CSAC Discussant
Jeff Lower
How could we improve or expand the measures that we are currently developing

Potential improvement discussion items:
• **We are trying to measure doing more with less**
  • Manufacturing is easier to measure output vs. input, as compared with productivity of service related industries (example CADD/Engineering design).
  • The robot questions would be more relevant to manufacturing
  • What questions can we ask to determine productivity for service industry? We need to make a distinction between technology improvements like faster computers, more automated software, compared to improvements based on employee skill development.
  • Answers to some questions may be biased, as an owner of a company would want to answer to show their employees skill level is what differentiates them from other companies.
How could we improve or expand the measures that we are currently developing

Potential expansion discussion items:

• It's interesting that this study and previous ones exclude Farms. The farming market has seen some of the highest degrees of technology integration over the last 20 years.
• Precision agriculture technology is widely used.
• I google’d technology adoption, 7 of the first 10 hits were agriculture related.
Yes, I think a modernized SMT or ICTS would be useful.

- SMT seemed to be geared toward manufacturing, and ICTS was focused on cap-ex and non cap-ex expenditures by industry
- Need more focus on correlation to production and productivity
- Its more difficult to measure, but need more focus on Service sector, and maybe add farming?
Are there alternative approaches that you would recommend that we take to measure technology adoption and use by U.S. companies?

- Measures to consider, committee input…..
  - ROI measurement, based on technology investment what is the ROI improvement?
  - R&D spending and related ROI
  - How do you differentiate improvements made by technology adoption vs. professional development of employees. Often, successful companies invest in both.
- Number of employees vs productivity
- Price point for set fee services…..if its decreasing for the same service does that indicate technology investment?