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The Analytical Instruments Industry on the North Shore

Prepared for the North Shore Workforce Investment Board
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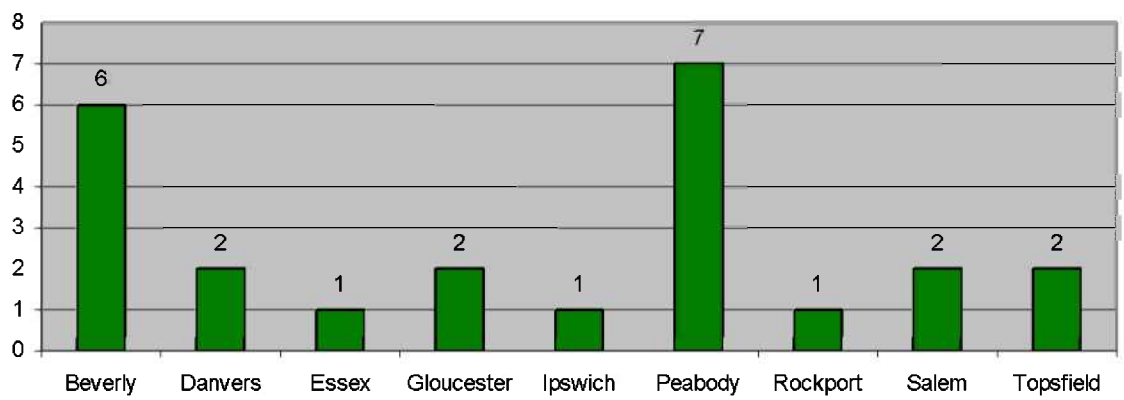
The following provides current labor market information on the Analytical Instruments Industry for the North Shore Work Force Investment Board (NSWIB). The information provided expands upon the *"Southern Essex Regional Labor Market: Blueprint Update 2002."* The North Shore WIB would like to thank Ed March, a researcher from the University of Massachusetts-Lowell, for providing us with the company information used in this report.

Introduction

According to the US Department of Labor, Analytical Instrument companies are "*establishments engaged in manufacturing instruments (including professional and scientific) for measuring, testing, analyzing, and controlling, and their associated sensors and accessories; optical instruments and lenses; surveying and drafting instruments; hydrological, hydrographic, meteorological, and geophysical equipment; search, detection, navigation, and guidance systems and equipment.*"[1] Do to the broad range of the industry; Analytical Instruments does not have its own NAICS (North American Industrial Classification System) classification. Federal and State governments use the NAICS coding when compiling its wage and employment data. This makes quantifying data difficult as there has yet to be any standardization in the Analytical Instruments sector. This also makes long-term data unavailable as none exists.

Analytical Instruments Companies on the North Shore[2]

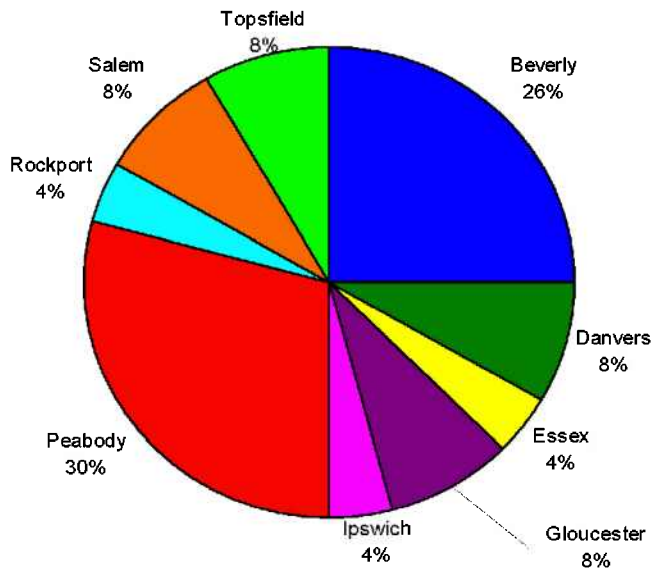
The following graph shows the 9 North Shore communities that are home to Analytical Instruments companies. The total number of Analytical Instruments companies on the North Shore is 24. The majority of the companies are in Peabody (7) and Beverly (6).



[1] US Department of Labor, Occupational Safety & Health Administration, www.osha.gov
[2] Information provided by Ed March, from the University of Massachusetts-Lowell

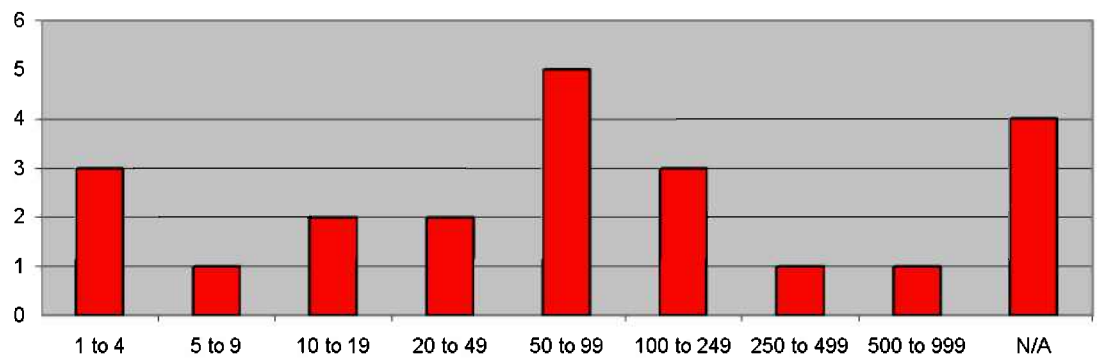
Percent Breakdown of North Shore Analytical Companies by Community[3]

The chart below shows the percentage of Analytical Instruments companies in North Shore communities. 56% of all of the companies are in Peabody (30%) and Beverly (26%). Danvers, Gloucester, Salem, and Topsfield are tied for third at 8% each, while Essex, Ipswich, and Rockport are last at 4 % each.



North Shore Employment in the Analytical Instruments Industry[4]

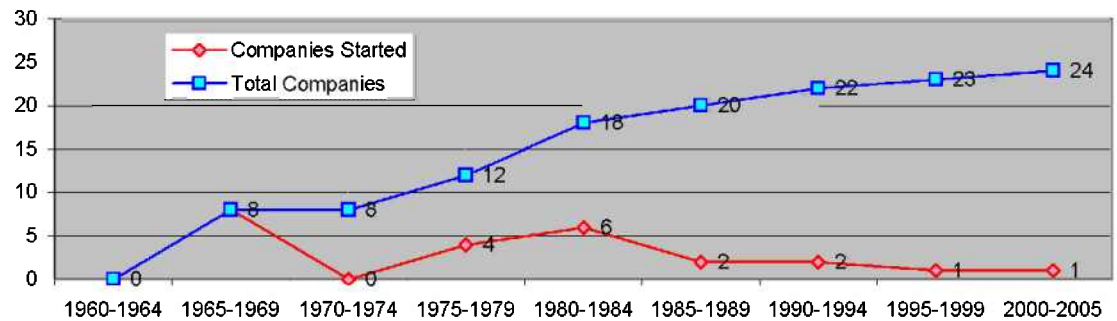
The following graph shows the Analytical Instrument companies grouped together in terms of the number of employees. Employment data was unavailable for 4 of the companies and the three divisions of Analogic (500 to 999 employees) are counted as one company. Employment on the North Shore is estimated to between 1373 and 2897.



[3] Information provided by Ed March, from the University of Massachusetts-Lowell
[4] America's Labor Market Information System (ALMIS), 2nd edition, 2005

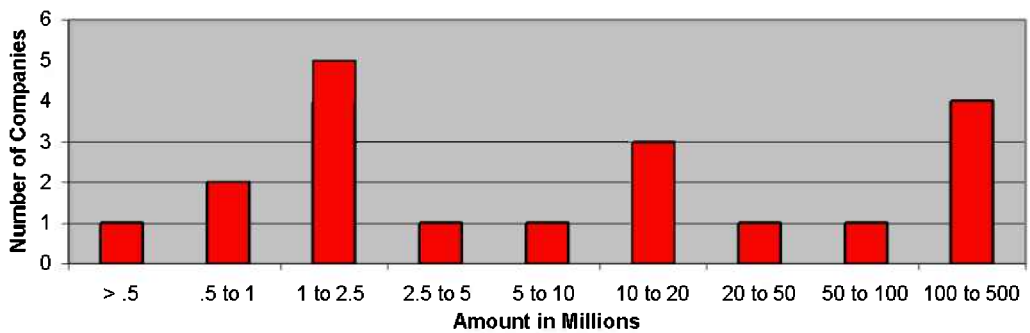
Growth of Current Analytical Instruments Companies by Founding Year[5]

The graph below shows the growth of current Analytical Instrument companies by charting the years that the companies were founded. Not included are companies that have closed or moved out of the North Shore. The number of Analytical Instrument companies currently on the North Shore is 24. 8 (33.33%) of these companies started between 1965 and 1969, which is the period that had the greatest number of companies started. The early 1980's had the second largest number of companies started with 6 (25%). The red line indicates the number of companies started in each period. The blue line shows the total number of companies in each period.



North Shore Annual Sales[6]

The following graph shows annual sales information for 21 of the 24 Analytical Instruments companies. Three of the companies are not included because they are privately held and have chose not to publicly disclose their annual sales. The three divisions of Analogic are counted as one company. The data is based upon ALMIS's annual sales information and uses its sales grouping classifications. The estimated annual sales for the industry is between 514 Million and 2,237.5 Million. The estimate is based upon multiplying the minimum and the maximum in each sales grouping by the number of companies in each grouping, adding the minimum sales grouping together and adding the maximum sales grouping together, thus giving an industrial sales range. The largest company on the North Shore in terms of annual sales is Thermo Alko with $361,900,000 and the second largest is Analogic with $355,557,000.



[5] Information provided by Ed March, from the University of Massachusetts-Lowell
[6] America's Labor Market Information System (ALMIS), 2005 1st & 2nd Edition

Common Positions within Analytical Instrument Companies[7]

Electrical and Electronics Drafters

Requirements: Employers prefer applicants who have completed postsecondary school training, usually from a technical school or two year college. Employers are most interested in applicants with well-developed drafting and mechanical-drawing skills; knowledge of drafting standards, mathematics, science, and engineering technology; and a solid background in computer-aided design and drafting techniques. In addition, communication and problem-solving skills are important.

Description: Drafters draw wiring diagrams, circuit board assembly diagrams, schematics, and layout drawings used in the manufacturing, installation, and repair of electronic devices and components. Traditionally, drafters sat at drawing boards and used pencils, pens, compasses, protractors, triangles, and other drafting devices to prepare a drawing manually. Most drafters now use computer-aided design and drafting (CADD) systems to prepare drawings. Consequently, some drafters are referred to as CADD operators. Salary Range: $32,060 – $53,440

Advancement: Entry-level drafters after gaining a few years experience may start to work with less supervision and use more judgment and perform calculations when drafting. Advancement beyond intermediate levels require an appropriate four year degree, drafters may go on to become engineering technicians, engineers, or architects.

Electrical and Electronics Engineers

Requirements: Requires BS in a scientific, engineering or other related technical field. Computer literacy is important as many electrical and electronics engineers also work with computers. A strong background in mathematics, science, and engineering are required to perform the duties of an Electrical and Electronics Engineer. In addition, communication and problem-solving skills are important. Continuing education is important for Electrical and Electronics Engineers. Engineers who fail to keep up with the rapid changes in technology risk becoming more susceptible to layoffs or, at a minimum, more likely to be passed over for advancement.

Description: Electrical and Electronics Engineers design, develop, test, and supervise the manufacturing of electrical and electronic equipment. Electrical and Electronics Engineers specialize in different areas such as power generation, transmission, and distribution; communications; and electrical equipment manufacturing, or a specialty within one of these areas—industrial robot control systems or aviation electronics, for example. Furthermore, they design new products, write performance requirements, and develop maintenance schedules. They also test equipment, solve operating problems, and estimate the time and cost of engineering projects. Salary Range: $49,794 - $74,283

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[7] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2004-05 Edition*, on the Internet at **http://www.bls.gov/oco/ocos220.htm** (visited July 20, 2005).

Advancement: Advancement of engineers comes with continuing their education with a master's degree, followed by a Ph.D. With addition education comes an increase in annual salary.

Computer System Analyst

Requirements: A bachelor's degree in computer science, information science, or management information systems (MIS) is a prerequisite for many jobs; however, some jobs may require only a 2-year degree. For more technically complex jobs, persons with graduate degrees are preferred. Rapidly changing technology requires an increasing level of skill and education on the part of employees. Companies look for professionals with an ever-broader background and range of skills, including not only technical knowledge, but also communication and other interpersonal skills.

Description: Systems Analysts solve computer problems and apply computer technology to meet the individual needs of an organization. They help an organization to realize the maximum benefit from its investment in equipment, personnel, and business processes. Systems Analysts may plan and develop new computer systems or devise ways to apply existing systems' resources to additional operations. They may design new systems, including both hardware and software, or add a new software application to harness more of the computer's power. Salary Range: $49,500 - $78,350.

Advancement: Systems Analysts may be promoted to senior or lead Systems Analyst. Those who show leadership ability also can become project managers or advance into management positions such as manager of information systems or chief information officer.

Assemblers & Fabricators

Requirements: A high school diploma is preferred for most positions; specialized training is required for some assembly jobs. Good eyesight is needed to perform the duties of an Assembler & Fabricator. New Assemblers and Fabricators are normally entry-level employees. The ability to do accurate work at a rapid pace and to follow detailed instructions is a key job requirement. Following detailed assembly instructions requires basic reading skills, although many instructions rely on pictures and diagrams.

Description: Assemblers and Fabricators produce a wide range of finished goods from manufactured parts or subassemblies. They produce intricate manufactured products. Assemblers and Fabricators involved in product development read and interpret engineering specifications from text, drawings, and computer-aided drafting systems. They also may use a variety of tools and precision measuring instruments. Some experienced Assemblers work with engineers and technicians, assembling prototypes or test products. Hourly Wage Range: $7.57 - $17.38

Advancement: As assemblers and fabricators become more experienced, they may progress to jobs that require greater skill and be given more responsibility. Experienced assemblers may become product repairers. Assemblers also can advance to quality control jobs or be promoted to supervisor. Experienced assemblers and fabricators also may become members of