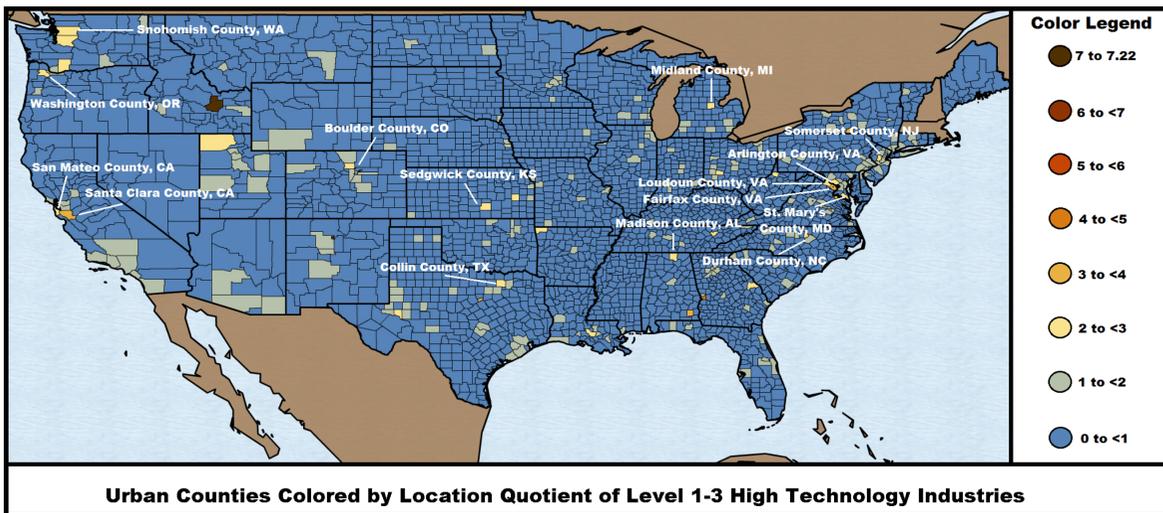
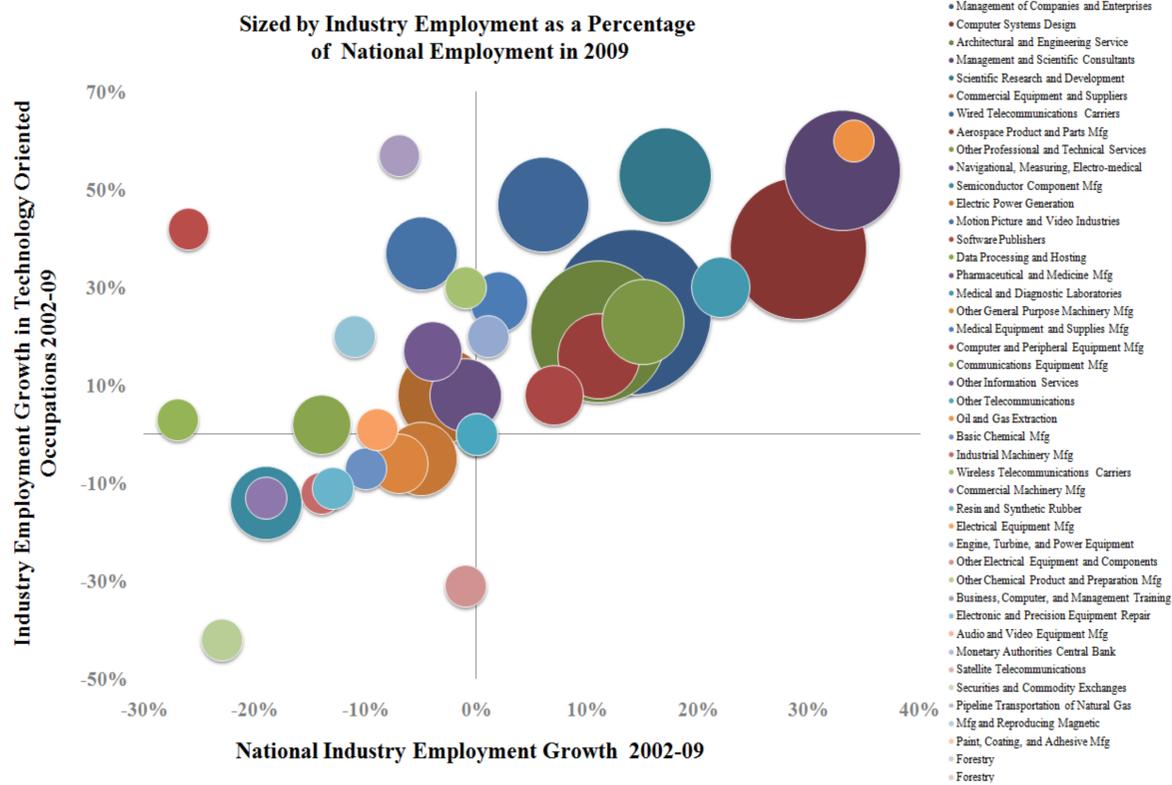
Identifying areas with high concentrations of high tech employment
By William Mass and Matthew Ross

Example Application, CGA Conference
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2009 Level 1-3 High Technology

NAICS	Industry Description	Percentage Technology Oriented Occupations 2009
5415	Computer Systems Design	61
5112	Software Publishers	54
5413	Architectural and Engineering Service	51
3341	Computer and Peripheral Equipment Mfg	50
5417	Scientific Research and Development	48
5182	Data Processing and Hosting	37
3342	Communications Equipment Mfg	36
3345	Navigational, Measuring, Electro-medical	34
3254	Pharmaceutical and Medicine Mfg	30
6215	Medical and Diagnostic Laboratories	30
3344	Semiconductor Component Mfg	28
3364	Aerospace Product and Parts Mfg	26
5191	Other Information Services	25
3343	Audio and Video Equipment Mfg	24
5179	Other Telecommunications	22
2111	Oil and Gas Extraction	20
5416	Management and Scientific Consultants	18
4234	Commercial Equipment and Suppliers	18
5171	Wired Telecommunications Carriers	18
5211	Monetary Authorities Central Bank	17
3251	Basic Chemical Mfg	17
3332	Industrial Machinery Mfg	17
5172	Wireless Telecommunications Carriers	17
3333	Commercial Machinery Mfg	17
5174	Satellite Telecommunications	15
5232	Securities and Commodity Exchanges	14
3252	Resin and Synthetic Rubber	14
5511	Management of Companies and Enterprises	14
3353	Electrical Equipment Mfg	14
2211	Electric Power Generation	13
4862	Pipeline Transportation of Natural Gas	13
3336	Engine, Turbine, and Power Equipment	13
3346	Mfg and Reproducing Magnetic	12
3255	Paint, Coating, and Adhesive Mfg	12
3339	Other General Purpose Machinery Mfg	12



A revised application of Daniel Hecker's cross industry occupational decomposition was used to assess the extent of technology intensive activity within and across industry.¹ The Bureau of Labor Statistics Occupational Employment Statistics (OES) national cross industry occupational employment matrix was used to identify 4-Digit NAICS industries with high concentrations of employment in technology oriented occupations. The thirty five industries identified as high technology were subdivided into three categories according to the degree to which they exceeded the national average of technology oriented occupations (5.4%) in 2009. The location quotients for the aggregate employment in each of the thirty five industries were mapped to identify urban and rural counties with extremely high concentrations of knowledge intensive industry. The QWI data set is the only available data source that provides employment data for these 4-digit NAICS industries at the county level without large amounts of suppression. The process of occupational decomposition could be reversed to generate estimates of occupational employment technology oriented occupation by county. This presentation seeks to 1) provide a methodology for more effective regional economic development and 2) show how QWI can be used to create indicators for workforce development agencies. The presentation will show how the QWI data set can be used to identify high tech clusters nationally and to benchmark the competitiveness of regions.

1: Hecker, Daniel. "High-Tech Employment: A NAICS Based Update". *Monthly Labor Review*. 2005.



The Open Indicators Consortium (OIC) is a multi-stakeholder initiative developing a high-performance open source data analysis and collaborative visualization platform to transform publicly available data into visually compelling, actionable indicators to inform public policy and community decision making. By making available state-of-the-art tools for the analysis and visualization of economic, social and environmental data in nested geographies, the Consortium aims to spur the democratization of high quality data and collaborative, data-driven problem-solving within and across neighborhoods, communities, sectors, regions, states and nations. After two years of development at the University of Massachusetts Lowell supported and guided by nine Primary Members, the Consortium will release the open source code for version 1.0 of the data visualization platform *Weave* (Web-based Analysis and Visualization Environment) in May 2011.

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