



AIChE's Manufacturing activity: A new Golden Age of ChE



**Phil Westmoreland,
2012 President-Elect,
2013 President**



Why a new Golden Age?

- New abundance of hydrocarbon resources.
- Biology, a molecular science, is now core ChE.
- Computing: A pervasive cyberinfrastructure.
- ChE breadth and problem-solving approaches.
- Manufacturing's general shift to ChE-style emphasis on processes and properties.

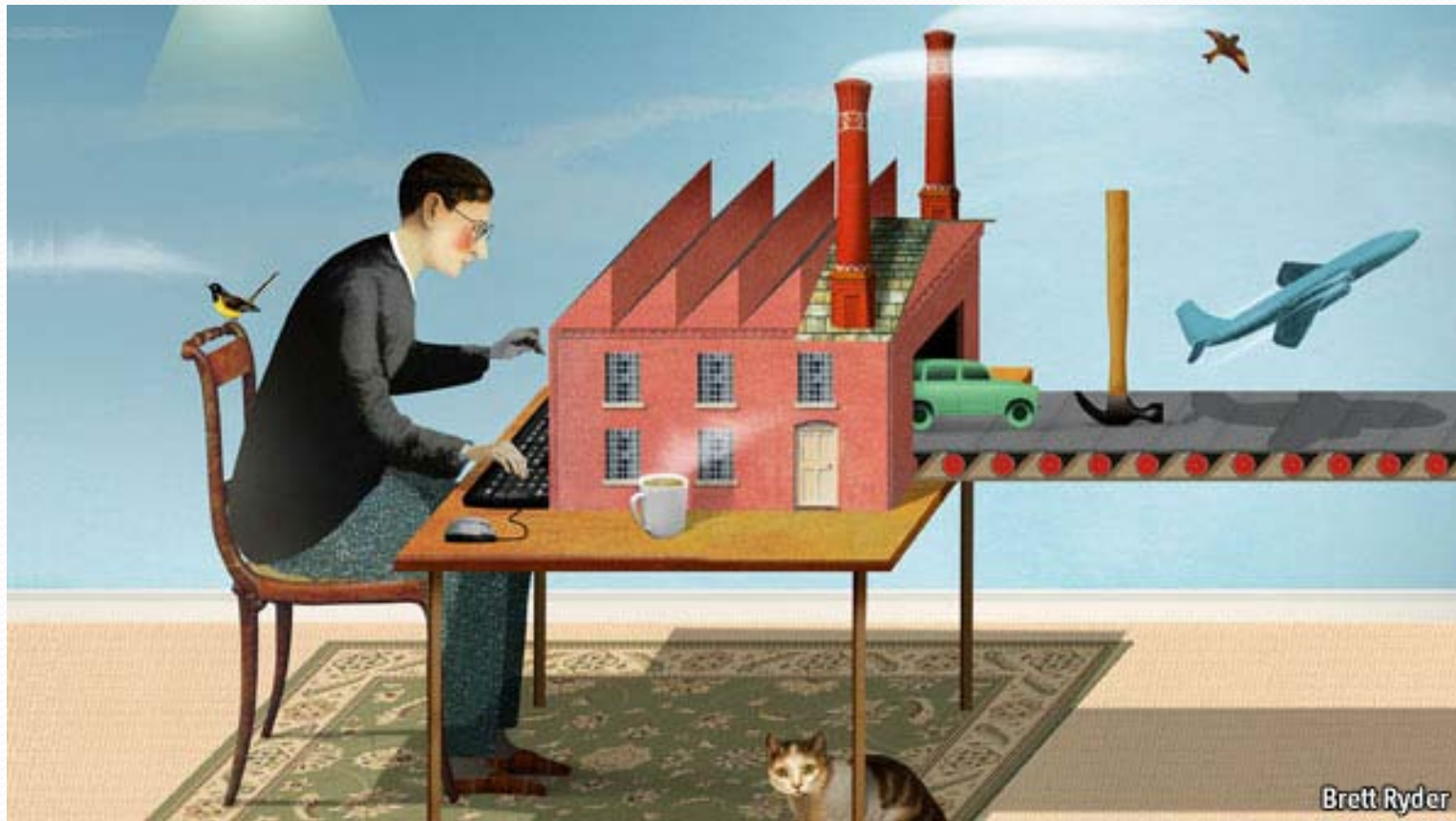


A 2013 theme: Manufacturing - ChEs Make Our World.

- **ChE-style manufacturing** -- beyond assembly lines:
 - Fuels and pharmaceuticals and materials.
 - The processes and products of nanotechnology.
 - The promise of regenerative medicine.
- ChEs create value and meet our world's needs through **Smart Manufacturing**:
 - Develop **property-driven** products & processes.
 - Use **cyberinfrastructure** to link products, processes, supply chains, and operations.
 - Incorporate **information management** and analytics.

Central to the “Third Industrial Revolution”:

(The Economist, 4/21/2012)



Brett Ryder

From the article:

- *“A number of remarkable technologies are converging:*
 - *Clever software,*
 - *Novel materials,*
 - *More dexterous robots,*
 - *New processes (notably three-dimensional printing) and*
 - *A whole range of web-based services.*
- *The factory of the past was based on cranking out zillions of identical products ...*
- *The factory of the future will focus on mass customisation—and may look more like those weavers’ cottages than Ford’s assembly line.”*

Why these emphases?

- Important to the profession and our membership.
- Manufacturing has core relevance to academics as well as across industry.
 - It is an important purpose for developing materials, processes, and new science.
 - Sales, environmental analysis, cybertools, even regulation relate to it.
- It encompasses diverse processes and products, thus tying to a broad view of ChE.

Support “Smart Manufacturing.”

- Sustainable Manufacturing Research Coordination Network.
- Smart Manufacturing Leadership Coalition.
- Manufacturing Leaders Roundtable.
- Recognize and interact with others:
 - National Center for Manufacturing Sciences.
 - European “Factories of the Future” initiative.
- Attention in ongoing blog at chenected.aiche.org (etc.)

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theReactor

September 26th, 2012

ChE-style Manufacturing Moves into the Spotlight

By [Phil Westmoreland](#) | [Comments \(7\)](#)

This entry is part 2 of 6 in the series [We Are ChE: Entering a Golden Age](#)

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[We Are ChE: Entering a Golden Age](#)

- [Entering a New Golden Age of Chemical Engineering](#)
- [ChE-style Manufacturing Moves into the Spotlight](#)
- [More ChE Manufacturing: Rebuilding the Body](#)
- [Shale Gas in the Middle of the Worldwide Energy Drama](#)
- [The New Energy Mix: Abundance and Sustainability?](#)
- [Biology and ChE: Applying a Molecular Science \(Part I\)](#)



Last week, I contended that we are in the early stages of a new Golden Age of Chemical Engineering, listing [five substantial reasons](#). Let's look at the first one: **Manufacturing's shift to emphasize processes and properties** – that is, it's shifting toward aspects of manufacturing where ChEs are leaders.

Does "ChE" mean "manufacturing" to you neighbors?

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