

John Sargent's (Department of Commerce) Thoughts on Education for Services Innovation

(The following represents the views of the author and do not necessarily reflect the views of the U.S. Department of Commerce or the Federal government.)

Changes in the global economy, technology, industry structure, business models, innovation models, value creation, education and training (knowledge and skills acquisition), and national policies, plans and investments are having/will have significant implications for the U.S. economy and American students, workers, companies and education and training providers. Among the implications: what we “make” (tangible and intangible), how we make them, how we deliver them, how we support them, who makes/delivers/supports them, and the skills and knowledge required of organizations and individuals to do these things.

We have moved from an agricultural economy with a relatively simple and direct production and delivery model...

...to an industrial economy with a more complex and intertwined production and delivery model (made more complex and intertwined by late-20th century adoption of flexible, just-in-time manufacturing)...accompanied by higher skills requirements...

...to a services economy focused on the creation and delivery of intangibles with complex interrelationships (between and among companies and consumers) of varying (often very short) duration and increasingly higher requirements for knowledge and skills.

To make matters more complex, the line between manufacturing and services is blurring to the point where distinctions are frequently difficult, if not impossible. This has significant implications for our ability to measure and understand the value of economic activity.

While the United States continues to increase its “manufacturing” output and productivity, increasingly “things” are made elsewhere and the number of production jobs in the United States continues to decline. At the same time, services output and employment are on the rise, yet the emergence of many new competitors—other nations, foreign corporations and talented foreign workers—may pose a threat to U.S. competitiveness in services and our ability to produce economic growth and jobs from the services sector.

Our goal is to understand the changes underway and to respond in a way that preserves our national leadership in services, and expands the economic growth and job creation that leadership in services offers. To this end, we seek to foster a system for identifying and delivering the underlying knowledge and skills necessary to support services innovation into the 21st century, and to create a capacity for continuous adaptation to new skill and knowledge requirements to ensure that we remain at the forefront of services innovation.

Here are some of the questions that should be examined in the context of services innovation:

- What does the global business/innovation environment look like today and into the future (5,10 years out)?
- What implications does this environment have for the U.S. economy?
- What new knowledge and skill requirements will industry (existing, emerging, likely to emerge) require to function effectively in this new global business environment?
- How will these new requirements affect employer knowledge and the skill demands of U.S. workers?
- How do we identify these knowledge and skills requirements?

- How can we best impart the requisite knowledge and skills to students and workers and which institutions—K-12, community colleges, universities, for-profit education and training providers—can best create and deliver this knowledge and these skills?
- What might a services sciences, management and engineering (SSME) curricula look like? How should it be developed? How should it be delivered? How long will it take to deliver?
- How can we help individuals to understand what knowledge and skills are essential and valuable to employers/in the marketplace?
- Who (students/workers, employers, government) has responsibility for paying for this education and training?
- How can we make the delivery and assimilation of this knowledge/skills rapid, convenient and affordable?
- How do we ensure that the skills/knowledge identification process is a continuous one and that the education and training system is continuously adapting to changes in skills and knowledge requirements?

Global Business/Innovation Environment

How will the following factors/changes affect key stakeholders:

- Growing/declining/evolving/emerging sectors and occupations
- New scientific knowledge and technologies
- New business/delivery models
- New innovation models
- New labor models
- New competitors
- Policies, plans, investments, infrastructure of other nations
- New national and international imperatives (e.g. less fossil fuel dependence)

Stakeholders	Implications	Responsibilities	Tools	Strengths	Weaknesses	Actions
Corporations						
Individuals						
Education (pre-K-thru-post-doc) and Training Providers						
Nation/Government						
Think Tanks/NGOs						

While I don't believe in the linearity that the following chart (despite its implied linearity), I think it offers a useful way to view the challenge:

