M-TAC RFI COMMENTS
NYMEP/ITAC
August 5, 2013

ITAC appreciates the opportunity to provide comments in response to the RFI on the M-TAC proposal. As the NYC sub-recipient under the NYMEP contract, ITAC is in a unique position to speak about the innovation revolution taking place in urban environments. While many of our colleagues will speak to the issues and needs regarding OEM based supply chains, we wish to focus our comments on the needs of young technology firms which need to develop manufacturing capacity in order to commercialize their technology. We have observed that these companies are frequently not familiar with the fundamentals of manufacturing. The simplest solution for them has been to outsource their production to offshore turnkey sources, in prototype phase; they then use the same suppliers to scale for production phase. We are suggesting that the M-TAC program have sufficient flexibility to create regionally based Commercialization M-TACs which can focus on the needs of these firms. In this way, regions will be able to capture the job growth potential that arises from their regional innovation economy.

In NYC, the number of hardware (*see definition below*) startups is rapidly increasing. The monthly hardware meet up attracts over 100 participants; the City University recently established a hardware incubator, and many others are located in other university operated incubators around NYC. These firms have the potential to become high value added manufacturing businesses. While there is excitement at the pace of new hardware firms starting up, financers, incubators and other members of the local eco-system have expressed frustration at the lack of manufacturing expertise in these firms. This is a gap that could naturally be filled with M-TAC/MEP programming and resources.

While this growth trend is currently more concentrated in a few large urban centers, hardware companies are already beginning to form in other startup ecosystems throughout the US. A stronger connection is needed between hardware startups and manufacturing so the start-ups can build their initial supply chains in the US.

These hardware startups are generating jobs because they address practical current needs of our business and society. They are also driving innovation in manufacturing technology and process due to rapid product mutations and informal connections with universities. But how will they scale? Time and money are scarce and often the skills needed to design and plan for scaled manufacturing do not exist. US supply chains and manufacturers are often overlooked simply because of lack of marketing!

The discussion below focuses on a possible model for the Commercialization M-TACs and their potential role in growing these firms. It is not intended to address the issue of OEM type supply chain models.

Hardware: Manufactured goods either requiring high tech tools to develop and produce, or considered to be technology devices. Examples include medical devices, parts, or products of complex shapes; or consumer/industrial/electro-mechanical products.

1. What are the specific types of technology transition and commercialization tools and services that should be provided by M-TACs? Emphasis is on the alignment of these tools and services with the most pressing needs of small and mid-sized U.S. manufacturers.

a. How would M-TAC services complement the services currently offered by MEP Centers?

While MEP Centers are incentivized to focus on larger companies with potential high impacts and revenue generation, the Commercialization M-TACs could focus on very small firms with longer term potential. The differentiation is the customer base – ie accelerator stage hardware firms ready to scale vs

more mature manufacturing firms. As these companies are successful, and scale, they should be transferred over to the MEP service delivery system.

The M-TAC activities would encompass four levels:

1. **Development of the eco-system:** Depending on the current state of the entrepreneurial eco-system in the region, M-TAC would engage in the following types of activities:

    a. Create a partnership of regional technology acceleration resources which could include incubators, investors, professional and trade associations, University Research Centers, meet-ups, MEP Centers, technical, financial and manufacturing resources.

    b. Co-sponsor industry trend roundtables and workshops with local and regional partners.

    c. Create resource partnerships to assist firms with Business Planning, etc.

2. **Education:** There is a need for education on many fronts. The new firms perceive themselves as technology companies, and defer the manufacturing planning until too late in their growth cycle. The mature firms which could be their manufacturing supplier lack the skills and knowledge to work with early stage firms. The financing resources (angel and venture capital) are frequently risk averse regarding firms that need to manufacture in order to get their technology to market. Educational activities could include Manufacturing 101, Workshops re manufacturing strategies and planning, development of the supply chain, etc.

3. **Technical Assistance**: Hands on technical assistance to assist the firm to develop their manufacturing plan, to align it with their business plan, proto-typing, design for manufacturability and sustainability, identification of potential supply chain partners.

4. **CMO-On Call**: With the help of retained resources, provide hands on Manufacturing Management assistance including the creation of the supply chain and the set up of manufacturing and distribution processes. (Fee for Service activity).

2. What role should future M-TACs play with respect to supply chain needs? How should OEMs participate? How can industry associations, professional societies, and other appropriate national organizations participate?

The M-TAC will coach the company through the process of determining their make/buy strategy, assist them with identifying local, regional or domestic suppliers, convene suppliers to engage in the design for manufacturing process and assist firm to manage their supply chain.

The M-TAC will use the MEP system resources and established mechanisms to identify potential suppliers, and engage their local MEP centers in ensuring they have capacity (quantity, quality, sustainability etc.).

The M-TAC clients will frequently be selling their products into bigger supply chains. The Commercialization M-TAC should be working with the other M-TACs to bring in information about their customer requirements, to provide introductions to potential customers.

3. Is there a particular long-term scalable and financially sustainable business model that should be implemented by future M-TACs that will enable small and mid-sized U.S. manufacturers to effectively access and benefit from the technology transition and commercialization assistance and other resources they need?

Business Model is a Challenge. Traditional MEP model requires fee for service and promotes focus on larger clients who can pay bigger fees and generate larger impacts. The types of companies that would be targeted for M-TAC services generally are in a valley of death phase. They lack funds for projects beyond the minimal level.

This type of program should be considered like an investment portfolio. We invest in the companies, and some of them will make it big. (Over the years we have helped many such firms, but recently one of them just got acquired for over $600 million). Eco-system and educational activities should be funded from the M-TAC funds, supplemented, where feasible, with partner funding, foundation or corporate grants or sponsorship. Companies should contribute towards the cost of the technical assistance. CMO-On Call should be a paid service. We believe this type of activity should require no more than a 1 to 1 match, so the M-TAC is free to focus on the smaller firm. However, the M-TAC could generate revenue over the long term if it participates in long term sales growth or takes stock in return for services.

As a nation, this is an investment in our future. The return will come in the form of jobs, innovation, and competitiveness.

a. *Because of the programmatic connection to the NIST MEP Program, M-TACs may require cost share. Are there cost share models for future M-TACs that promote scale up to reach nationally dispersed clusters of small and mid-sized manufacturers? If so, what are those models, and why might they be successful?*

The Commercialization M-TAC does not generate a lot of revenue. However, within the construct of the NIST/MEP contract, the lead center should budget for payments to other centers which develop suppliers for their clients.

b. The generation of intellectual property is possible, and even likely as a result of M-TAC operations. What types of intellectual property arrangements and management constructs would promote active engagement of industry in these pilots, especially among small and mid-sized U.S. manufacturers that would be supportive of the business model? As appropriate, please include a set of potential options, and please explain your responses.

Many early stage and accelerator firms resist sharing the IP with universities and others holders because it is perceived as a barrier to growth. We recommend that the M-TAC not pursue IP participation, but focus on revenue tied to sales or stock value.

4. How should an M-TAC's performance and impact be evaluated? What are appropriate measures of success for future M-TACs? Please explain your response including the value of the performance measure to business growth.

We recommend using the current MEP survey system. Add a question on the $ value of orders placed with domestic suppliers. Extend survey period out to five years.

5. Are there any other critical issues that NIST MEP should consider in its strategic planning for future M-TAC investments that are not covered by the first four questions? If so, please address those issues here and explain your response.

Assisting early stage firms to scale up their production domestically has the potential to drive jobs in a 3-5 year time frame. But serving this market generates neither match nor revenue in the short term. We have to consider this type of activity as an investment—both from revenue and investment perspectives.

Survey Issue: Given that much of the impact regarding new jobs and new sales will be created in the supplier companies, (which may be scattered across the region or the country), how do you collect the data? It will be challenging to get a company to respond which has had little to no interface with the MEP or with the M-TAC. Could we use local MEP centers to interface, educate the companies about the survey and co-ordinate their response?.

In the spirit of looking at the clients as representing a portfolio of opportunities, it will be important for the M-TAC to develop the skill to triage firms early in the process. While the eco-system and educational activities can benefit a range of firms, the technical assistance and CMO services need to be targeted at companies which have at least some of the essential components of acceleration in place (ie Money, Management, Markets) and which hold the most promise for success.