

Rochester NY and the Finger Lakes Region:

A Manufacturing Power House and the
Imaging Capital of the World

IMCP Summit Meeting

Washington, DC

October 30-31, 2014

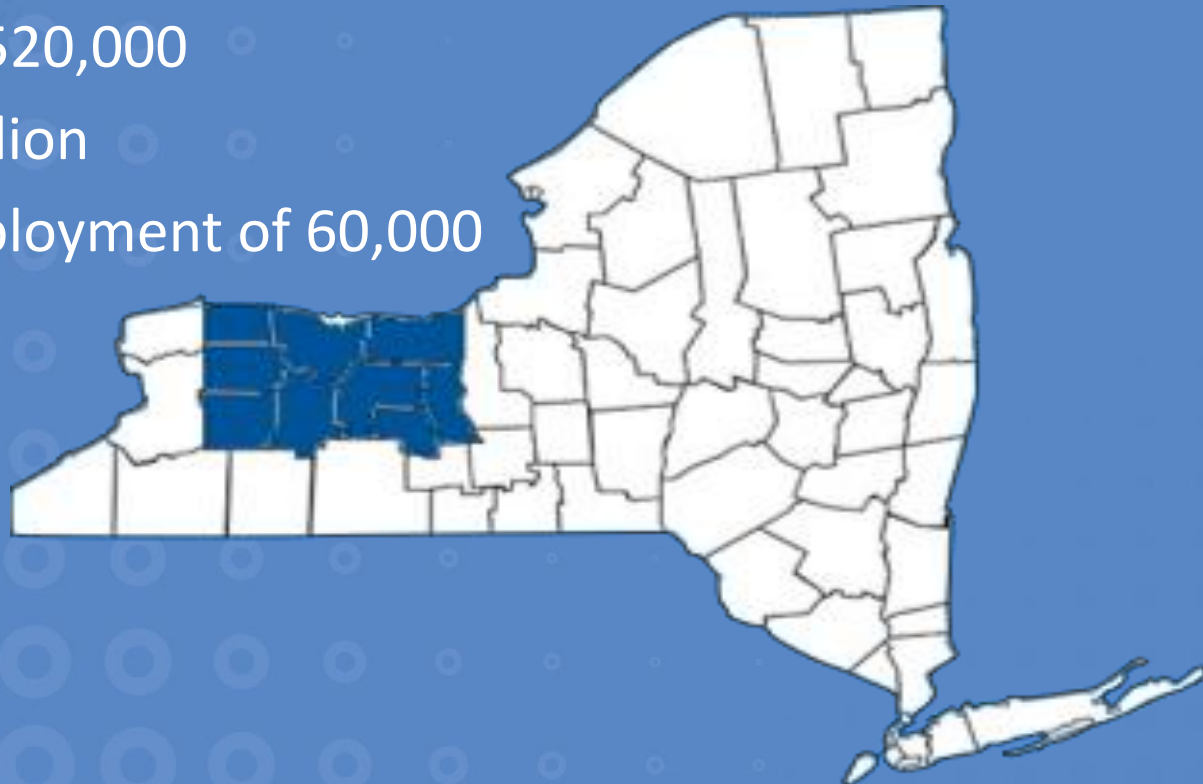


Outline

- Rochester and the Finger Lakes Region
- Analyzing your KTSs using NAICs codes and other methods
- Rochester's Manufacturing Clusters
- The Photonics Industry
- Recent progress in rebuilding the Rochester photonics industry

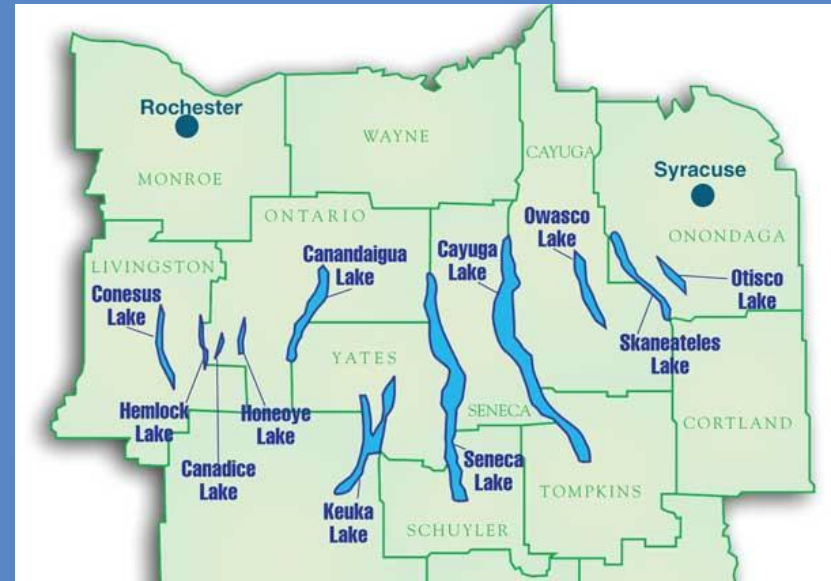
Rochester and the New York Finger Lakes Region

- Nine counties centered around Rochester
- Population of 1.2 million
- Total workforce of 520,000
- GDP of over \$40 billion
- Manufacturing employment of 60,000



The NY Finger Lakes Region

- 11 parallel lakes
- 100 wineries
- Bed and breakfasts
- Hiking, biking
- Gorges and waterfalls
- Farmlands
- World-class museums



A Rich History of Commerce



Eastman Business Park



- 1250 acres
- 16 million sq. ft. of space
- 120 buildings
- 57 tenants
- 6500 workers
- 17 miles of rail track
- 125 MW off-grid electric plant
- Self generating utility (electricity, water, steam, sewer, .)
- Supports complete manufacturing cycle from R&D through pilot production and scale up

Using NAICs Codes to Determine Key Industries

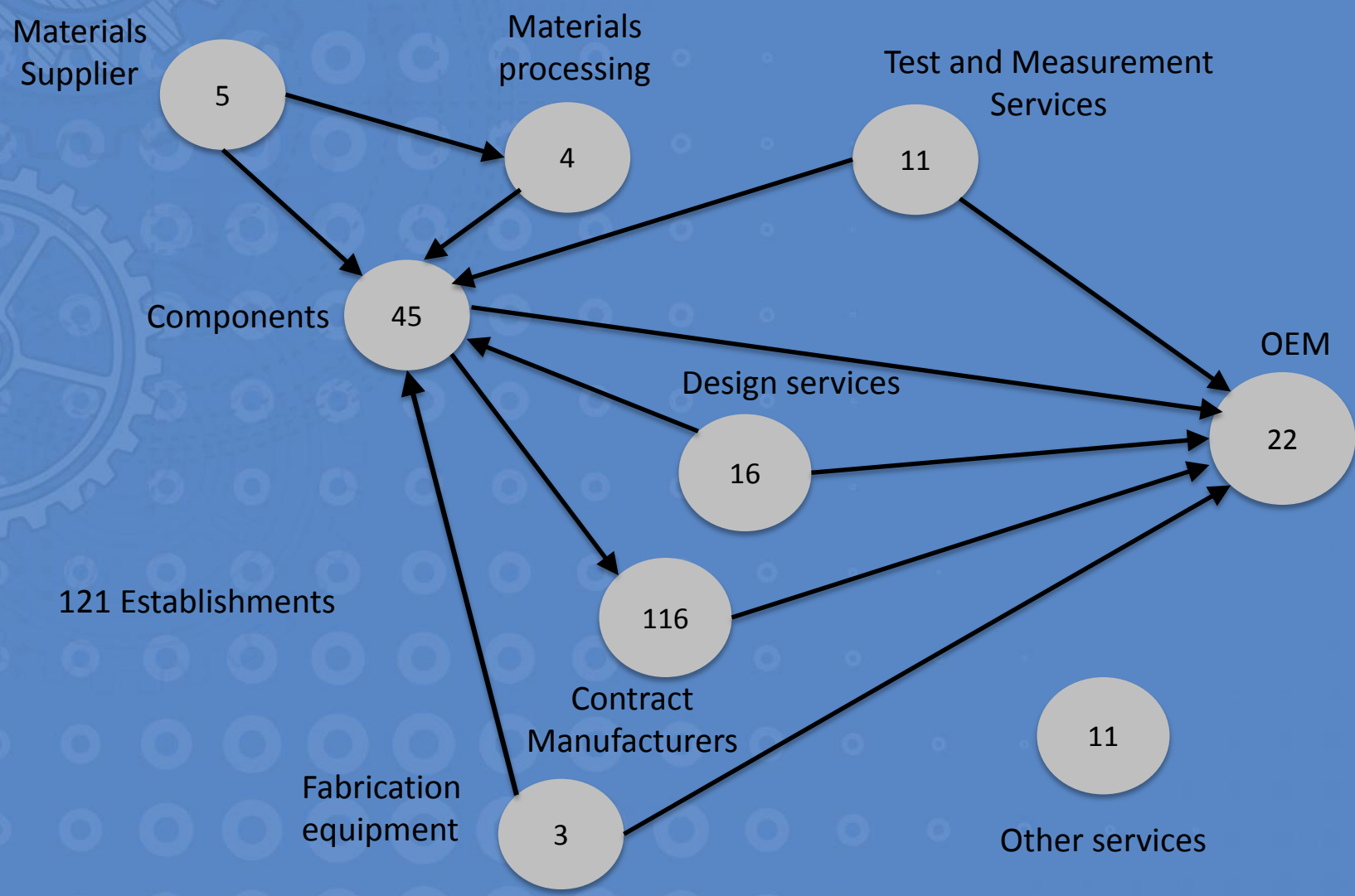
- NAICs codes should not be used alone to determine key industries
 - Codes originally intended for macroeconomic analysis
 - Key technologies require healthy supply chains which include completely separate NAICs codes and must be carefully analyzed
 - Even for a single segment, codes do not always exist (e.g. photonics) and there may be two completely separate codes for segments that are essentially the same (e.g. machine shops and tool and die shops)
 - Strength of a cluster also depends on education and training, and other parts of the support infrastructure.
- Proper determination requires a detailed bottoms up analysis of the manufacturing sector

ROCHESTER's KTSs

- Assembled data of 300 largest manufacturers by employment in the region.
- Used multiple databases and local sources
- Assigned a 6-digit NAICs code based on what we already know and by going to the web site of each and every company.
- Pick out the 5 largest industries and analyze complete supply chain for each.

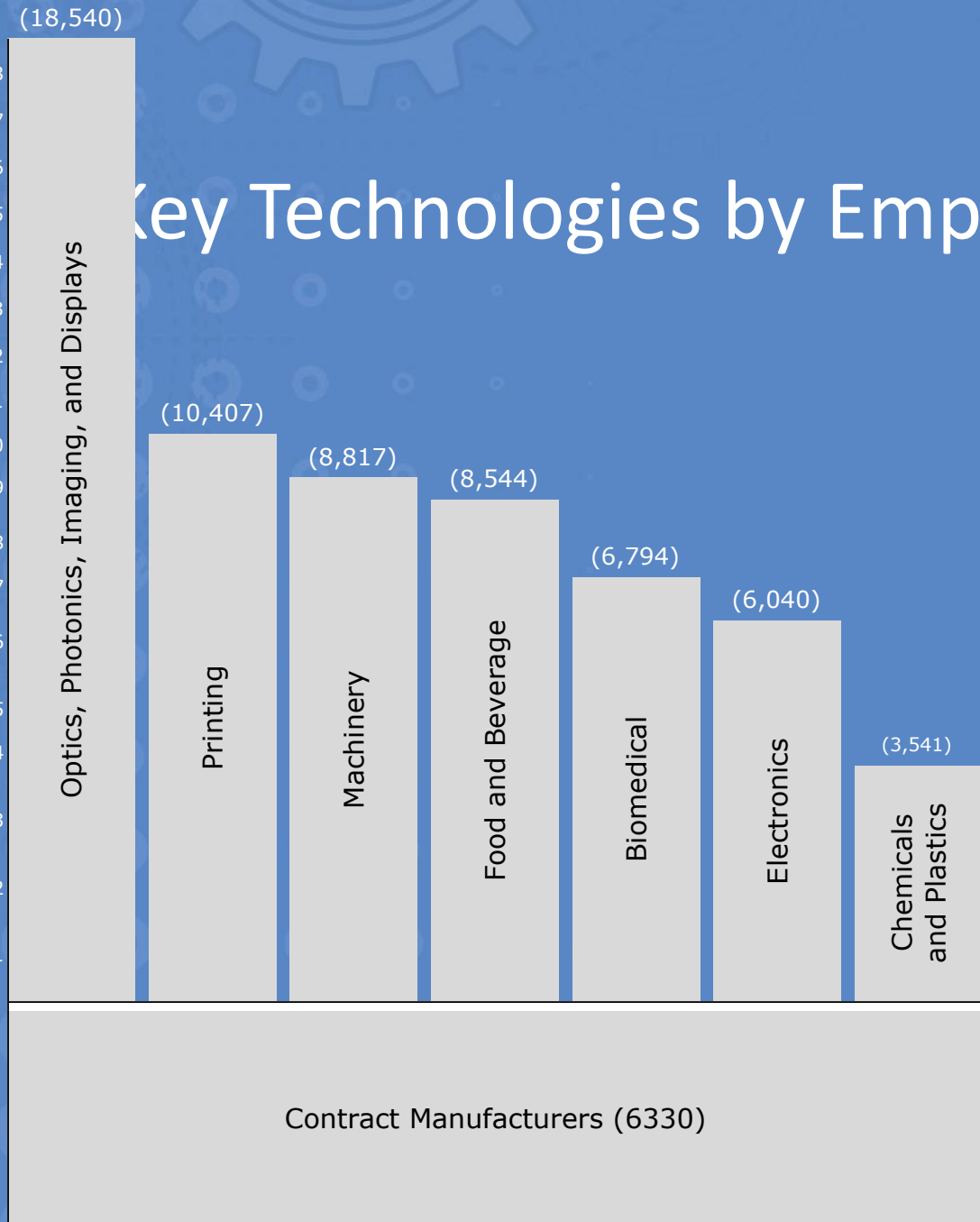
| Company | City | County | NAICS | Business Description | Employee |
|--|--------------|---------|--------|---|----------|
| Xerox Corp | Webster | Monroe | 333316 | photocopying machines | 6385 |
| Harris RF Communications | Rochester | Monroe | 334220 | communications products | 2100 |
| Eastman Kodak | Rochester | Monroe | 333293 | Printing machines | 2000 |
| Carestream | Rochester | Monroe | 334517 | Medical Imaging Equipment | 1250 |
| CooperVision | Rochester | Monroe | 339115 | Ophthalmic Goods Manufacturing | 1200 |
| Exelis | Rochester | Monroe | 334513 | Remote Imaging and Sensing | 1200 |
| Johnson and Johnson Ortho Clinical Diagnostics | Rochester | Monroe | 339113 | Blood analysis equipment | 1100 |
| Reynolds Pactiv | Canandaigua | Ontario | 326199 | Plastic Packaging for Food | 900 |
| Thermo Fisher Scientific | Rochester | Monroe | 334516 | Analytical Instrument Manufacturing | 883 |
| Gould Water Technology | Seneca Falls | Seneca | 333911 | Pump and Pumping Equipment | 800 |
| Li Destri Foods | Rochester | Monroe | 311421 | Tomato-based sauces and retorted products | 700 |
| Gleason Works | Rochester | Monroe | 333512 | Gear production equipment | 680 |
| Zotos International Inc. | Geneva | Ontario | 325620 | Hair care products | 676 |
| Constellation Brands Inc. | Canandaigua | Ontario | 312120 | Alcoholic beverages | 630 |
| IEC Electronics Corp. | Newark | Wayne | 423690 | Contract Manufacturing | 607 |
| Prestolite Electric | Arcade | Wyoming | 336320 | Alternators, starters, electro-mechanical | 600 |
| Garlock Sealing Technologies | Palmyra | Wayne | 326220 | Rubber and plastics product manufacturing | 520 |
| GW Lisk | Springs | Ontario | 332911 | Industrial Valve Manufacturing | 500 |

Example Supply Chain: Photonics



Key Technologies by Employment

Number of Employees (1,000s)



What We Learned

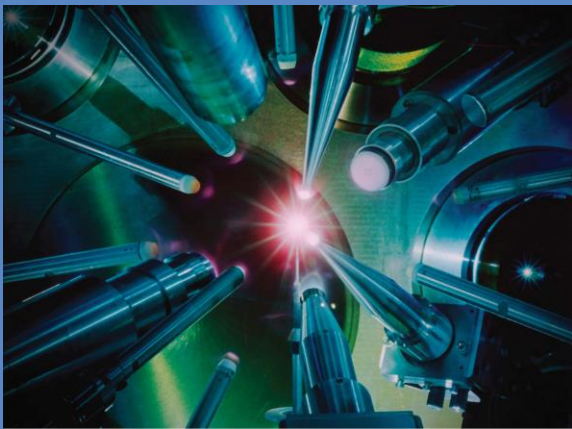
- Using Monroe County data and comparing to all other 2992 counties in the US:
- #1 in optics manufacturing (no surprise)
- Monroe County is also in the top 1% of all counties for machine shops, and tool and die shops.
- Precision manufacturing (incl. contract assembly and machining) is a KTS for Rochester and is closely linked to the photonics industry
 - Demanding requirements of Kodak, Xerox, and B&L generated a large precision manufacturing industry that still exists today, despite the loss of large local customers

What is Photonics?

- Science, Technology, and Application of Light
- Includes traditional optics as well as modern technologies such as lasers, optical fibers, photovoltaics, and LEDs.
- Applications include fiber optic communications, digital cameras, flat panel displays, and medical diagnostics
- 2013 NRC Report - *Optics and Photonics: Essential Technologies to the Nation*
- No complete set of NAICs Codes
 - There are some, such as 333315 for optics mfg.

Photonics in Rochester Today

- Still considered one of the most important photonic regions in the US
- 130+ companies employing over 17,000 people in the 9-county Finger Lakes region can be classified as “photonics” manufacturers.
 - Another 5,400 at Corning in Steuben County
- Strengthened by some of the strongest optics and imaging academic programs in the country
- Extensive supply chain from raw materials to end products



Recent Progress Towards Rebuilding the Rochester Photonics Industry (and the economy)

- University of Rochester spearheading several key federal initiatives
 - Advanced Manufacturing Jobs and Innovation Accelerator Challenge (2012)
 - NIST AMTech program (2014)
 - Helped city with IMCP (2014)
 - NNMI program (\$200 million national photonics manufacturing institute) (in progress)
- Kodak has emerged from Bankruptcy and is rebuilding as a commercial and industrial printing equipment company
- Community is starting to come together to work on a comprehensive and coordinated approach to rebuilding the photonics industry

Manufacturing in Rochester Circa...

- Population, 250,000.
- World's headquarters for photographic goods and supplies.
- Largest optical works in the world.
- Manufacturing establishments about 1,700.
- 17th largest manufacturing output in the US
- 14th in terms of value add
- **2nd in terms of manufacturing output per capita.**

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- Five steam railroads and five trolley roads enter the city.
- Over 149 miles of trolley road inside city.
- Two car ferries each making round trips daily the entire year between the Port of Rochester and Coburg, Canada.
- One of the largest shoe centers in the United States; 56 factories. Annual output, \$17,500,000.

