

## Rapporteur Comments

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### Overview

There are several overriding themes that have recurred throughout our two days of discussion. This paper summarizes these themes.

### Conflicting Goals

The first is the problem of *conflicting goals* for Manufacturing Technology Centers. The centers are asked to increase revenues, outreach, and impact. Outreach, or maximizing the number of firms assisted, is a very different goal from a focus on the impacts achieved, and both of these are distinct from a goal of fee revenue. Our discussions have highlighted the fact that a focus on *outreach*, which might well involve only initial contacts with a large number of firms (including very small firms) is likely to reduce fee *revenue*, which comes from a smaller number of clients chosen (targeted) as able and willing to pay for MTC services. The big *impacts* are probably more likely to come from a select few clients with whom multiple projects are undertaken.

At the Center level, conflicts also arise, mainly between a standardized national best practice of service delivery and the particular needs and options appropriate for each state. The choice this poses for Centers involves whether to target all firms, the average firm (for outreach), the top 5% of firms most likely to have the impact needed to secure political support, or to simply avoid the lowest tier of firms, from which both impacts and revenues are least likely. This conflict revolves around the perceived public purpose of the MTCs, and that purpose varies among states, and depends in part on whether or not they predated NIST/MEP.

### Data Base Issues and the Census Survey

It is clear from our discussions and from experience with manufacturing extension

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that there are serious issues surrounding what is and what should be measured. Should it be *projects*, as is currently the case with the Census survey? Should it be *firms*, many of which have had multiple projects, and for which we would like to measure the combined or cumulative impact of these projects? Or should it be the long-term *relationship* that some firms have developed with their field agents or Centers? This is related to the issue of *bundling* projects before the data are submitted for Census follow-up. Are they being bundled too soon for later projects to be added in? Is there a Center policy of no bundling of projects? There is no standardization across the country, and perhaps there should not be. The issue is not so much of bundling as it is one of timing. Are firms being surveyed too soon? Too late? We don't know yet.

Other data issues have been discussed as well. Disaggregation is necessary for meaningful analyses, such as the quasi-experimental design studies advocated by Eric Oldsman and the analyses of panel data by Ron Jarmin. Yet, it is clear from the reports of several people here that the problems of (1) non-response or inability to find the firms nine months after the completion of a project, and (2) the inability of respondents to identify an impact jeopardize the number of respondents needed to identify and estimate impacts.

In large part, this seems to vary among types of projects, some being easier to see and to estimate impacts. It also seems to be a people issue, one that focuses on a firm owner's or manager's personal relationship with a particular field agent. Because of turnover, this relationship can break down or break off completely and result in missing data. The project may have been completed from the Center's point of view, but it may never have been completed satisfactorily from the firm's perspective.

The definition of what is *long-term* also has relevance. Although the 9-month delay before the Census survey-takers phone may seem long-term, it may in fact take considerably longer maybe 18 months or even longer for product development or other projects for impacts to be measurable.

## Qualitative Analysis

The analysis of the final, open-ended question in the Census follow-up survey seems to have been ignored. NIST staff acknowledges that firms do respond to this question, despite the fact that two-thirds of respondent firms are unable or unwilling to estimate numbers related to the impact of their MTC projects. This drop-out problem suggests that there should be surveys, at least by the states, of the drop-outs in order to understand impacts more completely.

The only qualitative analyses with the NIST evaluation effort are the case studies undertaken by the Centers and by the COSMOS Corporation. Other qualitative analyses are not only possible but recommended by the consensus of this group. As Erik Arnold recommends from European experience, this would include in-depth analysis or evaluation of a few firms, from which we obtain good and complete data. Follow-up interviews of old clients should be a routine part of the work of each Center, but especially of firms that have been repeat clients on multiple projects.

## Center Performance

The activities and skills of field agents are an aspect of NIST/MEP that is avoided because it involves personnel evaluation. However, the benefit of any Center depends in large part, Erik Arnold reminded us last evening, on whether the transfer is of technology only or addresses business capabilities as well. The need of many firms for broader sorts of knowledge is well known but has been outside the bounds of

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the traditional concerns of NIST. If firms need assistance outside or beyond the technological, which links or outside resources are used? Which are used most often? Are these tracked? Are there other firms that can provide a demonstration effect of Center benefits to other firms?

### **Competing Causes, or Who Takes the Credit?**

The issue of whether firm changes and effects would not have taken place otherwise is a significant issue. MTCs are not the only sources of assistance to small firms. To determine attribution requires qualitative research, and is in the case study protocols and logic model, but only there. A complicating factor is the fact that high-performing firms also have a greater number of competing causes, because they are more open to outside knowledge and assistance.

### **Studies of Failure and Job Loss**

These are sensitive issues, and should not be buried in an effort to highlight only successes. We have discussed the fact that, in some firms, productivity efficiency gains are related to lower levels of employment or job loss. Maybe NIST has been very honest thus far on the MEP, but it may be not be honest enough to study these two issues.

### **Project Effects over Time**

Except in the COSMOS case studies, we do not really know if firm practice really changed as a result of a Center project. If it did, to what degree? If not, why didn't it? What if other causes or changes in practice also intervened? We cannot expect MEP to be the only force for positive change among small manufacturers, and it is important to learn the process of change. It is clear that changes in practice can often take more than nine months (as well as less than that in some cases). Eighteen months has been suggested as a better time for follow-up.

### **Brand Recognition**

Finally, it is necessary to put a consumer slant on NIST/MEP. Although older Centers are recognized within their territory, or have brand recognition, this is rarely the case for newer Centers. NIST/MEP does not have brand recognition or name identity. Even an opportunity such as the recently published volume, *MEP Successes: A Case Study Approach* does not have a prominent logo. Does this matter? We are back to the problem of conflicting and multiple goals. Customer loyalty turns into long-term relationships. This is the opposite of quick encounters with a large number of client firms. Does this difference matter to NIST? To state stakeholders? I believe it should matter.