1 Program Overview

The Internet of Things is an emerging topic of technical, social, and economic significance. Consumer products, durable goods, cars and trucks, industrial and utility components, sensors, and other everyday objects are being combined with Internet connectivity and powerful data analytic capabilities that promise to transform the way we work, live, and play. Projections for the impact of IoT on the Internet and economy are impressive, with some anticipating as many as 100 billion connected IoT devices and a global economic impact of more than $11 trillion by 2025

Industrial IOT (IIOT) is one of the major use cases and early adopters of IOT. IIoT is defined as "machines, computers and people enabling intelligent industrial operations using advanced data analytics for transformational business outcomes".

Industry 4.0 signifies a new Industrial Revolution—one that marries advanced production and operations techniques with smart digital technologies to create a digital enterprise that would not only be interconnected and autonomous but could communicate, analyze, and use data to drive further intelligent action back in the physical world.

With the advent of Industry 4.0, traditional manufacturing processes are undergoing an enormous transformation which will change the way companies approach manufacturing. For business leaders accustomed to traditional linear data and communications, the shift to real-time access to data and intelligence enabled by Industry 4.0 would fundamentally transform the way they conduct business.

Industry 4.0 extends far beyond the realm of manufacturing and production to focus on the entire ecosystem of partners, suppliers, customers, the workforce, and operational considerations. Industry 4.0 is about more than just advanced technologies: It is about the ways in which those technologies are brought together, and how organizations can harness them to drive operations and growth.

With the advent of the Industrial Internet of Things (IIoT), all manner of new information and operational technologies, from tiny sensors to massive data analytics engines, will become an instrumental part of how industrial companies conduct business. And it will be up to CIOs and their team to manage the effort and make it happen. They will help lead the design, implement the required company-wide technology architecture, aid in measuring the business outcomes, and lead the change management effort to ensure compliance with the new way of doing business

This workshop is focused on enhancing the skills of practicing IT Professionals in the area of IIOT. The knowledge gained will help in enhancing their effectiveness in the various roles they play in the design, implementation, testing and auditing of IIOT implementations.

2 Target Audience & Learning Outcomes

This workshop is for IT Professionals who are members of ISACA performing various roles such as IS auditor, IS security professional, chief information officer, chief information security officer and internal auditor etc. It will enable them to take a holistic view of the I4.0

implementations from the perspective of IT Infrastructure. It will give them an overview and understanding of emerging technologies, which will enable them to embark on the journey to adoption of these technologies in their respective businesses.

3 Program Structure

Total Duration	Delivery Mode	Structure
6 Hours	Online	Presentation, followed by group activity.

The IIOT Workshop is designed to provide hands on learning experience to the participants. The program is structured on the lines of a online workshop.

- The participants will be provided some pre workshop reading material to familiarize themselves with some of the key topics that will be discussed during the training.
- In the workshop, we will present some of the key concepts related to Industry 4.0 and from the perspective of IT Infrastructure.
- There will be a number of quizzes built into the program which will help capture audience feedback and understanding on various topics
- Participants will break out into groups and work on an assignment and present their findings to the rest of the audience.

No	Module	Time
1	Program overview and participants Introductions	15 Mins
2	**IIOT Overview**	
	Module 1 : I4.0 Overview	60 Mins
	Module 2 : I 4.0 Technology Landscape	
	Module 3: I4.0 Core Concepts	
	Module 4: I4.0 Digitization Journey	
	Module 5: IIOT Solution Building Blocks	
	Module 6: IIOT Use Cases	
	Break	**15 Mins**
3	**IIOT Deep Dive**	
	Industrial Networking & IT Infrastructure	60 Mins
	Cyber Security & Resilience in a connected world	
	Assessing Risks in Manufacturing Environment	
	IOT & Disaster Management	
	Data Protection in Industrial Environment	
	IT Audits for I4.0	
4	**Team Activity**	
	Breakout Session	60 Mins
	Team Presentations of 10 mins each followed by Q&A	120 Mins
5	Program Close out	15 Mins

4 Workshop Outline

4.1 Module 1: I4.0 Overview in Context of Indian Manufacturing

- Evolution of I4.0
- Government targets for Manufacturing as a % of GDP, Jobs creation, Make in India, Atmanirbhar Bharat, and Skill India.
- Global Scenario – Realignment of Global Supply Chains in Post Covid world
- Disruptions which are likely because of I4.0 technologies.
- Future of Work

4.2 Module 2: I4.0 Technology Landscape

- IIOT
- Big Data and Analytics
- Preventive and Predictive Maintenance
- Artificial Intelligence
- Machine Learning
- Robotic Process Automation
- Wearables
- Augmented & Virtual Reality
- Additive Manufacturing

4.3 Module 3: I4.0 Core Concepts

- Cyber Physical Systems
- Digital Twins
- IT /OT Integration
- IIC & RAMI Reference Architectures

4.4 Module 4: I4.0 Digitization Journey

- Digital Strategy for I4.0 Transformation
- IIOT Value Chain and Ecosystem
- IIOT Transformation Roadmap
- Corporate Governance

4.5 Module 5: IIOT Solution Building Blocks

- Sensors
- Last Mile Connectivity
- IIOT Platforms
    - Data Consolidation
    - Complex Event Processing Rules Engine

- Dashboards & Reports
- Alerts & Notifications

- Analytics
- Predictive Maintenance

4.6 Module 6: IIOT Use Cases

- Smart Plant
- Smart Factory
- Smart Buildings

4.7 Module 7: IIOT Deep Dive for IT Professionals

No	Topic	Description
1	**Industrial Networking & IT Infrastructure**	• Industrial Protocols and Standards • IT / OT Convergence • Edge Computing • On Premise versus Cloud Computing • Fog Computing • Large Scale Data Storage • Compute Stacks • Installed Bandwidth Capacity
2	**Cyber Security & Resilience in a connected world**	• Security Policy Management • Compliance & Standardization • Cyber Security, threats, vulnerabilities, • risks and anomalies • Monitoring • Data Protection
3	**Assessing Risks in Manufacturing Environment**	• Monitor and secure production processes from end-to-end in a fragmented supply chain • Integrating IT, IOT and OT Security • How Smart Sensors and smart devices are introducing or increasing cyber risk
4	**IOT & Disaster Management**	• Role of IoT in planning for prevention and response to disasters • Guidelines to harvest, transmit, manage and analyze disaster data to deliver disaster management information • Role of emerging technologies such as AI in Disaster Management
5	**Data Protection in Industrial**	• Categories of data to be protected

No	Topic	Description
	Environment	• Data-at-rest, in-motion and in-use • Data Lifecycle Management • Data Security • Data Integrity across its lifecycle • Data Confidentiality
6	**IT Audits for I4.0**	• Define Audit Objectives • Set Audit Scope • Determine Audit Procedures • Steps for Data Gathering • Assessing IOT

4.8 Team Activity

- Teams to be formed comprising of 4 to 5 members.
- Each team will be given a case study on one of the topics discussed in 4.7 above to research and detail out.
- They have to deliberate amongst themselves and come up with a analysis to be presented for that case study.

5 About Us

Nirvedha Technology Solutions is a Pune based Startup setup by Technocrats with wide range of experience and provides Internet of Things (IOT) solutions and services for Industrial and Buildings sectors. Following Nirvedha Consultants will be facilitating this program

	**Prasad Sant** • 36 years in Industrial Automation, IOT • Has worked with companies like EIL, Tata Honeywell, Patni Computer Systems & EcoAxis, a M2M startup. • Working as a Management & Technology Consultant since 2012 • Co-founded Nirvedha in 2020 and is the CEO
	**Vinoth Kumar Natarajan** • 24+ years in Building Automation & IOT • Has worked with companies like Honeywell, L&T, Carrier, Schneider • Based in Chennai and is responsible for Pre Sales & Solutions