EMS in New England

By Dr. Leora E. Lawton

Having a manufacturing presence in New England can be essential in meeting customers' needs.

Taking a close, thorough inspection of a regional area for contract manufacturing adds essential information for numerous purposes. A regional picture of the electronics industry helps in developing strategic plans for competitive advantage. Further, as the trend in electronic manufacturing services (EMS) to expand the range of services gains momentum, contract manufacturers must have local presence for their customers. Especially for design and prototyping, some customers insist that their subcontractors be within reach.

A company can most effectively plan its own growth when possessing knowledge about the number and size of companies, share of market, services offered and historical development of a region. Established contractors, startups, original equipment manufacturers (OEMs) and equipment suppliers can all benefit from a regional evaluation.

An examination of the New England market offers a solid exercise in regional analysis. *The Directory of Contract Electronics Manufacturers* (DCEM)[1] provides the starting ground for such an inspection. Listing over 1,400 contract electronic manufacturers in North America, the DCEM includes 129 contract manufacturers (CMs) operating in New England and provides details about their size, services and capabilities.[2]

The New England EMS Landscape

New England's share of contract manufacturing represents about 11% of the U.S./Canadian EMS market, based on sales. While New England is not the largest center of EMS activity, having a manufacturing presence there can be essential in meeting customer's needs. Of the New England states, Massachusetts is the largest player, with 70% of the market, followed by Connecticut (16%) and New Hampshire (13%). The three smallest states; Maine, Vermont and Rhode Island; make up less than one percent combined.

Average statistics of company size for each state (Table 1) are not an issue of "bigger is better." Instead, the figures hint at an industrial description. Small companies often meet niche markets and offer close customer relationships. Large CMs are more likely to provide a full range of services and cater to OEM customers seeking one-stop service. Connecticut has a higher proportion of medium and large companies, giving it flexibility to handle business north and south. New Hampshire's large average facility size is due to a few very large sites, such as Lockheed Martin, but most are smaller. Massachusetts has some very large companies, such as Act Manufacturing, Mack Technologies, and Solectron, but it is also a favorite location for innovative startups, which brings the average size down. (Manufacturers' Services, Ltd. has only corporate offices in Concord and is not included in these calculations.)

The region as a whole offers the range of EMS comparable with the rest of the United States, as seen in Table 2. Yet, within New England, regional differences exist. One can easily find a contractor for cable/harness and prototype assemblies, plus shipping, in Connecticut. New Hampshire is a good bet for prototyping, shipping and MilSpec certification. Yet, compared to the rest of the United States, Massachusetts does not appear to be saturated with services in design, cable/harness and shipping.

Massachusetts compares well for proportion of assemblies that are surface-mount (87%); this figure is higher than the other major New England states (Figure 1) and only slightly lower than the national technology centers of California (93%), New Jersey (94%), New Mexico (93%) and Wisconsin (98%). While surface-mount proportion can indicate an investment toward modern technology, a facility that has strong though-hole assemblies, such Micron or Spears in Massachusetts, may serve narrower industries such as medical, military/aerospace or instrumentation.

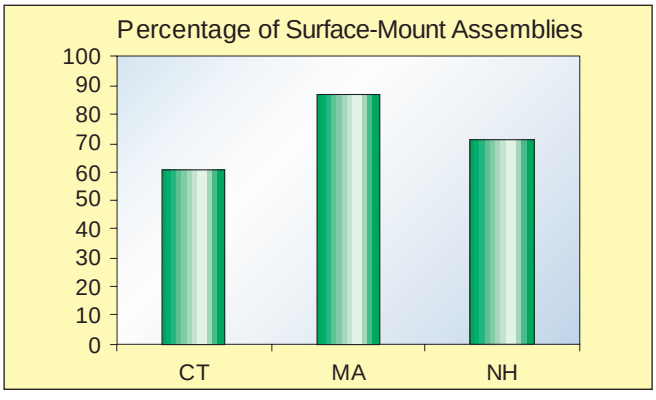

FIGURE 1: Selected percentage of surface-mount assemblies.

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State	Average Facility Size (sq. ft.)	Average No. Employees	Average Year Founded
CT	40,130	76	1975
MA	36,800	57	1980
ME	2,300	18	1984
NH	56,080	100	1981
VT	25,000	45	1990

TABLE 1: Average company size.

State	Total	Design	Prototype	Procurement	Shipping	Cable/Harness	Power Supply	MilSpec
CT	34	53%	76%	35%	74%	73%	56%	29%
MA	64	50%	58%	23%	44%	31%	23%	33%
ME	1	0%	0%	0%	0%	100%	0%	0%
NH	29	59%	86%	27%	83%	52%	48%	55%
VT	1	100%	100%	100%	100%	100%	100%	0%
New England	129	53%	69%	27%	60%	48%	38%	27%
USA	1,406	62%	68%	26%	64%	50%	46%	32%

TABLE 2: Selected service offerings and capabilities, New England and U.S.

Alternatively, a higher proportion of through hole may be indicative of opportunities for surface-mount equipment manufacturers.

Only in the states with the largest contract manufacturers can one find full-service subcontractors with "one-stop shopping." Defining a full-service provider as one whose set of services includes, but is not limited to, design; prototype; full systems build; procurement; shipping and depot/warranty; one finds seven in Massachusetts, five in New Hampshire and four in Connecticut.

Two New Englands

Note that most of the contract manufacturers listed are in the two largest states in the region by population. Massachusetts, with 64 companies, is the eleventh largest state in the Union. Connecticut, with 34 subcontractors listed, is the twenty-fifth largest state. Vermont, the third smallest state in the U.S., lists only one company. However, New Hampshire is the forty-second state in size, and the DCEM shows 29 contract manufacturers. Distance to the Boston area's famed Route 128 is only part of the explanation for New Hampshire. Rhode Island is an hour's drive to Boston, and yet the DCEM lists no contract manufacturers for this state.

If proximity to manufacturing centers is not the only explanation for the locations of facilities, what else contributes? The answer is a tale of two scenarios for New England electronics. The first is the genesis of a major center of electronics manufacturing. Companies such as Digital created the Route 128 silicon corridor. The large metropolitan, with its educated population, top-rated universities and the established eastern seaboard location, fueled EMS growth in Massachusetts. Proximity to manufacturing centers plays another role. Connecticut is proximate to both its northeastern neighbor and New Jersey and the greater tri-state industry further south. New Hampshire is next to Boston.

The second story in New England electronics – for the more limited activity in Maine, Vermont and Rhode Island – is explained by two factors. One factor is a state government supportive of manufacturing. Personal taste appears to be another. The extent of the EMS industry in these small states demonstrates that proximity is not enough of a reason to locate somewhere and remoteness does not have to be a barrier.

Vermont: More Than Maple Syrup

Vermont is somewhat remote, but contract manufacturing is still present. The DCEM lists Zytronics in Windsor, though a recent change in ownership now has it known as Allied Electronics Services. Lance International, listed in Connecticut, also records a facility in North Hartland, VT. Two other contract manufacturers, Nexus Custom Electronics (Brandon), and VEMAS (Middlebury), can also be found there from web searches. Whether the state government is more supportive for manufacturing was unclear, according to talks with Vermont engineers, but the same desire for living in that particular place was present. "I like living in the Green Mountains. And, you can make a good living...for Vermont," said Allied Electronics' Bob Black.

The EMS industry itself is not big in Vermont. Even IBM's Essex Junction facility is in the company's microelectronics division, producing memory, logic and other components. Other component manufacturers dot the Vermont landscape. But, most business is conducted outside the state. Remoteness encourages Vermont companies to maintain stable, close relationships with their customers. "We have to be a bit stronger," explains Black. "Certain capabilities have to be very good."

What Is It about Rhode Island?

Rhode Island is small, but it is not remote. Company locations are often minutes off I-95. Yet, even after searching several databases and speaking with other Rhode Island electronics company executives, any contract electronics manufacturers in that state appear to be a well-kept secret.

An uncharitable attitude toward manufacturing may be one reason for the lack of EMS presence. Indeed, the state lost much of its man-

ufacturing base in the 1980s, and population actually declined.

Significant high-tech firms do exist in Rhode Island, such as Raytheon, Cherry Semiconductor, Cookson, and over 150 others. Yet, a reason for presence in Rhode Island is that people like living there. Aim Solder's president Richard Black built in the Ocean State because he is from there. So, perhaps the reason no contract manufacturer has settled in Rhode Island is because the business environment has not been favorable and no entrepreneurial engineer has had the preference for residence there.

Maine in Brief

The DCEM has one listing for Maine: Manufacturing and Technical Enterprises (MTE) in Farmington. Elscott Corporation (Ellsworth) is another small PCB assembly subcontractor. Portland is only three hours from Boston, but the New Hampshire area is closer and apparently more conducive to manufacturing.

Digging Deeper

This venture into New England revealed market size and the range of capabilities. The importance of government support of industry and proximity to manufacturing centers also play an important role in EMS location. Substantially more information is in the DCEM that would affect one's decision about doing business in New England, such as capacity, packages placed and inspection services. The next step beyond adding additional specifications of company capabilities is to conduct a targeted custom analysis designed to meet the needs of the decision-making process. EMS realities evolve quickly. With a thorough examination of the EMS landscape, an executive can be armed with the right information to make the best strategic decisions.

References

1. *1998 Directory of Contract Electronics Manufacturers: North American Edition.* (1998). San Francisco: Miller Freeman, (Paperback and CD-ROM editions.)
2. The data about companies are voluntarily provided, and some respondents answered more completely than did others. The results presented are, therefore, not statistically reliable, but they do give a good idea of regional EMS offerings. Some inconsistencies existed between the DCEM paperbound book and the CD-ROM's search feature. Where possible, tabulations were compared and reconciled. Additional sources of data, including calls to individual companies, were also included. Readers are cautioned against using these results alone as a basis for strategic planning.

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