Implementing Industry 4.0: Leading Change in Manufacturing and Operations

Program Details
The term “Industry 4.0” refers to the combination of several major innovations in digital technology that are poised to transform the energy and manufacturing sectors. From advanced robotics and machine learning to software-as-a-service and the Industrial Internet of Things (IIoT), these changes enable a powerful new way of organizing global operations. But how should executives lead this change within their own organizations so as to not negatively impact production, customer satisfaction, and corporate culture?

Implementing Industry 4.0: Leading Change in Manufacturing and Operations is a new program designed to help executives implement large scale technological change. Topics discussed include:

- New business models and forms of operations that are currently being enabled by technological innovations such as the IIoT
- The “hidden factory” that results from a counterproductive and unpredictable mix of old and new technologies. Over time, this results in an unknown “process” that delivers defect-laden products behind schedule.
- The importance of decoding cultural and workforce factors prior to making an investment in new technologies
- The overemphasis on visioning at the expense of fully understanding existing systems, the context in which those systems are operating, and the people who must use the technology
- Ways to increase a factory’s “IQ,” leading to more productive and safer operations
- The role of the front-line leader in the adoption and successful execution of the new technology

Takeaways
In this program, executives and frontline managers will explore methods and tools that individuals, teams and organizations can use immediately to get the greatest value from technological change. Participants will learn how to:

- Identify current-state problems that need to be removed prior to the introduction of new technology
- Eradicate “hidden factories” issues in process models and operations development of workforce skills
- Successfully incorporate new technologies without disappointing customers, overburdening employees, and hurting short-term cash flow
- Sequence the introduction of IIoT to accelerate adoption and time to cash flow
- Use the IIoT to leverage existing Lean/Six Sigma/ continuous improvement efforts
- Develop a coherent roadmap they can share with their entire company

Participants
This program is designed for anyone looking to integrate new industrial technology (such as the IIoT) into their existing facilities in such a way as to realize the advantages while avoiding the systemic risks. It is also intended for employees of companies developing new industrial products and services that are interested in accelerating adoption rate through a better understanding of their customers’ needs.

Note: This course is not focused on the features or selection of specific Industrial Internet of Things technology products or services. Instead, it is intended to help senior leaders in manufacturing and operations who are deploying Industrial Internet of Things technologies to obtain greater value from their businesses by diagnosing the states of their systems, measuring activities appropriately, and overcoming cultural obstacles to deployment of productive technologies.

http://executive.mit.edu/ind
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Sample Program Schedule
(subject to change)

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
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<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>8:30–10:30 AM</td>
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<tr>
<td>9:00–12:15 PM</td>
<td>Scoping Down: Identify and Define Your Biggest IIoT Implementation Challenges</td>
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<tr>
<td>12:15–1:15 PM</td>
<td>10:30–12:00 PM</td>
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<tr>
<td>Networking Lunch</td>
<td>“Tales From the Floor”: Industrial IIoT Implementation Case, Discussion and Learnings</td>
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<tr>
<td>1:15–4:30 PM</td>
<td>12:00–1:00 PM</td>
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<tr>
<td>Organizational Dynamics: 3 Perspectives on IIoT</td>
<td>Networking Lunch</td>
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<tr>
<td>4:30–5:00 PM</td>
<td>1:00–2:00 PM</td>
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<tr>
<td>Recap, Conclusions, Looking Ahead</td>
<td>Communicating Change</td>
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<tr>
<td>5:00–6:00 PM</td>
<td>2:00–3:45 PM</td>
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<tr>
<td>Networking Reception</td>
<td>What Will You Do Tomorrow?: The IIoT Playbook</td>
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<td></td>
<td>3:45–4:00 PM</td>
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<td></td>
<td>Final Learnings and Wrapup</td>
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Faculty

**John Carrier** is a Senior Lecturer of System Dynamics at the MIT Sloan School of Management. He instructs senior managers on improving manufacturing and business processes and serves as an on-site coach in support of projects. His research focuses on strategic marketing and new business development in high technology, specialty chemicals, and service segments. Carrier has more than 15 years of experience in a variety of corporate, entrepreneurial, and consulting environments. Since 2006, he has worked with Arsenal Capital Partners as director of Six Sigma, where he is responsible for increasing portfolio company valuation by adapting and applying Six Sigma techniques to midsize companies. Carrier also handles due diligence, post-merger integrations, and financial analysis and improvement. Prior to joining Arsenal Capital Partners, he was employed by Grace Construction Products; Bain & Company, Inc.; and SuperCool LLC.

Carrier holds a BS in chemical engineering from the University of Michigan, a PhD in chemical engineering from MIT, and an MBA from Harvard Business School.

**John Van Maanen** is the Erwin H. Schell Professor of Management and a Professor of Organization Studies at the MIT Sloan School of Management. He works within the fields of organization behavior and theory. Van Maanen is an ethnographer of organizations ranging in type from police organizations to educational institutions, as well as a variety of business firms. Cultural descriptions figure prominently in his studies of such diverse work worlds as beat patrolmen on city streets in the United States; police detectives and their guv’nors in London; fishermen in the North Atlantic; MBA students at MIT and Harvard Business School, and park operatives in the Sistine Chapel of Fakery, Disneyland (here and abroad).

Van Maanen has taught at MIT Sloan since 1972. He has served as the faculty chair of the MIT Sloan Fellows Program at MIT and as the head of the Organization Studies Group within the Sloan School. He has been a Visiting Professor at Yale University, University of Surrey in the UK, INSEAD in France, and is an Honorary Fellow at Cambridge University.

Van Maanen holds a BA in political science and sociology from California State University at Long Beach, and an MS and a PhD in social administration from the University of California, Irvine.

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