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Cc:

Date: Tue, 17 Jul 2012 18:18:30 -0400

Subject: NNMI Comments

I wanted add one more point from my notes of the Cleveland workshop.

A representative who said he was from a robotics firm complained they could not find workers to operate plant machinery. He may have been talking about CNC machines and the like. It is too difficult, he said, because they waste time and money on people who do not have the aptitude or who will not stay.

I suggested the proposed institutes could serve as a guarantor of sorts to reduce the risk of training new workers. The robotics guy just had a defeatist attitude, I thought, and expected qualified and certified applicants to walk in the door. This may be a common attitude among employers. They seem as lazy and lost as the workers who say they cannot find work.

This gap between employers and job-seekers is huge, and it is a major part of the problem you are addressing. I imagine an NNMI representative as a kind of regional "milkman, Dutch-boy, match-maker" who will need to constantly circulate among the institute stake-holders and fix problems and match needs with solutions. This is going to be very hands-on work and will require people who can communicate with all the various actors.

On Tue, Jul 17, 2012 at 6:02 PM, Kevin Berkowitz <kberkowitz3@gmail.com> wrote:
Comments after the Cleveland NNMI Workshop 9 July 2012

I am not an engineer or scientist, so my perspective is that of a journalist, historian, master technician and economic development project manager. These comments are therefore pretty broad. I hope they are useful.

I expected to see more "outsiders" like myself at the workshop, and I expected to see more industry managers and executives. It seemed pretty heavy with government employees.

I have spent 12 years overseas for graduate study, Peace Corps service and work & family life. The last ten years I have lived in the former Yugoslav Republic of Macedonia and Greece. Therefore I have seen close-up the effects of mismanaged economies, collapsed ones and collapsing ones.

In that region of Europe, Chinese and German products abound at every level. There is very little American market presence. GM and Ford cars there are mostly manufactured in Europe, I believe. And, as the Greek crisis has slowly grown over four years, it is clear that China and Germany are going to have the main say in Greece's fate. Their export power gives them the geopolitical power.

In conversations with Americans there, and with US diplomatic and Commercial Service employees, I have the feeling the US is doing a poor job of promoting its exports. It is not simply that the US forbids bribery and all the other games that all other global players use, but that our

export effort is uncoordinated and complacent. This is the other side of your plan -- how do you expect to rectify the trade imbalance if we cannot sell our products abroad? Yes, Boeing jets, Caterpillar tractors and big-ticket military hardware -- but that doesn't seem to do the trick now, never mind in the future.

Molnar said at the workshop conclusion that US companies had difficulty making plans beyond five years out, while the Chinese government released a national industrial plan to 2050. OK, we have to take Chinese government statements with a grain of salt, but this is credible.

In the workforce development dialogue, a representative from a large technology & military contracting company said that "manufacturing has a public-relations problem with younger people. The NNMI institutes should create a marketing campaign, perhaps documentaries about how certain products are made." I agree with this and it is very easy to imagine strong and persuasive ad campaigns by NNMI or the Amer. Assoc. of Manufacturers, etc. You can appeal to idealism, youth, patriotism, etc.

Most of the people in my dialogue sessions said little or nothing. Why? Have they no ideas? This is very possible. Perhaps they cannot express their ideas. I also read the reports on advanced manufacturing from the President's Council of Advisers on Science & Technology. These working groups too are heavy with government and academic people. Perhaps the scope of inquiry has to be widened to include more of the private sector.

One veteran of a Manufacturing Extension Program in the Midwest was skeptical, telling me that private sector companies involved in NNMI would be ones hoping to get federal \$\$\$. Therefore, he said, this process cannot be separated from the political argument about government "picking winners and losers," or about large sums of federal \$\$\$ being thrown willy-nilly at problems. He may be correct, and the NNMI initiative may not be funded or it may not succeed. But there are an awful lot of people like myself who believe the effort must be made somehow.

Before going in to the discussion session about technologies to focus on, I made these notes: Focus on technologies that address:

- domestic US needs and market demands
- US infrastructure modernization
- US environmental problems and technologies (see PCAST report)
- US energy demands and independence (see PCAST report)
- US security needs - protect infrastructure, border, ports etc.
- "Regular" non-advanced manufacturing that will spawn new products & technologies
- Lost opportunities for US workers when basic work goes overseas - recycling strategic metals from consumer products for example

This last bullet-point suggests a kind of "import substitution" scheme in which we can direct our research toward work which seems too laborious and hazardous except for the world's poorest countries. Metals recycling and ship salvage, for example, are performed in horrible conditions in places like Bangladesh. Can we not devise a way to do that here? This would create a "virtual

source" of raw materials from our own workers. The same could be said for technologies that create more energy-efficient and energy-conserving products.