21ST ANNUAL ARC INDUSTRY FORUM

Industry in Transition:
Realizing the Digital Enterprise

FEBRUARY 6-9, 2017
ORLANDO, FLORIDA

ARC
Advisory Group

WELCOME TO THE 21ST ANNUAL ARC INDUSTRY FORUM

Industry in Transition:
Realizing the Digital Enterprise

February 6-9, 2017
Renaissance Orlando at SeaWorld

Meeting Location

Oceans Ballroom

Forum Registration

Forum registration and check-in is available at ARC's registration counter in the Oceans Ballroom Foyer.

Innovations Showcase

The Innovations Showcase is located in the Oceans Ballrooms 1-4.
ARC's Welcome Reception on Monday evening and breakfasts and breaks will be held there.

Presentation Material and Videos

Speaker presentations and videos will be available on ARC's Website 3-4 weeks after the forum.

Wireless Service

Wireless service is provided courtesy of ARC. The access code and password is "arcforum".

Mobile App Available for Smartphone or Tablet

You can access current forum information from your smartphone or tablet using our app which is available in the App Store under 'ARC 2017'. Refer to your confirmation email from CrowdCompass for download instructions.

Founded in 1986, ARC Advisory Group is the leading technology research and advisory firm for industry and infrastructure. ARC stands apart due to our in-depth coverage of both information technologies (IT) and operational technologies (OT) and associated business trends. Our analysts and consultants have the industry knowledge and first-hand experience to help our clients find the best answers to the complex business issues facing organizations today. We provide technology supplier clients with strategic market research, and help end user clients develop appropriate adoption strategies and evaluate and select the best technology solutions for their needs.

ARC Advisory Group
3 Allied Drive, Dedham, Massachusetts 02026 USA
Tel 781-471-1000, Fax 781-394-0094

Please visit us on-line at www.arcweb.com
Twitter hashtag: #ARCforum

ARC INDUSTRY FORUM — AGENDA AT A GLANCE

Join us for a Super Bowl reception on Sunday, February 5, 6-10 PM, The Upper Deck

Monday, February 6 – Forum Opening Day Workshop Sessions

	Track 3 Oceans 11/12	Track 4 Oceans 10	Track 5 Oceans 9	Coral A
8:00 AM	Forum Registration (Oceans Ballroom Foyer)			
9:00 AM	Operation and Management of an Effective Industrial Cybersecurity Management System			
11:00 AM	State of the Industrial Nation by DHS			
12:30 PM	Security and Interoperability Enable IIOT Adoption			Supplier Press Announcements
2:00 PM	NIST and Automation Federation Updates on ICS Cybersecurity	How Asset Performance Management Can Help You Do More with Less	Addressing New Energy Sector Challenges and Opportunities	
4:00 PM	Cybersecurity Challenges Presented by IIoT	Technology Selection: Analytics and Machine Learning		
6-9 PM	ARC Forum Welcome Reception (Oceans Ballrooms 1-4)			

Tuesday, February 7

7:00 AM	Forum Registration and Continental Breakfast (Oceans Ballrooms 1-4)			
	Inductive Automation Breakfast (invitation only) (Coral A/B Ballroom)			
	Schneider Electric Breakfast (invitation only) (Odyssey A/B Ballroom)			
8:30 AM	Keynote Presentations (Oceans Ballrooms 5-8)			
10:00 AM	Break (Oceans Ballrooms 1-4)			
10:30 AM	Executive Panel (Oceans Ballrooms 5-8)			
12:00 PM	Lunch (Pool Terrace and Lawn)			
1 – 1:45 PM	L&T Technology Services Workshop: Benchmark Your Digital Enterprise Readiness Index (Oceans 10)			

	Track 1 Oceans 6/8	Track 2 Oceans 5/7	Track 3 Oceans 11/12	Track4 Oceans 10	Track 5 Oceans 9
2:00 PM	Multi-Vendor Interoperable Process Automation Systems	Effective Strategies for Managing Security Technology and Compliance	Improved Asset Management with Industrial IoT, PdM, and EAM	How Digital Platforms Drive Up Industrial Performance	Operational Analytics: The Future Is Now!
3:30 PM	Break (Oceans Ballrooms 1-4)				
4:00 PM	Open Automation Discussion	Anomaly and Breach Detection Strategies for Industrial Plants	IT/OT/ET Convergence Closes Asset Lifecycle Management Loop	ROI and Operational Analytics	Predicting the Process Lifecycle with the Help of Analytics
6 - 9 PM	Networking Reception and Dinner (Hotel Atrium C/D)				

Wednesday, February 8

7:00 AM	Forum Registration and Continental Breakfast (Oceans Ballrooms 1-4)				
	Honeywell Breakfast (invitation only) (Odyssey A/B)				
	GE Digital Breakfast (invitation only) (Coral A/B)				
8:30 AM	Keynote and Executive Panel (Oceans Ballrooms 5-8)				
10:00 AM	Break (Oceans Ballrooms 1-4)				
	Track 1 **Oceans 6/8**	**Track 2** **Oceans 5/7**	**Track 3** **Oceans 11/12**	**Track 4** **Oceans 10**	**Track 5** **Oceans 9**
10:30 AM	Are You Receiving an Adequate Return on Your Automation Investment?	Security Operations Centers and Managed-Services for Industrial Plants	Machine Learning: Predicting the Process with the Help of Analytics	Augmented Reality as a Best Practice Tool for the Enterprise	Advanced Manufacturing Technologies for the Digital Factory of the Future
12:00 PM	Lunch (Poolside Terrace and Lawn)				
1 - 1:45 PM	HIMA Workshop: Big Data Meets Smart Safety (invitation only) (Oceans 6/8)				
	Stratus Technologies Workshop: Eliminate Unplanned Downtime, Future-proof, and Simplify Automation System Assets (Oceans 10)				
2:00 PM	New Approaches to Automation Projects: Reducing Cost and Complexity	What's Really Needed for Network and Endpoint Protection?	Operator Training Effectiveness with Simulations	Supply Chain Analytics and The Digital Transformation	Cloud Platforms Enable Knowledge Distribution in a Digital Manufacturing Community
3:30 PM	Break (Oceans Ballrooms 1-4)				
4:00 PM	Integrated Manual and Automated Procedures Value and Benefit	Best Practices for Implementing Analytics for Digital Transformation	Strategies to Reduce Downtime and Increase Plant KPIs	Leveraging Smart Field Systems to Create Value in Process Industries	Rethinking the Role of Process Control
7-10 PM	Evening Event at Discovery Cove – Buses board at 6:45 PM in front of Oceans Ballroom Foyer				

Thursday, February 9

7:00 AM	Forum Registration and Continental Breakfast (Oceans Ballroom Foyer)				
	Track 1 **Oceans 6/8**	**Track 2** **Oceans 5/7**	**Track 3** **Oceans 11/12**	**Track 4** **Oceans 10**	**Track 5** **Oceans 9**
8:30 AM	IT/OT Convergence: Linking Legacy to an Industrial Internet of Things World		Advanced Alarm Management Strategies Provide Path to Operational Excellence	Transitioning to the Grid of Things: Visibility, Communications, Analytics, and Security	
10:00 AM	Break (Oceans Ballroom Foyer)				
10:30 AM	Open Process Automation Forum by The Open Group		Drones in Industry and Commerce	Rethinking Process Control Staffing	
12:00 PM	Forum Ends with Boxed Lunches (Oceans Ballroom Foyer)				

SPONSORED EVENTS

WATERFALL®

Monday Workshop
Security and Interoperability Enable IIOT Adoption
12:30 – 1:30 PM, Oceans 11/12 Ballroom

The vision of the IIoT is compelling - central vendor experts draw valuable conclusions for individual customers, using knowledge gained from many customers. But security and interoperability concerns are impeding adoption. Software-based cyber solutions always contain vulnerabilities, and the risk of an attack pivoting from customer to customer via cloud providers is a serious concern. Interoperability is a barrier as well, since industrial protocols, applications, and data formats are alien to cloud infrastructures. Join us to learn how unidirectional gateway technology can be applied to enable secure IIoT connectivity with cloud services and industrial cloud providers, such as GE's Predix. This includes support for popular cloud interfaces, applications, and formats.

inductive automation

Tuesday Breakfast *(Invitation Only)*
Implementing an End-to-End IIoT Solution for Your Enterprise
7 – 8:15 AM, Coral Ballroom A/B

Inductive Automation and its strategic partner Cirrus Link Solutions will introduce Ignition Edge: a lightweight, limited version of Ignition made specifically for embedding into field and OEM devices at the edge of the network. Ignition Edge works with full, centralized Ignition Gateways to extend Ignition functionality to the edge of the network at a very affordable price point. With this solution, Ignition empowers enterprises to build complete IIoT infrastructures - from the edge of the network to the Cloud to local sites - all on one universal platform. At the presentation, learn about different architectures that can be created with Ignition Edge and see a live demonstration of the software.

Schneider Electric

Tuesday Breakfast *(Invitation Only)*
7 – 8:15 AM, Odyssey Ballroom A/B

Schneider Electric will begin Tuesday with an intimate, invitation-only breakfast for customers. Please join us in dining and conversation before attending ARC's Keynote Presentations. We are excited to see you bright and early!

L&T Technology Services

Tuesday Workshop
Benchmark Your Digital Enterprise Readiness Index
1 – 1:45 PM, Oceans 10

Ever wondered how your firm can create the ideal Smart Workforce? Where does your organization stand in adoption of integrated digital strategies across products, services, and manufacturing? How would you rate your company in dealing with technological disruptions and challenges? Will there be UBERIZATION of manufacturing? Find answers to all these and much more during the interactive Luncheon session hosted by L&T Technology Services Limited. Get to hear expert perspectives from Ralph Rio, ARC Analyst, Satyam Priyadarshy, Chief Data Scientist, Halliburton, and Amit Chadha, L&T Technology Services' Global Advisor to CEO and Board Member. The workshop will give you an opportunity to benchmark your organization's readiness and maturity vis-à-vis the industry in implementation and deployment of these critical technologies.

Wednesday Breakfast *(Invitation Only)*
Improve Performance and Reduce Operational Risk with Intelligent Asset Strategies
7 – 8:15 AM, Coral Ballroom A/B

The promise of the Industrial Internet of Things (IIoT) is real, but enabling it requires connecting information sources, analytics, machine learning, and best practices gained from years of industry implementation. Intelligent asset strategies help drive improved asset performance and reliability, regulatory compliance, reduced operational risk, and optimized costs. Intelligent asset strategies can help you: Identify your riskiest assets, and the potential impact when a failure occurs; Implement strategies to mitigate the risk associated with a failure in an optimized manner and know when threats emerge that can impact the asset strategy, and what actions should be taken. Join GE for an exclusive interactive breakfast to see how companies are using IAS to improve metrics and realize powerful business outcomes.

Wednesday Breakfast *(Invitation Only)*
Beyond the News Headlines: Four Key ICS Security Myths
7 – 8:15 AM, Odyssey Ballroom A/B

Mainstream media coverage of cyber security can make it problematic for industrial control leaders to ascertain risk and act in a realistic and pragmatic fashion to protect their enterprise. Based on deep technical research into cyber physical attacks and extensive experience with real-world environments, Honeywell Lead Cyber Security Researcher Marina Krotofil dissects key ICS myths surrounding network endpoints, Russian attack attribution, attacker profiles, and the failure of imagination facing the industrial sector. Learn what's most important to consider when evaluating process controls risk and how to prepare now to prevent future attacks.

Wednesday Workshop *(Invitation Only)*
Big Data Meets Smart Safety
1 – 1:45 PM, Oceans 6/8

Every safety system can shut down a plant. But a smart safety solution can also prevent plant shutdowns. Discover how HIMA transforms big data into beneficial information –to make your plant safer, more secure, and more efficient.

Wednesday Workshop
Eliminate Unplanned Downtime, Future-proof, and Simplify Automation System Assets
1 – 1:45 PM, Oceans 10

Join industry expert, Craig Resnick of ARC Advisory Group, and John Fryer of Stratus Technologies, for straight talk on industrial automation and manufacturers' biggest nemesis, unscheduled downtime. This session will deliver need-to-know guidance on "must haves" for OT leaders looking to maximize the ROI of their automation systems by eliminating any unscheduled downtime. Learn to assess availability readiness of your automation system, as well as best practices to engage with IT decision makers. Gain appreciation of how IT and OT convergence can align to deploy the best solution for you through technologies such as virtualization. Understand how to take complex automation systems and simplify their deployment while creating a future ready environment.

SESSION DESCRIPTIONS

MONDAY, FEBRUARY 6
OPENING DAY WORKSHOP SESSIONS

9 AM – 10:30 AM

Cybersecurity - Operation and Management of an Effective Industrial Cybersecurity Management System

There are many standards, guidelines, and practices that provide guidance and direction on how to design and establish an effective industrial cybersecurity program, but there is less information available on how to manage one once it is in place. Addressing the cybersecurity of industrial systems cannot be viewed as a project, since the effort must continue indefinitely in the face of changing risks and technical capabilities. There must be means of measuring effectiveness on an ongoing basis in order to determine when it is appropriate to shift emphasis to new areas.

The ISA and IEC 62443 standards and other sources refer to the use of maturity levels as part of this exercise, and ARC has published research on a proposed maturity model. The purpose of this workshop is to discuss effective practices and lessons learned by end users in the ongoing management of their industrial cybersecurity programs.

Participants Include:
William Cotter, 3M
Dan Rozinski, Dow Chemical
Sid Snitkin, ARC
Eric Cosman, ARC

11 AM - 12 PM

Cybersecurity - State of the Industrial Nation by DHS

The U.S. Department of Homeland Security (DHS) sponsors and provides a broad range of tools, services, and other resources to assist end users in improving the security of their industrial control systems. This includes the operation of the Industrial Control Systems Cyber Emergency Response Team (ICS-CERT), whose mission is to guide a cohesive effort between government and industry to improve the cybersecurity posture of control systems within the nation's critical infrastructure.

This workshop will provide a general overview of DHS activities in this area, as well as an update on current and evolving risks.

Participants Include:
Jeff Gray, U.S. Department of Homeland Security
Eric Cosman, ARC

12:30 – 1:30 PM

Waterfall Security Solutions Workshop: Security and Interoperability Enable IIOT Adoption

The vision of the IIoT is compelling - central vendor experts draw valuable conclusions for individual customers, using knowledge gained from many customers. But security and interoperability concerns are impeding adoption. Software-based cyber solutions always contain vulnerabilities, and the risk of an attack pivoting from customer to customer via cloud providers is a serious concern. Interoperability is a barrier as well, since industrial protocols, applications, and data formats are alien to cloud infrastructures.

Join us to learn how unidirectional gateway technology can be applied to enable secure IIoT connectivity with cloud services and industrial cloud providers, such as GE's Predix. This includes support for popular cloud interfaces, applications, and formats.

Participants Include:
Stuart Bailey, Waterfall Security Solutions

2   3:30 PM

Cybersecurity - NIST and Automation Federation Updates on ICS Cybersecurity

It has been a few years since NIST developed the Cybersecurity Framework in response to U.S. Presidential Directive 13636. More recently, attention has focused on collecting information on how this framework has been used by various organizations in the design and operation of various cybersecurity programs.

Workshop panelists will discuss experiences in this area, including work by the Automation Federation to promote use of the Framework. There will also be an update on more recent developments by NIST related to the evolution of the framework.

Workshop attendees will be encouraged to share their experiences, impressions, and ideas related to this subject.

Participants Include:
Steve Mustard, National Automation
Adam Sedgewick, NIST
Keith Stouffer, NIST
Doug Wylie, The SANS Institute
Eric Cosman, ARC

2 – 3:30 PM

How Asset Performance Management Can Help You Do More with Less

Increasing efficiency while reducing costs at the same time can be like walking a tightrope. In this challenging business climate, decisions based on emotion may not produce the desired result and could actually raise risks long-term. Asset Performance Management (APM) solutions and excellent execution can help achieve immediate goals as well as position the organization for success when full economic recovery is attained. All are welcome to join this workshop to

discover strategies to help you walk the do-more-with-less tightrope.

Participants Include:
Terrence O'Hanlon, Reliabilityweb.com
Paul Casto, GE Digital
Paula Hollywood, ARC

2 – 3:30 PM
Cybersecurity - Addressing New Energy Sector Challenges and Opportunities

Reliable, efficient, and ecological energy is critical for national security and prosperity. This is driving new developments in renewable energy and micro grids. At the same time, it is creating new cybersecurity challenges that need to be considered in FERC and NERC activities around Critical Infrastructure Protection (CIP). Ensuring the security of new developments is essential, but avoiding constraints on innovation and rapid adoption is equally important.

NERC CIP is already a key driver for cybersecurity investments by Utilities and Independent Power Producers, as well as those by vendors of power generation and T&D products and services. While people in the industry appreciate the need to secure critical power networks, many are frustrated with what they see as an excessive focus on data collection and reporting. They feel that this generates little value for power providers and diverts limited resources from critical cybersecurity maintenance tasks.

Are there ways for NERC to achieve their security goals with less focus on compliance? Are there ways to ensure that compliance doesn't hinder adoption of new technologies and business strategies? Are there benefits that companies in this ecosystem can reap from compliance that are being overlooked? Can NERC's efforts to change CIP standards from proscriptive to risk-based resolve the apparent compliance challenges?

This session will provide an opportunity for attendees to hear different views on these issues and learn what companies can do to address them. Workshop attendees will also have an opportunity to share their concerns and suggestions with a panel of experts. This session will provide valuable insight for anyone involved with power industry cybersecurity, including companies involved in power generation and delivery as well as cybersecurity solution providers with an interest in this challenging market.

Participants Include:
Alan Farmer, Burns & McDonnell
Stuart Madnick, Massachusetts Institute of Technology
John Maloney, Kansas City Power & Light
Jay Cribb, Southern
Sid Snitkin, ARC

4 – 5:30 PM
Cybersecurity - Challenges Presented by IIoT

What is the implication of the Industrial Internet of Things (IIoT) and Industrie 4.0 on ICS cybersecurity? Will the trend toward large scale interconnection of smart devices make it more difficult (or even impossible) to secure industrial systems? Or does the use of smart "edge devices" simply change our approach to network segmentation and the definition of zones and conduits? Will existing standards such as ISA/IEC 62443, NER-CIP, and ISO-27000 have to be rewritten to remain relevant in the face of new architectures?

The panelists will address these and other questions, drawing on the experience and expertise in the design and operation of IIoT systems. Workshop participants will learn more about developments in this area, and have an opportunity to offer their opinions and experiences.

Participants Include:
Sven Schrecker, Intel
Eric Byres, ICS Secure
Jonathan Butts, QED Secure Solutions
Francis Cianfrocca, Bayshore Networks
Steve Venema, Polyverse
Eric Cosman, ARC

4 – 5:30 PM
Technology Selection: Analytics and Machine Learning

ARC will present the overall industrial market dynamics and guide the attendees through recent technology selection projects for Operational Analytics and Machine Learning.

This session will help suppliers and implementation partners gain a better understanding of the business and functional requirements for this emerging set of platforms and tools. End users will learn about use cases, selection criteria, and the importance of each.

Participants Include:
Michael Guilfoyle, ARC
Peter Reynolds, ARC

GENERAL SESSION

8:30 – 10 AM
Industry in Transition: Keynote Presentations
Industrial companies are revisiting their business processes and technology approaches as competitors and partners start to employ 'digitalized' business processes and exploit the increasing convergence between operational technology (OT), engineering technology (ET), and information technology (IT) on the plant floor. Trusted technology vendors are moving from Industrial Internet of Things (IIoT) concepts to real IIoT products, solutions, and services. Companies are creating and implementing open source alternatives to traditional technology solutions. Several industry leaders will share with us how they are leveraging new technologies and processes to transform their business and manufacturing operations.

Participants Include:
Marty Edwards, U.S. Department of Homeland Security
Don Bartusiak, ExxonMobil Research & Engineering
Andy Chatha, ARC

10:30 AM – 12 PM
Industry in Transition: Executive Panel
The main focus of this executive discussion will be to explore ideas how companies can transform their business and manufacturing operations with new innovative technologies and processes.

Participants Include:
Jürgen Brandes, Siemens
Harel Kodesh, GE Digital
Greg Bentley, Bentley Systems
Marty Edwards, U.S. Department of Homeland Security
Don Bartusiak, ExxonMobil Research & Engineering

TRACK 1

2 – 3:30 PM
Multi-Vendor Interoperable Process Automation Systems
This session will review the status of the 3 "open" process automation programs now in progress.

- ExxonMobil - The Open Group
- NAMUR - NAMUR Open Architecture
- Saudi Aramco - Internal Program

Participants Include:
Steve Bitar, ExxonMobil Research & Engineering
Christian Klettner, BASF
Harry Forbes, ARC

4 – 5:30 PM
Open Automation Discussion
This session will assemble a panel of automation suppliers, system integrators, and end users to drill down on the topic of Open Process Automation from their point of view in the value chain.

Participants Include:
Steve Bitar, ExxonMobil Research & Engineering
Julie Smith, DuPont
Gene Tung, Merck
Flávio Guimarães, Radix
Harry Forbes, ARC

TRACK 2

2 – 3:30 PM
Cybersecurity - Effective Strategies for Managing Security Technology and Compliance
Managing cybersecurity is a major challenge for most industrial organizations. Lack of people, expertise, and timely access to cyber assets are common problems that undermine efforts to sustain desired security posture. Lack of comprehensive asset inventories and change management support add to these challenges. All of this limits management visibility into the real risks of cyber attacks and compliance violations.

This session will begin with an ARC overview of the growing market of cybersecurity management solutions and their adoption in various industrial segments. Presentations by end users will follow and discuss use of these tools and benefits being received. An open panel discussion will follow the presentations to allow attendees to discuss their own issues with these experts.

Participants Include:
Matt Jastram, Portland General Electric
Justin Kosar, Associated Electric Cooperative
Keith Dicharry, BASF
Johan Nye, ExxonMobil Research and Engineering
Mike Radigan, ABB Power Generation
Rick Kaun, RKNeal
Sid Snitkin, ARC

4 – 5:30 PM
Cybersecurity - Anomaly and Breach Detection Strategies for Industrial Plants
Intrusion and breach detection is being used by many companies for the protection of enterprise systems. This enables rapid detection, isolation, and management of intrusions and limits the impact on critical business processes.

While the potential benefits are large, effective use of these products in plant environments has been limited. Companies are still concerned with the potential impact of disruptions to real time performance and false positives. Lack of

cybersecurity resources to analyze and react to alerts is another key inhibitor.

This session will begin with an ARC overview of intrusion and breach detection solutions and their adoption in various industrial segments. An open panel discussion will follow with a group of experts in industrial anomaly and detection solutions. This will provide attendees an opportunity to gain a better understanding of the various approaches and to discuss their concerns about the adoption of this technology in their facilities.

Participants Include:
Eddie Habibi, PAS
Damiano Bolzoni, SecurityMatters
Edgard Capdevielle, Nozomi Networks
Patrick McBride, Claroty
Chris Grove, Indegy
Walt Sikora, Leidos
Jim Blaschke, CyberX
Sid Snitkin, ARC

TRACK 3

2 – 3:30 PM
Improved Asset Management with Industrial IoT, PdM, and EAM
The rapid adoption of the Industrial Internet of Things (IIoT) has established proven solutions with lower risk and costs. IIoT is being used for predictive maintenance (PdM) and enterprise asset management (EAM) – particularly for critical assets.

The proven solutions using IIoT have enabled broader adoption of PdM. Approaches range from engineered algorithms for specific types of assets to machine learning that is taught good behavior and alerts for unusual occurrences.

In this session, users tell their case stories to help you discern an appropriate IIoT, PdM, and EAM strategy, and explore the intersection of these domains.

Participants Include:
Dee Brown, Brown Engineers
Wagner Emerick, Sotreq
John Lester, Clarksville Light & Water
Stephen Tatton, JBT
Kevin Price, Infor
Albert Rooyakkers, Bedrock Automation
Eduardo Suski, Radix
Ralph Rio, ARC

4 – 5:30 PM
IT/OT/ET Convergence Closes Asset Lifecycle Management Loop
Driven by increased demand for tighter integration and more information, the convergence of information technology and operations technology (IT//OT) has become essential for manufacturers to remain competitive. The advent of the Industrial Internet of Things and use of newer technologies such as GPS, drones, and simulation will intensify the need for this convergence as well as a re-evaluation of it. Including engineering technology (ET) into the mix is required to manage and integrate process and information flows faster and more efficiently. It will also serve to eliminate information silos and close the asset lifecycle management loop. Learn how manufacturing innovators are successfully converging ET with IT and OT to improve operations and make ever more informed business decisions.

Participants Include:
Kevin Wilhelm, Eli Lilly
Richard Ruth, Danfoss
Paul Casto, GE Digital
Phil Niccolls, Emerson Automation Solutions
Russell Viciedo, Tata Consultancy Services
Alan Kiraly, Bentley Systems
Paula Hollywood, ARC

TRACK 4

1 – 1:45 PM
L&T Technology Services Workshop: Benchmark Your Digital Enterprise Readiness Index
Ever wondered how your firm can create the ideal Smart Workforce? Where does your organization stand in adoption of integrated digital strategies across products, services, and manufacturing? How would you rate your company in dealing with technological disruptions and challenges? Will there be UBERIZATION of manufacturing? Find answers to all these and much more during the interactive Luncheon session hosted by L&T Technology Services Limited. The workshop will give you an opportunity to benchmark your organization's readiness and maturity vis-à-vis the industry in implementation and deployment of these critical technologies.

Participants Include:
Satyam Priyadarshy, Halliburton
Amit Chadha, L&T Technology Services
Ralph Rio, ARC

2 – 3:30 PM
How Digital Platforms Drive Up Industrial Performance
Digital platforms are the backbone for industrial companies to effectively leverage intelligent connected products, network communications, software, and analytics to improve uptime and optimize operating performance. They typically support advanced technologies such as cognitive computing, machine learning, and artificial intelligence which power much of the digital transformation. Customers benefit from smarter products, new service and operating models, optimized production and maintenance techniques, and new approaches to design and sourcing.

Participants Include:
Rob MacNeil, Nova Scotia Power

William Prusha, Eastman Chemical
Jim Wetzel, General Mills
Stefan Guertzgen, SAP
Leif Eriksen, GE Digital
Greg Gorbach, ARC

4 – 5:30 PM
ROI and Operational Analytics
Operational analytics software, mobility, and the manufacturing intelligence market is growing rapidly in all industries. Operational analytics is about integrating, contextualizing, analyzing, and exposing the data in dashboards that illustrate the metrics for the users. The operational analytics market is growing because businesses are seeing a lot of value in the data. However, companies need a way to find the value in the data - to see the ROI. Operational analytics leverage operational data in-context and exposes the value to the organization. The software helps tie the data to specific goals that increase efficiency and productivity. The data can be visualized in various formats including mobile devices enabled by cloud computing.

Operational analytics applications leverage analytic software tools and turn data into actionable insights and intelligence. This session will emphasize the business results that can be gained using the software. Users will show use cases that demonstrate their success and the value that they are obtaining from implementing the software with measurable performance, ROI, and value.

Participants Include:
James Li, Abbott Nutrition
Jonathan Alexander, Albermarle
Terry Unruh, Ascend Performance Materials
Jon Peterson, Seeq
Peter Guilfoyle, Northwest Analytics
Bill Schiel, Schneider Electric Software
Janice Abel, ARC

TRACK 5

2 – 3:30 PM
Operational Analytics: The Future Is Now!
With today's emphasis on making manufacturing more "intelligent" and efficient, it is critical to have instant access to actionable, in-context information about operational performance. Operational Analytics, Operational Intelligence, and Manufacturing Intelligence technologies and practices are available to help users tap into the vast amount of data available in the plant, exposing it as intelligent information on dashboards and other visualization tools. In addition to process data, this in-context information includes operations, business information, operations data, key performance indicators (KPIs), and other metrics. The data can be

visualized in various formats, including mobile devices enabled by cloud computing.

This session will emphasize the business results that can be gained from the visualization and dashboards that make the information readable and easy to understand. Real-time analytics provide the ability to perform dynamic analysis on real-time and historical data for actionable results that improve performance. Operational analytics can help deliver information and intelligence that enable the user to make better and more timely, actionable decisions. Manufacturers in all complex or highly regulated industries are incorporating these technologies – from aerospace, to food, to chemicals and refining.

Participants Include:
Scott Harmeier, Archer Daniels Midland
Michael Krauss, BASF
Jeff Russell, Pepsi Beverages
Richard Beeson, OSIsoft
Timo Klingenmeier, inmation Software
Janice Abel, ARC

4 – 5:30 PM
Predicting the Process Lifecycle with the Help of Analytics
Process disruptions lead to lower production levels, off spec products, and potential failures. Low asset availability and unplanned downtime result in lost production and excessive maintenance costs. Low asset availability increases capital costs and lowers production capacity. These challenges can only be solved with a greater understanding of how the process impacts the asset and vice versa.

Industry experts will talk about how analytics help them optimize business decisions from design, operations, and maintenance perspectives, and how deep process domain and modeling expertise combined with data science provide the rich context necessary to predict and avoid asset performance issues accurately. From the design and maintenance operations points of view, we will examine how reliability modeling, failure monitoring, and machine learning prioritize and address the most vulnerable and critical assets as the assets and the business conditions they operate within change. Participants will discuss how asset analytics deliver the insights and intelligence needed for decision-making that determines a competitive differentiation for asset owners.

Participants Include:
Satyam Priyadarshy, Halliburton
Subrat Tripathy, L&T Technology Services
Michael Stobel, AspenTech
Robert GoLightly, AspenTech
Bert Baeck, TrendMiner
Peter Reynolds, ARC

GENERAL SESSION

8:30 – 10 AM

Industry in Transition: Keynote and Executive Panel

New technologies such as analytics, machine learning, augmented reality, cloud computing, mobility, and 3D visualization have been getting a lot of attention in the industrial community as each has the potential to disrupt and radically change the way companies manage their plant assets. Still, most industrial enterprises tend to be conservative and slow to embrace new information technologies. This go-slow strategy, however, can be far riskier than anticipated. This executive panel discussion will focus on how you can transform your operations using new innovative technologies and processes.

Participants Include:
David Woessner, Local Motors
Glen Mutscher, Dow Chemical
Liu Qiao, 3M
Michael Carroll, Georgia-Pacific
Gene Tung, Merck
Andy Chatha, ARC

TRACK 1

10:30 AM – 12 PM

Are You Receiving an Adequate Return on Your Automation Investment?

Too often process automation is taken for granted. It is often viewed as a utility in that it keeps the plant operating within limits. After all, the plant processes are where the real value is created– right? The process plant assets convert your raw material feed stock into finished product that you then sell! While it is true that you cannot make the products you sell without the right production equipment in place, it is also true that to produce the right products, at the right quality, with the least amount of production cost, you need automation to do this. The question is are you leaving any opportunities to add more value to your production with your current operations.

This session is focused on recognizing value that may be missed with the current approach to automation. Identifying lost opportunities in the past is one way of looking at it, but in a more positive way, this session is designed to help owner-operators find ways to create more value going forward.

Participants Include:
Helen Dotson, Dow Chemical
Barry MacGregor, Dow Chemical
Doug Lutz, NOVA Chemicals
Dick Hill, ARC

1 – 1:45 PM

HIMA Workshop: Big Data Meets Smart Safety

Every safety system can shut down a plant. But a smart safety solution can also prevent plant shutdowns. Discover how HIMA transforms big data into beneficial information –to make your plant safer, more secure, and more efficient.

2 – 3:30 PM

New Approaches to Automation Projects: Reducing Cost and Complexity

New technologies and approaches to project management are making it possible to significantly reduce overall project cost. Smart, configurable I/O, late binding concepts, virtualization, modular approaches, and MAC approaches all have the potential to reduce project cost by as much as 30 percent. Leading end users will discuss these new approaches and share their insights for project success from a range of process industries.

Participants Include:
Thomas Holm, WAGO
David Hoeppner, Fluor
Hyonsook Kang, Shell (Retired)
Karthik Rammohan, Yokogawa
Deston Day, Emerson Automation Solutions
Dick Hill, ARC

4 – 5:30 PM

Integrated Manual and Automated Procedures Value and Benefit

Manufacturing operations culture, alarming methodologies, process safety management practices, standard operating procedures, and automated control strategies must work in harmony to prevent abnormal performance. As the issue becomes more and more dependent on human and machine integration, new technologies and implementation techniques like advanced procedural automation can be applied, which will greatly affect operational performance. Those who ignore these new advances in computer enabled manual and automated procedural automation will delay their adoption, and incur highly levels of process safety and productivity risk.

How the world has changed:

- DCSs and PLCs have evolved into much more capable computer platforms
- Networked with a variety of device interfaces they support more complex message communication
- Processes have grown more complex as producers work to increase efficiency and reduce costs
- The desktop computing revolution has set expectations (good and bad) for what human interaction with a computer should be like.

New solution technologies for this problem are beginning to emerge, but there is little consensus yet as to how to apply them. So what is next?

Based on these new technologies, for the first time one has the opportunity to unify to distinct islands of information, the manual procedure (SOP) and the automated control strategy (computer code). Now it is possible to deliver complex manual/written procedures in the field and interlock their completed manual actions with automated control actions.

Participants Include:
Laura Sheets, Savannah River Nuclear Solutions
Thomas Kendi, ExxonMobil Research & Engineering
John Rezabek, Ashland Performance Materials
Dave Emerson, Yokogawa
Mike Williams, ARC Associate

TRACK 2

10:30 AM – 12 PM
Cybersecurity - Security Operations Centers and Managed Services for Industrial Plants

The lack of cybersecurity expertise within plants is a fundamental issue for industrial companies. Given the uniqueness of industrial control system cybersecurity, hiring additional staff can be difficult. Plant management also struggles to justify the additional costs given the low likelihood of serious cyber attacks.

Companies are considering two major approaches to address this situation: centralized, corporate cybersecurity operations groups; and, managed services offered by automation system vendors and third parties. Users need to understand the different benefits and costs of each approach in order to select the best strategy for their unique situation.

This session will begin with an ARC overview of cybersecurity operations groups and managed service offerings and their use in various industrial settings. Presentations by end users will follow and cover their experiences with these strategies and recommendations for what others should consider as they address their own challenges. An open panel discussion will follow the presentations to allow attendees to discuss their own issues with these experts.

Participants Include:
Glenn Aydell, BASF
Tyler Williams, Shell Global Solutions
Gregory Villano, Diamond Offshore
Dan Rozinski, Dow Chemical
Daniel Boykin, Evonik
Rajiv Sivaraman, Siemens
Sid Snitkin, ARC

2 – 3:30 PM
Cybersecurity - What's Really Needed for Network and Endpoint Protection?

Network and endpoint security solutions have become commonplace in industrial control systems. PC-based devices are generally protected with anti-malware software and networks are routinely protected with conventional firewalls. Adoption of advanced solutions like application whitelisting and deep packet inspection (DPI) firewalls is also growing as companies develop the resources to manage these technologies.

Despite these efforts, cyber intrusions remain a serious concern for industrial companies. Incidents like the recent Ukranian Power System outage demonstrate that these defenses are inadequate to block sophisticated attacks. So, what more can companies do and how are suppliers addressing these challenges?

Participants Include:
Rebecca Lawson, GE Digital
Glen Bounds, Schneider Electric
Lior Frenkel, Waterfall Security Solutions
Eric Knapp, Honeywell Process Solutions
Dirk Seewald, Phoenix Contact
Umair Masud, Rockwell Automation
Sid Snitkin, ARC

4 – 5:30 PM
Best Practices for Implementing Analytics for Digital Transformation

Analytics is the key to implementing data driven decision making and tapping the business transformation possibilities enabled by connected and smart devices, the Internet of Things. However, getting started with analytics has proved exceedingly challenging for many organizations. It can be hard to determine in advance what technologies, skills, and resources you may need.

In this session, we'll hear from organizations well into their analytics journey. They'll review lessons learned and how they designed best practices to overcome cultural obstacles to implement and grow their analytics capabilities. Discussions will focus on how to best implement and leverage analytics, including:

- Scaling analytics globally while addressing cultural challenges
- Managing data to speed time-to-value
- The crucial role of knowledge management
- Tools for making subject matter experts more effective
- Moving past "set-it-and-forget-it" mentality

Participants Include:
Mary Beth Seasholtz, Dow Chemical
Devavrat Bapat, Johnson & Johnson
Louis Halvorsen, Northwest Analytics
Jon Sobel, Sight Machine
Michael Guilfoyle, ARC

TRACK 3

10:30 AM – 12 PM
Machine Learning: Predicting the Process with the Help of Analytics
New platforms, emerging operational and maintenance practices, and new organizations inside and outside an industrial process facility are required for industrial transformation.

Machine learning and operational analytics will leverage your current data and complement current plant infrastructure. Project and design engineers, production specialists, and operators can predict more precisely what is occurring or what will happen in the future with continuous and batch industrial processes.

This session will provide valuable insight for anyone involved with technology planning in the process industries. This includes end users with a mission to shift operations and maintenance to proactive approaches looking to minimize cost and improve production, safety, and reliability.

Participants Include:
Chris Curry, Evaporcool Solutions
Scott Schemmel, Ciner Resources
Jolene Baker, Ciner Resources
Brian Parsonnet, Seeq
Crick Waters, Falkonry
Peter Reynolds, ARC

2 – 3:30 PM
Operator Training Effectiveness with Simulations
In today's business environment, console operators have more control loops than ever to manage, while at the same time both processes and control systems are becoming increasingly more complex. There is increased emphasis to train field and console operators to handle abnormal situations. Staffed largely with aging work forces, with many experienced workers getting ready to retire, companies need to ensure that they can continue to operate their plants in a safe, reliable, and profitable manner. Training approaches that incorporate operator training simulation systems (OTS), immersive training simulators (ITS), gaming, 3D visualization, immersive virtual reality, avatars, and other methods are being used to train the new tech savvy generation of workers and retrain experienced workers.

This session will include presentations and workshops that illustrate technologies, tools, and methodologies being used to evaluate and design for human factors, to train and develop today's workers, and to understand how to improve people performance. ARC will provide all attendees of this session with a copy of an ARC Strategy Report on Operator Training Simulators that was based on a recent survey.

Participants Include:
Lawrence Staab, Kinder Morgan
Brent Kedzierski, Shell

David Lafferty, Scientific Technical Services
Graham Provost, Schneider Electric
Rick Rys, ARC

4 - 5:30 PM
Strategies to Reduce Downtime and Increase Plant KPIs
This session will discuss manufacturers' biggest nemesis-unscheduled downtime - and strategies for how to reduce or eliminate it, subsequently increasing a plants key performance indicators (KPIs).

This session will deliver case studies offering need-to-know guidance on "must haves" for OT leaders looking to maximize the ROI of their automation systems by eliminating any unscheduled downtime.

Presentations will focus on learning to assess availability readiness of automation systems, as well as best practices to engage with IT decision makers. Also, to understand how IT and OT convergence can align to deploy the best solution - one that fits into existing systems, supports standards including OPC, and delivers ROI, while laying the foundation to support modern technologies, such as virtualization and IIoT.

Participants Include:
Clarke Katz, La Tortilla Factory
Jim Lewis, 3M
Craig Langhals, SugarCreek
Dan Stauft, SugarCreek
Joseph O'Sullivan, Intel
Phil Couling, Schneider Electric
Will Goetz, Emerson Automation Solutions
Robert Sotirin, Rockwell Automation
Travis Cox, Inductive Automation
Craig Resnick, ARC

TRACK 4

10:30 AM – 12 PM
Augmented Reality as a Best Practice Tool for the Enterprise
Augmented reality (AR) can be leveraged to deliver best practices across enterprise processes. AR can improve work safety while reducing cost and rework by enhancing human capabilities. By delivering more resources to workers, it can increase their productivity and ability to handle more types of work, including routine maintenance and emergencies. It can also limit the effects of "brain drain" by capturing best practices and driving organizational knowledge and expertise across all parts of operation, from plant to field. Additionally, it helps workers more effectively manage an increasingly complex, digital work environment, enabling better gathering and use of information for decision making as data is delivered faster among people, systems, and devices.

Participants will learn more about AR developments as a best practices solution, hearing about both current and future applications of augmented reality.

Participants Include:
Jeff Dymond, DAQRI
JP Provencher, PTC
Will Hastings, ARC
Michael Guilfoyle, ARC

1 – 1:45 PM
Stratus Technologies Workshop: Eliminate Unplanned Downtime, Future-proof, and Simplify Automation System Assets
Join industry expert, Craig Resnick of ARC Advisory Group, and John Fryer of Stratus Technologies, for straight talk on industrial automation and manufacturers' biggest nemesis, unscheduled downtime. This session will deliver need-to-know guidance on "must haves" for OT leaders looking to maximize the ROI of their automation systems by eliminating any unscheduled downtime. Learn to assess availability readiness of your automation system, as well as best practices to engage with IT decision makers. Gain appreciation of how IT and OT convergence can align to deploy the best solution for you through technologies such as virtualization. Understand how to take complex automation systems and simplify their deployment while creating a future ready environment.

Participants Include:
John Fryer, Stratus Technologies
Craig Resnick, ARC

2 – 3:30 PM
Supply Chain Analytics and The Digital Transformation
Complex global supply chains require sophisticated, connected, analytic technologies to monitor risks, predict abnormal conditions, and support rapid recovery. Real-time supply chain analytics is coming of age because of the IIoT, cloud, and new analytic technologies. New supply chain software platforms and new analytic software is being deployed to optimize supply chain traceability, forecasting, inventory, and logistics. While supply chain analytics is still very much at the beginning stages of development at many different companies from oil and gas pipelines to mining shipments to consumer industry demand changes, companies are deploying new solutions to improve efficiencies. New analytic tools, easier integration, lower cost data storage, increased computing power, improved visualization, and ease of use are all part of the new industrial revolution and transformation. End users in this session will describe several examples of technologies that are being deployed and making a difference and improving efficiencies in their companies.

Participants Include:
Jânio Souza, Vale
Jan Theissen, AGCO

Breno Bregunci, Chemtech
Janice Abel, ARC

4 – 5:30 PM
Leveraging Smart Field Systems to Create Value in Process Industries
Smart field devices, systems, and associated digital networks continue to support every aspect of the process industries. While the various digital field technologies are based on standards and provide far more functionality than conventional analog communication, we continue to see relatively slow adoption, particularly in brownfield situations. Smart field devices can provide greater operational visibility, agility, and flexibility when leveraged effectively.

On the smart device side, the available technology goes beyond the basic measurements of pressure, temperature, flow, and level, to include multiphase flow, multi-variable transmitters, video, acoustic, fiber optic, and analytical measurements. Not only do these new, smart devices and associated digital communication networks provide the opportunity to obtain additional real-time process and asset intelligence, they also reduce the number of process penetrations required. With the emergence of edge analytics we are increasingly seeing sensors being embedded with more storage, communications, analytics and greater processing power than ever before as smart field devices are the "tip of the spear" in enabling IIoT.

Participants Include:
Sharul Rashid, Petronas
John Huot, Phillips 66
David Lafferty, Scientific Technical Services
Eric Heavin, Yokogawa Corporation of America
Tim Shea, ARC

TRACK 5

10:30 AM – 12 PM
Advanced Manufacturing Technologies for the Digital Factory of the Future
Manufacturing is very rapidly moving into an era where emerging technologies and digitalization are changing the face of production systems, manufacturing processes, supply chains, and even the work force. The digital transformation taking place throughout industries is affecting all stages of the product lifecycle from design, simulation, production, maintenance, and service in the field. Moreover, with the advance of IIoT technologies and smart, connected factories, new materials, and advanced fabrication technologies, manufacturing is going through some extraordinary changes.

This session will examine emerging manufacturing technologies like additive manufacturing and hybrid machine tools, applied materials science, advanced predictive and prescriptive analytics for manufacturing that use machine learning, operational intelligence, cloud-based connectivity for pro-

duction equipment, IIoT, the digital twin, virtual reality and augmented reality, advanced simulation solutions, and more. Leading PLM suppliers and other technology suppliers will bring customers that represent early adopters of advanced manufacturing technology. Not only is this advanced manufacturing technology bringing significant changes and improvements to production systems and service, but it is bringing about the complete re-thinking of new business models based on IIoT, the digital twin, and factory/supply chain ecosystems.

Participants Include:
David Woessner, Local Motors
Dean Bartles, American Robotics
Leandre Adifon, Ingersoll Rand
Dick Slansky, ARC

2 – 3:30 PM
Cloud Platforms Enable Knowledge Distribution in a Digital Manufacturing Community

Online communities are no longer relegated to social networking. Today, online communities are being leveraged by industrial operations where environments are created for users to share data, analytical models, simulations, and more. Distributed cloud platforms are being used to disseminate the artifacts, knowledge, tools, and techniques born from the work of the digital manufacturing community.

The rapid access to knowledge will enable more manufacturers to evaluate the use of advanced analytics to improve manufacturing operations. However, there is a skill gap in manufacturing facilities today in terms of big data analysis. Analyzing big data requires the skills of data scientists to extract the underlying trends that would enable manufacturers to improve operational performance.

This session will explore the outsourcing strategies as well as skill building that manufacturers have employed to leverage "big data".

Participants Include:
Craig Sutton, John Deere
Binil Starly, North Carolina State University
Tom Tischner, Trumpf
Sal Spada, ARC

4 – 5:30 PM
Rethinking the Role of Process Control

In its purest form, the discipline of process control applies control theory to design systems that produce desired behaviors. However, changes in automation technologies have added considerable distractions over time, while new technologies have helped demystify some of the traditional work.

Technology has both complicated process control, and made it easier. Technology has taken tasks that previously required a lot of expertise and embedded that expertise within automation products. The Industrial Internet of Things (IIoT) allows some expertise to reside off-site, providing additional value.

While most process control organizations have adapted to technology complication, few have stepped back to rethink the skillsets and assignments in the greater context of today's more digitized and connected world.

This session explores ways companies have responded to the changes in technology, skillsets, and demographics.

Participants Include:
Dex Dutson, Lamb Weston
Andy Young, Pioneer Energy
Mark Sen Gupta, ARC

THURSDAY, FEBRUARY 9

TRACK 1

8:30 – 10 AM
IT/OT Convergence: Linking Legacy to an Industrial Internet of Things World

We have been hearing a lot about the convergence of information technology and operations technology (IT/OT). This has led to a rapid learning curve for both groups, such as IT learning about what is actually "real time" and OT learning that to leverage the latest technology, 30 year old control systems may need to be upgraded. Connectivity between OT to IT is essential for any business to compete today with the increasing demand for tighter integration and more information and analytics, along with leveraging the Industrial Internet of Things, cloud, and big data. However, the reality is most factories contain multiple generations of systems where 30 year old products need to some-

how be part of the convergence story. This session will explore how companies have successfully linked their OT legacy systems to their state-of-the-art OT and IT systems, covering the hurdles and challenges that need to be overcome. Persons wanting to learn about IT/OT convergence, as well as those involved with control systems and/or production management software should attend to gain insight into real world examples of OT and IT convergence success stories involving legacy systems, what lessons were learned, and what were the derived business benefits.

Participants Include:
Haresh Malkani, Arconic Technology Center
Ben Savage, Apex Supply Chain Technologies
Craig Lightner, Washington Gas and Light
Jason Andersen, Stratus Technologies
Gareth Noyes, Wind River
Panneer Shanmugam, L&T Technology Services

Phil Niccolls, Emerson Automation Solutions
Maryanne Steidinger, Schneider Electric Software
Craig Resnick, ARC

10:30 AM – 12 PM
Open Process Automation Forum by The Open Group
The Open Group will give an overview of the Open Process Automation Forum, a collaborative effort to specify a rigorously defined, open, and interoperable automation architecture. The session will include a status update on the formation of the Forum, the results of its November 2016 initial meeting, the Forum structure, an overview of its business and technical direction, and an initial roadmap of its planned activity. In addition, presentations by one or more end user organizations will give an end user perspective on the need for open standards in process automation.

Participants Include:
David Lounsbury, The Open Group
Paul Berlowitz, ExxonMobil
Steve Bitar, ExxonMobil
Dave Emerson, Yokogawa
Trevor Cusworth, Schneider Electric

TRACK 3

8:30 – 10 AM
Advanced Alarm Management Strategies Provide Path to Operational Excellence
Many end users are taking a closer look at their approaches to alarm management in process plants as a key element in their path to operational excellence. At the same time, ARC sees many users faced with a decision to migrate older alarm management systems, just as they must migrate their process automation systems. Adherence to alarm management standards such as ISA 18.2 and EEMUA 191 is also important. Not adhering to these standards can create a real problem in the wake of a plant incident. Leading end users will discuss their approaches to alarm management strategy, standards conformance, and migration of existing solutions to provide a path to reduced unplanned downtime, improved product quality, and better profitability.

Participants Include:
Bonnie Ramey, DuPont
Bridget Fitzpatrick, Wood Group
Janette Brightwell, Dow Chemical
James Henry, ProSys
Mark Sen Gupta, ARC

10:30 AM – 12 PM
Drones in Industry and Commerce
Explore the use of drones, drone services, and related drone technologies to benefit industry and commerce. The FAA part 107 rules effective in August 2016 make it easier to operate a commercial drone business, but there are still plenty of barriers for certain applications. Learn the drone policies your company should have in place for using drones.

Learn some of the issues for protecting your company's security from drones flown by others. Learn about some of the emerging technologies that drones and the devices they carry can provide.

Participants Include:
Todd Chase, Oceaneering
Stephen Luxion, ASSURE FAA Center of Excellence for UAS
David Lafferty, Scientific Technical Services
Rick Rys, ARC

TRACK 4

8:30 – 10 AM
Transitioning to the Grid of Things: Visibility, Communications, Analytics, and Security
The distribution grid is a focal point of modernization of the electric utility industry. New energy technologies are being added at the grid edge at an unprecedented rate — microgrids, rooftop solar, electric vehicles, battery energy storage, and more — with consumers, not utilities, increasingly in control of the pace of adoption. New economic and operational models, such as transactive energy, are being considered and implemented across the globe.

This session explores the key components needed in a Grid of Things, including improved visibility, communications, analytics, security, and operating architecture, and how to achieve them. Best practices and lessons learned will be shared by those directly tasked with building and supporting the modern Grid of Things.

Participants Include:
Dwayne Bradley, Duke Energy
David Lawrence, Duke Energy
Eddie Lee, Moxa
Stuart Gillen, SparkCognition
Michael Guilfoyle, ARC

10:30 AM – 12 PM
Rethinking Process Control Staffing
Technology is changing and fast. Labor availability and skillsets are changing as well. Process control personnel makeup and skillsets have evolved over decades of iterations, but the real question is, "If you started from scratch, how would you divvy up the responsibilities?"

This session will focus on the changing responsibilities and skill sets in the OT space and discuss strategies to address these challenges.

Participants Include:
Eric Cosman, ARC
Dick Hill, ARC
Peter Reynolds, ARC
Mark Sen Gupta, ARC
Mike Williams, ARC Associate

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Stratus takes the complexity out of keeping business critical applications running 24/7. Stratus' technologies proactively prevent instances of unplanned downtime both in the data center and at the edge, and our services ensure any issues are addressed before customers need to. Global Fortune 500 companies and small medium sized businesses in a wide range of industries across the globe have been relying on Stratus for operationally simple, continuous availability for more than 35 years. For more information, please visit www.stratus.com or follow Stratus on Twitter @StratusAlwaysOn.

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ARC BIOS

Janice Abel
Principal Analyst
Janice is a principal consultant at ARC and lead analyst in the areas of Enterprise Manufacturing Intelligence, Manufacturing Execution Systems (MES), Operator Training Simulators (OTS), and Virtual Reality. She has done extensive research and consulting on these and other industry, automation, and emerging technologies spanning the entire spectrum of process and manufacturing industries. Her experience includes over 25 years of experience helping both suppliers and end user clients develop strategic plans to market, adopt, and use technologies.

Allen Avery
Senior Analyst
Allen is a member of the Automation Research team at ARC and is responsible for research and analysis of process measurement technologies (flow, level, pressure, and temperature), wireless field devices, energy management, process control, and plant asset management.

Alex Chatha
Director, Smart Buildings and Cities
Alex is a member of the IIoT team and is Research Director for Smart Buildings and Cities. His areas of research include smart lighting, smart HVAC, BAS/BEMS, energy management and optimization for buildings, and how industrial IoT is being applied to smart cities.

Andy Chatha
President
Andy has over 40 years' experience in enterprise and automation solutions. He is a recognized authority on business strategies and is a frequent speaker at executive conferences around the world. Andy founded ARC through which his vision and influence has advanced the art of manufacturing.

David Clayton
Research Director
Dave focuses on automation technologies at ARC, specifically Distributed Control Systems (DCS), process safety systems, and final control elements, including control valves, actuators, and positioners. He has more than 25 years experience in manufacturing with Foxboro and ARC.

Eric Cosman
Contributing Consultant
Eric provides consulting and advisory services in information technology solutions in operations and engineering. He has experience in system architecture definition and design, project management, technology lifecycle management, and integration planning for manufacturing focused IT systems. He has served as the vice president of standards and practices at the International Society of Automation (ISA), a member of the ISA Executive Board, and is the co-chair of the ISA99 committee on industrial automation and control systems (IACS) security.

Valentijn de Leeuw
Vice President
Valentijn's focus areas include organizational change and effectiveness, business process improvement, value-based project management, governance, operations management, asset management, innovation, and engineering. His topical focus is on manufacturing operations management, asset lifecycle information and performance management, supply chain management, Industrial IoT, as well as behavior and cognition of knowledge workers and their interactions with technologies, and the social impact of new technologies and processes.

Steve DePaola
Vice President, Client Services
Steve is responsible for ARC's supplier sales & service and leads the North American Client Management team. He also co-leads ARC's Industrial Internet of Things program initiative and development. He has been with ARC for over 20 years and has over 30 years of experience in business management and industrial technology.

Harry Forbes
Research Director
Harry leads ARC's coverage of the electric power vertical industry, and also leads ARC research on industrial networking and network/communication standards. His research topics include the Smart Grid, fieldbus technologies, industrial wireless, wireless sensor networks, industrial Ethernet, and emerging network technologies. He has over 25 years of experience in process automation, electric power generation, industrial energy management, process modeling and simulation, advanced control, and multi-variable optimization.

Greg Gorbach
Vice President, Information Driven Manufacturing
Greg heads a team focused on the digital transformation of industrial businesses and ecosystems, known as the Industrial Internet of Things (IIoT) or Industry 4.0. This transformation is powered by technologies such as machine learning, predictive analytics and Big Data, cloud computing, mobility, low-cost sensors,

edge intelligence, network connectivity, enterprise analytics platforms, additive manufacturing, augmented reality, and more. Greg's team provides industrial clients with research and strategic advice in transforming manufacturing operations, products, and services.

Uwe Grundmann
GM, European Operations
Uwe is responsible for managing ARC's operations in Germany and Europe. He has over 20 years experience in the manufacturing industry with deep knowledge in automation and enterprise applications. He established the ARC Advisory Group in Europe.

Mike Guilfoyle
Director of Research
Over the past two decades, Michael has assisted organizations, including numerous Fortune 500 companies, in identifying and capitalizing on growth opportunities presented by the modernization of energy and technology. At ARC, he applies his expertise to developments related to Industrial Internet of Things (IIoT) and advanced analytics, including machine learning.

Florian Güldner
Research Director
Florian is part of the automation team at ARC covering manufacturing topics in Europe and is located in ARC's offices in Germany. His focus areas are the discrete industries with a special focus on PLCs, discrete sensors, energy management, and topics around Industrie 4.0 and modular production. At ARC, Florian specializes in economic modeling, time series and business cycle analysis, and forecasting. He is also experienced in strategic marketing and mergers & acquisitions.

Conrad Hanf
Director, Manufacturing & Supply Chain Services
Conrad manages hybrid industries, including food, beverage, CPG, and semiconductors, along with supply chain and logistics software vendors with emphasis on integration of enterprise applications with manufacturing systems. He also works with financial firms assisting with industrial automation, manufacturing systems, and supply chain and logistics technology companies. He has over 15 years experience in manufacturing, operations, product development, and marketing with Schlumberger/ Fairchild, National Semiconductor, Harris Corporation, and NEC Electronics.

Will Hastings
Analyst
Will's focus areas include product lifecycle management, engineering design tools for plant and infrastructure, machine safeguarding, 3D scanning, and 3D printing. Prior to ARC, Will was a design

engineer at Sensata Technologies where he focused on new product development of magnetic speed & position sensors and cost-reduction projects for established product lines. He was responsible for concept design and validation, supplier selection and validation, production validation, and failure analysis.

Dick Hill
VP & GM, Industry Advisory Services
Dick is responsible for managing ARC's Industry Advisory Services Group. Dick's focus areas include manufacturing industries strategies and best practices, real-time performance management, operational excellence solutions, and advanced software and systems technologies such as APC, optimization, and DCS. His industry experience includes oil refining, chemicals, and other process industries. He has over 30 years experience with BP Oil, Foxboro, Walsh Automation, and ARC.

Paula Hollywood
Senior Analyst
Paula's responsibilities include asset performance management with a focus on reliability and plant asset management. Other areas of coverage include field devices (flow, level, and pressure), process analytical chemistry, intelligent pumping systems, and laboratory information management systems. She has over 30 years experience in marketing and sales of industrial field instruments.

Shinichiro Kai
Research Director
Shin Kai is responsible for all ARC research and client support activities in Japan. He is the editor of the Japanese version of the weekly ARC Industry Newsletter. He has over 25 years of experience in writing and in covering the industry for leading publications in Japan including Design News Japan (for mechanical design engineers), Control Engineering Japan (for process engineers), Asia Electronics Industry, and others.

Bill Krah
Director, Strategic Services
Bill is a member of ARC's business development team for North American and global account client relationships including IIoT, analytics, networking, automation solutions/technology providers, and machine builders. His past 25+ years of industry experience include Eaton Corporation and Westinghouse Electric.

John Kuenzler
Director, Strategic Services
John is responsible for ARC's process automation supplier clients, system integrators, and industry organizations. He has over 30 years of industrial automation system design and sales & marketing manage-

ment experience with Invensys Foxboro, ICONICS, USDATA, the Turnbull Control Systems division of Eurotherm, and EMC Controls.

David Littman
Director, Strategic Services

Dave is responsible for client relations and coordinating ARC analysts, media, and resources to the benefit of our clientele. Prior to ARC, Dave most recently directed all sales and revenue development activities globally for Truth In IT, a niche digital publishing and marketing firm in the IT infrastructure space. He has over 20 years of direct, channel, and MSP sales experience in IT, specifically in the data protection space.

Mark Luciw
Director, Strategic Services

Mark is a member of the Business Development team focused on cybersecurity, utilities, life sciences/pharmaceutical, food & beverage, CPG, and rail transportation. He has over 30 years of technology experience, including sales, sales management, and business development positions from early-stage to mature business operations.

Bob Mann
Director, Strategic Services

Bob is a member of the Business Development Team, focusing on North American end user clients. Bob has over 30 years of experience in product design and manufacturing systems, including positions in sales, project management, and product design and engineering with Omega Optical, BCT Technology, and EDS/Unigraphics Solutions (now Siemens PLM).

Paul Miller
Senior Editor/Content Director

Paul has been a "student of the industry" for almost a quarter of a century, closely following the evolution from yesterday's proprietary, purpose-built control systems to today's more open and interoperable automation systems. His experience in the industrial automation industry includes many years with Foxboro and Invensys, a year as a contributing editor with Putman Media, and more recently, as ARC's senior editor and Advisory Services content director.

Chantal Polsonetti
Vice President

Chantal's current activities include working with the ARC teams covering the Industrial Internet of Things (IoT) and industrial networks. She also administers the ARC "Industrial Internet of Things" group on LinkedIn. Chantal's focus areas encompass the Industrial Internet of Things, including connected device management platforms, industrial Ethernet switches and devices, wire-

less networks, device networks, and intelligent train control systems. She has been an industry analyst covering manufacturing automation since 1987.

Craig Resnick
Vice President of Consulting

Craig's focus areas also include production management, OEE, HMI software, automation platforms, and embedded systems. He is the primary analyst for many of ARC's automation supplier and financial service clients. Craig has 30 years' experience in sales, marketing, product development, and project management in the industrial market, gained with major suppliers of PLCs, process control systems, power transmission equipment, and field devices.

Peter Reynolds
Contributing Analyst

Peter researches and consults on emerging technologies and practices, the convergence of IT with process automation, and industrial IoT. He brings more than 25 years of professional experience in process control, advanced manufacturing applications, and information technology in the downstream oil refining industry. Prior to ARC, he served as the Manager of Automation and IT at Irving Oil which operates Canada's largest refinery, eight petroleum terminals, and over 800 retail locations in Canada and the US.

Ralph Rio
Vice President

Ralph's focus areas include asset lifecycle management, enterprise asset management, field service management, and global service providers. He has 40 years of experience with manufacturing in marketing, product management, and manufacturing engineering including General Electric, Emerson Electric, Digital Equipment, Motorola, and Texas Instruments

Barclay Rockwood
Director, Strategic Services

Barclay is part of the Client Management team, responsible for supplier clients in North America. He has an extensive background in both the software and market advisory industries. He has consulted with Fortune 100 marketing and manufacturing leaders and helped five software firms establish solutions in the data management, collaboration, and knowledge management spaces.

Rick Rys
Senior Consultant

Rick performs research into and consults with clients on technology areas such as process automation, energy management, advanced process control, simulation, and optimization. Over the years, he has

provided consulting and engineering services to clients in every major industry including pharmaceutical, electric power, chemical, and oil & gas.

Mark Sen Gupta
Research Director

Mark leads ARC's coverage of process automation and automation supplier services, and also covers topics in IIoT, process safety, and SCADA. He has over 25 years of expertise in process control, SCADA, and IT applications with Mobay Corporation, Honeywell, Plant Automation Services, CygNet Software, and Invensys. His experience includes the refining, chemical, specialty chemical, pulp & paper, and oil & gas processes industries.

Himanshu Shah
Senior Analyst

Himanshu has 25+ years of direct experience in motion control equipment for machinery automation. His primary experience is in product marketing, product development, and international sales and marketing management gained at major suppliers of motion control equipment. He is part of the automation team focusing on AC drives, general motion control, HMI, and automation systems expenditures for discrete industries.

Tim Shea
Senior Analyst

Tim's focus areas include operational activities in support of the digital oilfield including multiphase flow metering, oilfield operations management systems, artificial lift optimization, leak detection systems, drilling optimization, and general field devices. Prior to ARC, he was a Senior Analyst with VDC Research Group where he covered industrial automation technology markets and in the oil & gas industry at Iroquois Gas Transmission Systems and PanEnergy (now Duke Energy Field Services).

Dick Slansky
Senior Analyst

Dick's responsibilities include PLM, engineering design tools for plants and infrastructure, ALM, digital manufacturing, and IIoT. He has over 45 years of experience in manufacturing engineering, CAD/CAM, controls systems integration, embedded systems, software development, and technical project management with Boeing and ARC.

Sid Snitkin
VP & GM, Enterprise Advisory Services

Sid leads ARC's industrial cybersecurity research efforts and is the author of various market studies and reports in this area. He has over 30 years of experience in automation systems and enterprise applications and is a frequent speaker at conferences and industry events. Sid also has experience and expertise in supply chain planning, asset lifecycle management, industrial analytics, and machine learning.

Sal Spada
Research Director

Sal leads ARC's discrete industry team. His expertise includes real-time, object-oriented software design and development applied to motion control systems. He has over 20 years experience with Schneider Automation, Boston Digital, EG&G, Intermetrics, and RCA Astro Electronics.

Paul Steinitz
Director Strategic Services

Paul is a member of the Business Development Team, focusing on end user clients. He has over 35 years of experience in the automation industry, including positions in sales, marketing, and product management. He has been directly involved in the application of process control systems in the power (nuclear and fossil), chemical, oil & gas, petrochemical, pharmaceutical, and other industries.

John Wason
Vice President, Global Client Management

John is responsible for managing ARC's process industries business globally. He has over 35 years of experience in the manufacturing automation industry with Pfizer, Foxboro, Intec Controls, and Nematron. He also manages ARC's Mergers and Acquisitions practice.

UPCOMING FORUMS

ARC Industry Forum Europe 2017

May 16-17, 2017
Barcelona (Sitges), Spain

ARC Industry Forum India 2017

July 6-7, 2017
Bangalore, India

ARC Industry Forum Japan 2017

July 11, 2017
Tokyo, Japan

ARC Industry Forum Middle East 2017

September 2017
Abu Dhabi, U.A.E.

Asian Downstream Week 2017

In Partnership with Clarion Events
October 25-26, 2017
Singapore

ARC Industry Forum USA 2018

February 12-15, 2018
Orlando, Florida

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