

## Cybersecurity for Manufacturing (ISA/IEC-62443) (MS021)

When we think of cyber threats, the first that comes into our mind are identity theft and other cyber attacks affecting traditional information technology (IT) systems. People tend to forget about cyber threats to operational technology (OT) systems affecting our critical infrastructure everywhere around the globe. Mostly the focus is on data protection, privacy, and IT-focused cybersecurity.

With emerging new technologies and increasing automation in manufacturing, the importance of security is more and more recognized. A security culture is already required to be in place for Industry 3.0 (MES/MOM) to be able to extend this for Industry 4.0 and Smart Manufacturing.

By applying the ISA/IEC-62443 (formerly ISA-99) standard, a structured approach to security in manufacturing can be set up. The standard defines both a design concept, being Zones and Conduits, and a Security Lifecycle concept based on risk assessments and continuous improvement thinking.

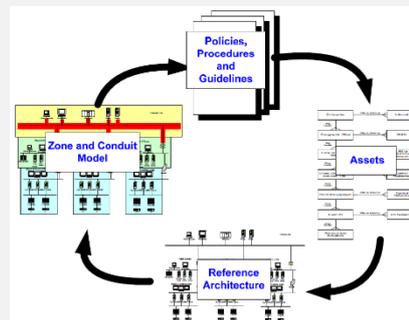
To identify the security needs and important characteristics of the environment at a level of detail necessary to address security issues with a common understanding of the framework and vocabulary the standard includes a series of models:

- Reference models provide the overall conceptual basis of policies, procedures and guidelines which are applied to the assets.
- Asset models that describe the relationships between assets within an industrial automation and control system.
- A reference architecture that describes the configuration of assets.
- A zone model that groups reference architecture elements according to defined characteristics.

In this one-day workshop, an approach is presented to implement security effectively and efficiently in manufacturing and automation & control systems. Program and processes of a cybersecurity management system to sustain security are discussed and trained through exercises.

### Agenda

- Introduction
- Why cybersecurity, especially in manufacturing?
- OT and IT are different
- Exercise: Risk
- ISA/IEC-62443 (ISA-99) standard
- Risk culture
- Exercise: Risk and next steps
- Wrap-Up
- Summary and Close



## Vision

MOMi's vision is to support manufacturers embarking on manufacturing excellence programs, MES/MOM deployment and the transition to the 4th Industrial Revolution.

MOMi offers best-practice education and business consultancy services to support the full change cycle from awareness and feasibility to continuous improvement initiatives in a dynamic operations environment.

MOMi provides independent education programs to manufacturers, preparing their people to leverage new smart technologies through the power of knowledge.

## Our experience, your success

### MOMi's Instructors Thought Leaders in Manufacturing Operations

- MOMi's team of instructors has extensive experience in manufacturing and education. The instructors are also excellent business consultants.
- MOMi's education services comprise a large number of standard courses and workshops on relevant topics.
- Programs are delivered as public sessions as well as in-house. In the last case, the content can be tailored to your specific situation.
- MOMi's education programs and workshops are delivered by independent, professional instructors.

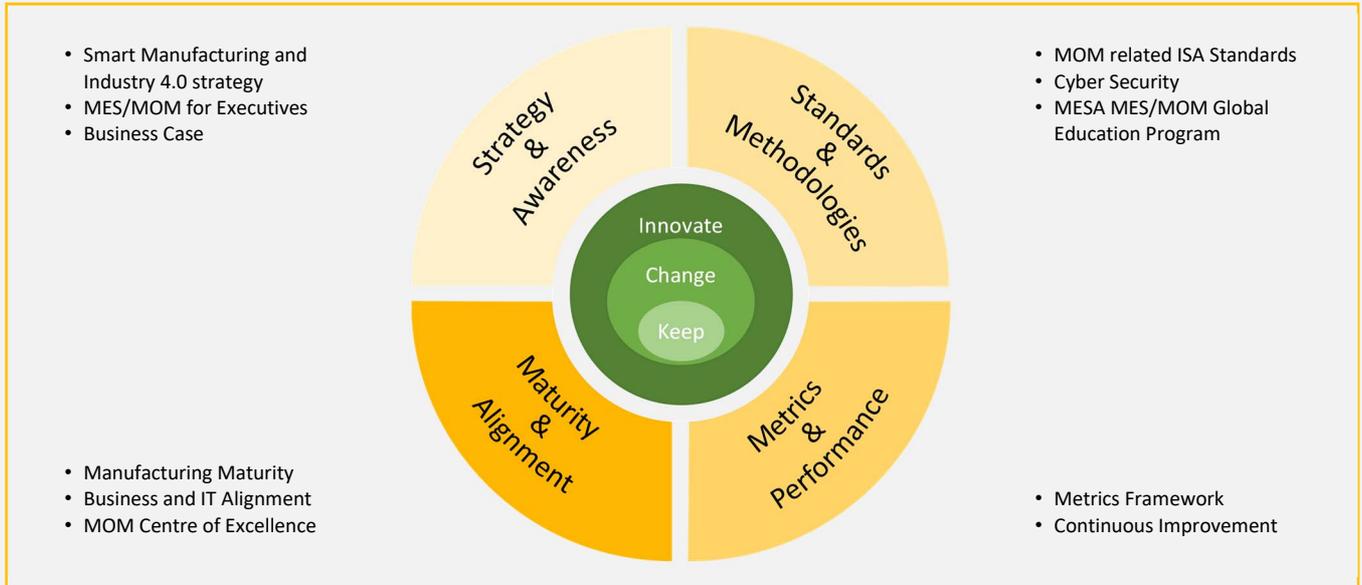
## Price and Schedule

**Registration Fee:** USD 990 | EUR 895 | GBP 825 | SGD 1195

**Schedule:** see [www.mom-institute.org](http://www.mom-institute.org) or ask Sarah Knight ([sara.knight@mom-institute.org](mailto:sara.knight@mom-institute.org)).

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### MOMi Education: A Comprehensive Set of Programs



#### Strategy & Awareness

- **Smart Manufacturing & Industry 4.0 Strategy**  
In this workshop, practical, deployable smart manufacturing strategies are discussed and the vision of Smart Manufacturing and Industry 4.0 examined. Based on considered Smart Strategies to start implementing the vision, the participants walk away with a plan of action to deliver that most valuable of commodities.
- **MES/MOM for Executives**  
The MES/MOM for Executives provides an independent view of MES/MOM and the benefits and pitfalls for manufacturers.
- **Business Case**  
This workshop provides practical approaches to identify the key business elements and risks and to justify MES/MOM projects. The participants gain experience in quantifying the potential benefits from exercises based on real cases.

#### Standards & Methodologies

- **MOM related ISA Standards (e.g. ISA-95, ISA-88)**  
These courses define approaches to integrating manufacturing systems with enterprise business systems, other manufacturing systems and automation & control systems. Models are presented to standardize manufacturing processes and activities.
- **Cyber Security**  
This course is based on the ISA/IEC-62443 (ISA-99) standard: Security for industrial automation and control systems. An approach is presented to implement security effectively and efficiently in manufacturing and automation & control systems. Program and processes of a cyber security management system to sustain security are discussed and trained through exercises.
- **MESA MES/MOM Global Education Program**  
The MES/MOM Methodologies program instructs manufacturers, producers and solution providers on how to marry the power of modern Information Technologies (IT) and the process / project rigor to implement them with your operational expertise to unlock the potential within your operations.

#### Metrics & Performance

- **Metrics Framework**  
This interactive workshop provides insight in how to define an appropriate metrics framework to monitor key aspects of manufacturing performance to drive improved real-time decision making. This includes strategic, tactical and operational aspects of manufacturing operations. The participants are trained in defining/selecting the relevant metrics in real cases and construct the metrics structure via a top-down and bottom-up approach. The Metrics Maturity Model is introduced as a guide for performance assessment.
- **Continuous Improvement**  
These Continuous Improvement workshops provides understanding of the various methodologies and when and how to apply them in manufacturing.
  - Introduction of Lean Manufacturing, Kaizen and Six Sigma
  - Variability Reduction and Standardization
  - Continuous Improvement in Manufacturing
  - DMAIC process

#### Maturity & Alignment

- **Manufacturing Maturity**  
This workshop introduces the concept of the manufacturing maturity model to align the operational processes, the organization, the people's skill sets and the enabling and supporting technologies (IT). The ISA-95 Activity Model is used as a tool to determine the level of an organization's capability to have mature, robust and repeatable manufacturing operations.
- **Business and IT Alignment**  
Alignment of Business and IT is a prerequisite for improving manufacturing maturity. The participants learn to assess and to create a step-by-step approach to enhance this alignment. Aspects included are business strategy, IT strategy, organizational and infrastructural processes and IT infrastructure and processes.
- **MOM Centre of Excellence**  
Successful execution of a manufacturing transformation strategy to increase their manufacturing maturity requires re-organization and alignment of corporate IT and manufacturing engineering priorities. The participants learn how to setup a MOM Centre of Excellence team that can bridge the gaps between the corporate enterprise and the local plants and connect manufacturing and IT in order to increase the manufacturing maturity and therefore the company's performance.