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# INSIDER

INDUSTRIAL AUTOMATION & PROCESS CONTROL

Your key to the latest industrial automation and process control information

VOLUME 20  
NUMBER 11  
ISSN2334-0789  
November 2016

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## Rockwell Stars at PSUG, Automation Perspectives and Automation Fair

### PSUG Shines in Atlanta



ROK's John Genovesi

While other user group meetings this year have had declining attendance, the Rockwell Automation Process Solutions User Group (PSUG) was clearly the opposite. With a total attendance of over 850, the 2016 PSUG was by far the highest attended meeting in the user group's history.

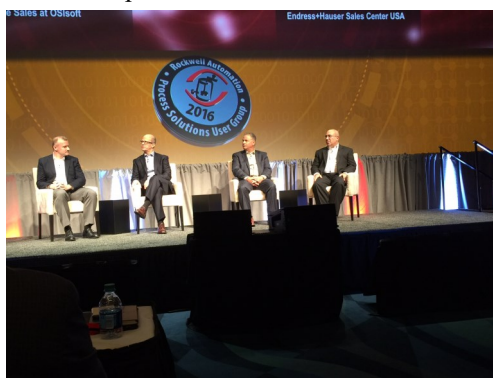
Steve Pulsifer, who has been with the Process Systems group since the beginning started the conference off, and handed it over to John Genovesi, vice president and general manager of the information software and process business.

Genovesi talked about the standard digital challenges, and continued to push the Rockwell line about their DCS, PlantPAx, being the modern DCS. In fact, it is one of the DCS systems that have replaced "big iron" and so can be called a modern DCS. Genovesi talked about the connected enterprise that Rockwell believes it has created with features that no other DCS/enterprise connectivity software has.

Dr. Richard Kelly, from McKinsey, gave a report on what their findings are on adoption of the IIoT.

Jason Wright, Plant PAx business manager, gave a state of the state report on Plant PAx and its new features, existing and forthcoming.

After that, Jim Winter, the director of global process business, Kris Dornan, business development manager, Todd Lucey, general manager Endress+Hauser USA, Dr. Richard Kelly from McKinsey and Marc Gallant, from OSIsoft, participated in a panel discussion about the Industrial Internet of Things and its importance to end users and vendors.



PSUG IIoT Panel Discussion

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## Rockwell Stars at PSUG, Automation Perspectives and Automation Fair (continued)

Very clearly, Rockwell, like all the other big automation companies, has discovered services. Harry Forbes, of ARC Advisory Group, calls this the vendor annuity. Vendors have always hated the feast/famine cycle of project business, and now they believe they have found a way to end the cycle, or at least control it. They started, several years ago, with service plans, and then followed with software as a service. Now they are hawking maintenance as a service, and Rockwell even suggested that they would be willing to supply entire systems as a service.

The reason Rockwell and other vendor companies think they can do this is that there are significant pressures on CAPEX that they believe do not exist with OPEX.

Rockwell spent quite a bit of time all week talking about Smart Manufacturing, and made much of the fact that they were one of the founders of the Smart Manufacturing Leadership Coalition (full disclosure: Spitzer and Boyes LLC is a member of the SMLC). They also made much of their very recent acquisition of ThinManager, an IIoT information management system.

Since the election occurred in the middle of Automation Fair, it is not clear what the fate of Smart Manufacturing, as a government sponsored initiative, will be under the new administration.

PSUG was full of enthusiastic end users—lots of them. Clearly, Rockwell has something to sell, and a product that users in industries from oil and gas to food, pharmaceuticals, mining, and water/wastewater like and support. The PSUG Customer Advisory Board includes users from Oil and Gas companies, Chevron and ExxonMobil, Consumer Products Companies like Procter and Gamble, Pfizer Inc., Archer Daniels Midland, and several Control System Integrators. This last is an interesting addition to the Customer Advisory Board, recognizing the strength and importance of system integrator companies in the Rockwell ecosystem.



One of the few high ranking women in Rockwell, Ninveh Neuman

### The Blake Show: Automation Perspectives Shows Off Rockwell's New Leadership and Initiatives

"Automation Perspectives" is the name that Rockwell gives to a half-day seminar for the media and analyst corps, a day or two before the actual investors' meeting.

In a company notorious for having tall men as vice presidents, Ninveh Neuman, vice president, global commercial marketing, is a stand-out. She has led the evolution of Rockwell's marketing and is pushing the modernization of and interactions with Rockwell's channels and partners. Like most Rockwell executives, she was promoted from within, having joined the company in 1995.



Rockwell's new CEO, Blake Moret

Neuman was charged with introducing Automation Perspectives, and turning the podium over to the brand new CEO, Blake Moret, who took over on July 1, 2016. This meeting was Moret's first star turn as CEO, and he handled it pretty well.

The first, and possibly most important thing Moret announced was the rationale for acquiring Maverick Technologies, the world's largest independent system integrator. Many of the Rockwell star system integration firms had registered concern, especially since rumors immediately surfaced that Rockwell was going to use Maverick to cherry-pick the best integration projects for themselves.

No, Moret said, the reason Rockwell acquired Maverick was to acquire Maverick's large load of highly talented employees and

## Rockwell Stars at PSUG, Automation Perspectives and Automation Fair (continued)

subject matter experts. Paul Galeski has, indeed, been spending the last five years or so hiring subject matter experts and engineers with long resumes in the process industries and in factory automation and enterprise integration.

Both Genovesi and Moret seemed to unthinkingly slap at industry analysts ARC Advisory Group, when they insisted



Paul Galeski



McKinsey's Sternfels

on the unique relationship Rockwell now has with McKinsey and Company. At Automation Perspectives, Bob Sternfels, senior partner at McKinsey gave a presentation about manufacturing and the Internet of Things that was both interesting and yet a bit naïve about what actually happens on the plant floor.

John Genovesi reprised his PSUG keynote for



Sujeet Chand from Rockwell

Automation Perspectives, and led into a discussion about what Rockwell calls "Intelligence Driven Automation Architecture" by Fran Wlodarczyk, vice president and general manager, control and visualization business at Rockwell.



Çağlayan Arkan from Microsoft

and enterprise connectivity in a panel consisting of Jeff Reed, from Cisco, Çağlayan Arkan from Microsoft, and Francis (Bo) Rotoloni of Georgia Tech Research Institute Cyber Sciences Directorate.

Scott Lapcewich, vice president and general manager for customer support and maintenance, made the case for connected services (remember, the vendor annuity) and discussed the value of Rockwell providing operations support: "reliable operations."



ROK's Frank Kulaszewicz

For those of us who had watched the horserace for the successor to Keith Nosbusch, it was startling at first to see the also-ran Frank Kulaszewicz still at Rockwell (most of the Nosbusch senior staff has either left or is leaving) and also featured at Automation Perspectives. But there he was, in a new role as senior vice president architecture and software division. He gave a demo of big data and analytics that he said showed how data from smart assets can provide insights and "positive business outcomes." It was a great adder to the theme of Automation Perspectives.

Rockwell's Automation Perspectives theme was that their "Connected Enterprise" along with the Industrial Internet of Things and Smart Manufacturing could provide a new level of performance for end users in many different industry verticals.

### The Largest North American Automation Event: Automation Fair



Automation Fair 2016

The last two days of the Rockwell Automation flying circus are called Automation Fair—and for over a decade, it has been the largest automation-centered trade show in North America. You have to go to Europe, to Hannover Fair, or better yet, the recently concluded SPS-

IPC show in Nuremberg, Germany, to find a trade show as large or as well attended. The European shows are much larger. The SPS show, for example, fills all nine exhibit halls in the Nuremberg Exposition Center, which is about twice the size of New York City's Javits Center. But in the US, Automation Fair is king. This year, attendance was estimated at over 10,000. No other automation related event is



SPS/IPC drives show in 2015



## Rockwell Stars at PSUG, Automation Perspectives and Automation Fair (continued)

anywhere as large, including Emerson Exchange and Honeywell User Group, the next largest in process automation.

This is even more astounding when you consider that it is not, as the SPS show is, a public event. Automation Fair is owned by Rockwell Automation, and the only exhibitors are Rockwell itself, and its Encompass Partners.

The Encompass Partners are a highly selective group that Rockwell permits to use its logo and actively partners with. Encompass Partners range from megapartners like Cisco and Endress+Hauser to small companies that nobody would ever have heard of if they weren't part of Rockwell Automation's ecosystem.



Encompass Product Partner Logo

Automation Fair also includes hands-on classes and tutorials, and manages to even provide a free lunch for all attendees. This is an amazing show, every year, especially since it is owned by a single company.

### F.I.R.S.T. Gets The Prize

As part of Automation

Perspectives, Rockwell Automation announced a \$12M, four-year commitment to FIRST -- For Inspiration and Recog-

nition of Science and Technology -- founded to inspire young people's interest and participation in science and technology.

Over the past 10 years, Rockwell Automation has provided more than \$15M of broad-based support to address the critical need to fill science, technology, education and math (STEM) jobs that drive innovation. Many of these jobs go unfilled because of both the lack of awareness of the kinds of high-tech jobs available, and the lack of skills to qualify for today's needs.

More than 10 years ago, Keith Nosbusch literally dragged me through the Automation Fair to a large space that Rockwell had devoted to F.I.R.S.T. His devotion to STEM and to F.I.R.S.T. was clear, and it is good to see Rockwell not only continue his lead but to double down on F.I.R.S.T. the best way possible— with a big check.

"Through our technology and people, we are helping to inspire the next generation of innovators to fill the talent pipeline for our customers and for our company," said Blake Moret, President and CEO, Rockwell Automation. "Our strategic partnership with FIRST helps us increase our reach and visibility to STEM students around the world."

This donation to F.I.R.S.T. is by far the largest single donation to the STEM organization, with a joint donation from National Instruments and Autodesk at about \$4 million in cash and kind about in 2008.

More than 200 Rockwell employees regularly volunteer with F.I.R.S.T., and Rockwell regularly hires graduates of the F.I.R.S.T. program, as do many system integrators.

Rockwell has sponsored at least one student they hired from a F.I.R.S.T. team into engineering school. I met her the day Nosbusch dragged me over and introduced me.

Other graduates of F.I.R.S.T. have gone on to positions in the automation industry. Dannaca Jordan, for example, who credits F.I.R.S.T. for her interest in automation is a

senior automation engineer at Eastman Chemical.



President and CEO Blake Moret continues Rockwell's tradition of support for STEM and F.I.R.S.T. Robotics.

## The INSIDER's November 2016 Roundup

### It's Cool, But Is It IIoT?

The latest and greatest news from all the automation vendors is about how they are creating value using the Industrial Internet of Things (IIoT). Here are some of those news items.

A subsidiary of PetroVietnam will use Honeywell's new IIoT-based [Connected Performance Services](#) (CPS) offering to improve the performance of its manufacturing operations in Quang Ngai City, Vietnam.

Binh Son Refining and Petrochemical Co., Ltd. (BSR) will use Honeywell's [CPS technology](#) which integrates Honeywell UOP's deep process knowledge to [improve refinery and plant performance](#) at its naphtha complex. CPS is part of Honeywell's [Connected Plant](#) initiative, which leverages IIoT technologies, services and domain expertise to improve all aspects of industrial operations from supply chain efficiency to asset optimization.

"Honeywell's CPS technology uses the plant's own process data with cloud-based optimization and reliability solutions to ensure the operation runs at peak efficiency," said

Zak Alzein, vice president for Honeywell UOP's CPS business. "Honeywell will be in a position to use plant-specific information to provide BSR with actionable recommendations that can significantly improve its profitability."



CPS gives refineries and petrochemical and gas processing plants greater visibility into their operations. Problems that reduced plant efficiency and productivity and that persistently avoided detection can be quickly identified and resolved using recommendations from CPS. As a result, plants can produce more and avoid unplanned shutdowns for maintenance and repair, resulting in millions of dollars per year in increased productivity.

The service continuously monitors streaming plant data and applies UOP process models and best practices, big data analytics, and machine learning to find latent and emerging performance problems, alert plant personnel and make specific operational recommendations. These recommendations are reported simulta-



UOP's Zak Alzein

neously to a dedicated Honeywell UOP process advisor, who also monitors performance and provides additional direction and resources.

"The CPS system is an important tool to help our refinery produce more gasoline and consume less energy," said Tran Ngoc Nguyen, President and CEO of Binh Son Refining & Petrochemical Co. "We believe it will improve our staff's capabilities so they can keep our operation running at peak performance."

The service also can help manage energy consumption to maintain compliance with regulatory standards, and also bridge knowledge gaps among personnel by leveraging the full breadth of Honeywell UOP's troubleshooting expertise, available at their fingertips. Taken together, the features of CPS allow refineries to operate more efficiently and make the best use of every barrel of feedstock.

In an interview, the INSIDER asked Alzein if this was really an IIoT application or if it could be done without the trappings of IIoT, Big Data and analytics. Alzein replied that it could not be done in a normal fashion and provide the results they expect to provide Binh Son Refining.

Not to be outdone, Schneider Electric has made a big announcement that they, too, have an IIoT program and offering, which they call the *new* EcoStruxure.



Prith Banerjee, Schneider Electric CTO

"EcoStruxure combines our history in pioneering in automation, energy management and deep domain expertise with data-driven metrics and analytics to help us maximise the value of the Internet of Things for our

customers," said Dr. Prith Banerjee, Chief Technology Officer, Schneider Electric. "EcoStruxure gives our customers the platform, architecture and roadmap to quickly and easily implement IoT in an enterprise, extending the benefits of IoT beyond the device layer to create a more intelligent, efficient and secure operation."

But what does it do? Like many announcements like this, one is left with questions about what is under the hood of the really cool looking racecar. Is it IIoT?

GE, whose chairman, Jeff Immelt, has put his own personal prestige behind the IIoT, had announcements of their own.

GE Digital acquired Bit Stew Systems in November, bringing

## The INSIDER's November 2016 Roundup (continued)

its leading data intelligence capabilities to Predix, GE's operating system for the Industrial Internet, and its industrial applications such as Asset Performance Management (APM). Bit Stew had been angling for GE acquisition since GE Ventures led its last funding round in 2015.

Bit Stew's Mix Core<sup>™</sup> is purpose-built to handle complex data integration and analysis across connected devices, OT and IT systems,

and external sources. Unlike conventional ETL tools, Mix Core automates data integration

by applying machine intelligence to the process, which can reduce project costs by an average of 90% compared to traditional approaches.



Harel Kodesh, CTO at GE Digital

"We are pleased to welcome Bit Stew to the GE Digital family. The integration of our technologies will provide the Predix platform with a greater capability to integrate data while it is in motion from the edge to the cloud," said Harel Kodesh, CTO at GE Digital. "This combination will help us to accelerate our industrial offerings, providing customers with contextual understanding of their assets and operations."

This, clearly is an IIoT tool. But what do you do with it?

More from GE... and now we are beginning to see real IIoT technologies, and not the hype we've been seeing.

GE and BP announced the start-up of Plant Operations Advisor (POA), a new digital solution designed to improve the efficiency, reliability and safety of BP's oil and gas production operations. Plant Operations Advisor is already helping BP manage the performance of one of its platforms in the Gulf of Mexico and, subject to a successful pilot, it will be deployed next year to other BP facilities around the world.

The tool, built on GE's Predix operating system, was created as part of a development partnership the two companies announced in January.

"BP gravitates toward new technologies, especially digital, and that makes working with them particularly exciting," said Lorenzo Simonelli, president and CEO, GE Oil & Gas. "We are

taking a big step forward together during this time of digital transformation, deploying what we've co-created over the past



Lorenzo Simonelli, GE Oil and Gas

year to drive the kind of productivity improvements that the oil and gas industry needs. The global deployment is expected to be the largest-scale deployment of GE's Predix-powered APM technology to date."

Plant Operations Advisor will help prevent unplanned downtime and improve facility reliability by helping engineering teams respond quickly to issues as they occur in real-time.

"By bringing together some of the best minds at GE and BP, we were able to develop this innovative digital product and are confident that it will

have a significant impact on our business," said Ahmed Hashmi, BP's Head of Upstream Technology.

"When fully deployed, these advanced digital technologies will change the way we work and improve the integrity and performance of our assets around the globe."



Ahmed Hashmi, BP Head of Upstream Technology

Using GE's Predix and Asset Performance Management (APM) capabilities, POA rapidly integrates operational data from producing oil and gas facilities to deliver notifications and analytical reports to engineers so they can identify operational performance issues before they become significant. The system provides simplified access to a variety of live data feeds and includes visualization capabilities including a real-time facility threat display. It also incorporates an extensive case management capability to support learnings from prior operational issues.

GE intends to offer this technology, which combines big data, cloud hosting, and analytics on both individual pieces of equipment as well as the entire production system, as an APM solution that will be available to the industry.

Now we are really seeing IIoT technologies, and applications for using them.

And finally, GE Digital has released a white paper by Paul Boris, Head of Manufacturing for GE Digital, which attempts to explain the drop in productivity as functions of, "Fragmented infrastructure and siloed IT systems lead to poor



## The INSIDER's November 2016 Roundup (continued)

performance and inefficiencies throughout the operation; manual, paper-based systems result in a lack of timely, in-context information and prevent real-time responses to issues, customers, and opportunities; and tearing out current equipment or systems may not seem worth the near-term risk to productivity.”

Boris continues, “Four years ago, GE estimated that if connected machines and advanced analytics could make industry just 1% more efficient, the sheer scale of industrial operations would translate into economic gains valued in hundreds of billions of dollars. But let me emphasize that GE considers the “power of 1%” to be a lower bound, the very least within reach. Numerous improvements at scale—even outcomes like 1% reduced downtime on critical equipment—can drive big changes in performance and operating margin.



GE Digital's Paul Boris

“We have to stop thinking about making things just a little bit better. Today, we can latch onto a vision that’s way out—a moonshot—and then accomplish it one piece at a time. Imagine you’re a manufacturer and you drive inventory costs down by 15% or improve quality by 10% or improve labor efficiency by 30%. These are real-life results of forward looking manufacturers who have leveraged the power of the Industrial Internet.”

It is beginning to look like the IIoT may just be more reality than hype.

Life beyond the IIoT goes on, as well. ABB has helped design a combination waste to energy plant, with built in ski slopes, that blows smoke rings.

The new Amagerforbraending waste-to-energy plant is the most innovative concept for waste management and energy production worldwide. It was completed in 2016, just three kilometers from downtown Copenhagen.

Rather than hiding industrial processes, the concept wants to connect the people to the issues behind waste management. The architectural design of the plant roof will serve as public leisure landscape and include a snow slope for skiers of all levels. The form of the emission will be single smoke rings with the diameter of 25m and 5m height. This form of the ring is a phenomenon which can be found in nature, for example it has been observed at Mount Etna, Sicily. In addition, the emission of carbon dioxide is countable by everybody and gives a platform for responsibility. One ring will emit exactly 250kg of carbon dioxide. The system is controlled by a new CEMS system by ABB.

In order to serve the demand for state-of-the art technical solu-

tions the ACF5000 CEMS system was chosen due to key new unique features. The Amagerforbraending incinerator did not



Amagerforbraending Incinerator, Copenhagen

want to use an additional FID module with Hydrogen for public safety reasons. The ABB solution offered multi-component measurement and VOC measurement via FTIR.

The ACF5000 is equipped with an internal validation unit and automated QAL3 evaluation and reporting is possible without test gases. So cost, handling and risk of operation can be reduced to a minimum.

### FDT Announces Integration with IIoT

The FDT media briefing in Nuremberg, Germany, addressed new branding and launch of fully integrated FDT/IIoT architecture

The FDT Group, an independent, international, not-for-profit industry association supporting FDT® Technology, made announcements at SPS IPC Drives in Nuremberg, Germany.

In addition to debuting an updated mission statement/branding for the FDT Group, the organization addressed the launch of a fully integrated FDT/Industrial Internet of Things (IIoT) architecture bridging the process, hybrid and factory automation markets:

- **Updated mission statement/branding for the FDT Group, including a new tagline, “Connecting the Intelligent Enterprise.”** The FDT Group’s goal is to make the IIoT a reality via an ecosystem of automation vendors promoting interoperability, security and mobility through tomorrow’s new adaptive manufacturing assets. As such, it is modernizing its identity

## The INSIDER's November 2016 Roundup (continued)

and providing new information resources, such as an enhanced website, for the global automation market.

• **Launch of the FDT/IIoT Server (FITS™) for mobility, cloud, and fog enterprise solutions.** FITS is intended to protect industry investments in FDT through advanced business logic, well-defined interfaces, and common components. In addition, it will enable operating system (OS) agnostic implementation of the technology while supporting today's integrated automation architecture.

• **Release of the FDT/OPC UA annex, enabling sensor-to-cloud, enterprise-wide connectivity.** Automation system manufacturers can implement this annex in the FDT/FRAME™. Suppliers with an FDT/FRAME embedded in their distributed control system (DCS), asset management system, programmable logic controller (PLC) or other system have the ability to include an OPC UA server in an application accessible from any OPC UA client application.

• **Integration of the open AutomationML data exchange standard into open, non-proprietary FDT Technology.** Incorporation of AutomationML into FDT Technology expands solution set to include engineering and purchasing metadata within the FDT/FRAME and more advanced wizards within an FDT/DTM™.

• **FDT Group Releases CIP Annex for ODVA Networks.** The latest version of the CIP annex to the FDT specification enables the use of proven and widely implemented ODVA networks in FDT/FRAME Applications with the latest enhancements.

### ABB Releases Field Information Manager— Handheld Version

ABB has taken the next step with its Field Information Manager

**Spitzer and Boyes LLC** offers unique services to high tech companies such as—

**Mind of the Customer™ research**, which can tell you what your customers really think, and what they really want, both in products and services.

**Content Generation** for high tech and automation companies. We have the research and experience to write in your words, for you, on the subjects you care most about, and are most valuable.

**Strategic Research** on Smart Manufacturing, Industry 4.0 and the Internet of Things, Cyber Security and other hot topics, to help you position your company properly for the years ahead.

— the first FDI based Device Management tool in the market, with the introduction of its Field Information Manager 1.1 Handheld Edition. This easy-to-use software is now available for sale.

The Handheld Edition makes it possible for the user to do configuration, parametrization and diagnosis of the HART instruments in many locations – in the field, at the back of the panel / junction box or in the instrumentation laboratory. The Field Information Manager is designed to help users be more efficient in the configuration and management of their smart devices. Users do not need to invest in proprietary handheld terminal hardware; this eliminates the extra expense of proprietary hardware and significantly reduces lifecycle maintenance costs.

The Field Information Manager can be installed on any Windows tablet / laptop / computer, thereby multiple instrumentation programs can be installed on a single machine. It is very quick to install and saves time for instrument and service technicians. Users can get started in less than three minutes, and can download all needed packages and files at [www.abb.com/fieldinfo](http://www.abb.com/fieldinfo) at any time. Field Information Manager Store and Print device configuration allows easy transfer of parameters from one device to another and eliminates manual recording of parameters.

Other key features of the Field Information Manager Handheld Edition include:

- Interoperability based on FDI components
  - Online and offline parametrization
  - Documentation of parameters and settings
  - Novel concepts for ease of use and navigation with touch support
  - ABB instrumentation FDI Device Packages ready to download
  - Generic HART Device Package for all HART devices
- Supports installed base – DD/EDD files

### IEEE WIE ILC 2017 is bringing together over 1500 women in STEM. Register today! Limited seating.

With the theme, *LEAD BEYOND*, the Women In Engineering (WIE) International Leadership Conference (ILC) 2017 will be held on 22-23 May 2017 in San Jose, California. From its inception in 2014, WIE ILC has grown to reach four times its initial audience. WIE ILC was key in advancing 2400 women in tech, connecting another 2000 virtually, providing 184 international travel grants and initiating 25+ new, technology product ideas.

The conference will focus on entrepreneurship, empowerment, disruptive technology, innovation and leadership with exciting new tracks, contests and networking events.



## The INSIDER's November 2016 Roundup (continued)

### Opto 22 announces relationship with Dell to develop and deploy Internet of Things (IoT) applications

Industrial automation manufacturer and Internet of Things (IoT) application toolset provider Opto 22 announces that it has joined the Dell IoT Solutions Partner Program. This relationship provides a product and solution ecosystem for connecting real-world signals and industrial “things” to the digital world of information technology, mobile, and cloud computing.

A technology revolution is gaining momentum, and this surge of innovation is connecting sensors, devices, and equipment to a network that can transmit and receive data for tracking, analysis, and action. With the estimated number of connected things reaching over 25 billion by 2020 and rapid innovations in collected data analysis, this isn't just about new technology—it's an entirely different way of doing business.

#### Advancing IoT solutions together

Dell's IoT Partner Program brings together innovative technology and services companies to help customers be at the forefront of this change. Dell IoT partners are qualified to integrate industrial IoT hardware such as edge gateways and embedded PCs into full IoT solutions, but many also work with other Dell and Dell EMC technologies such as server, storage, and networking hardware, and software tools for security, manageability, data integration, and analytics.

The addition of Opto 22 to the Dell IoT Solution Partner Program creates a powerful toolset for IoT

application developers. This combination brings together an industrially ruggedized hardware platform, data visualization for mobile and web clients, robust industrial automation protocol support including Modbus/TCP and OPC UA, and advanced data flow processing with software development environments like Node-RED. Combining these capabilities with the ability to connect multiple data sources including devices, databases, and third-party APIs (application program interfaces), Opto 22 and Dell deliver a single, cohesive, cost-effective, and powerful solution for nearly any IoT or edge computing application.

“Dell believes curated partnerships are critical in building the bridge between the exciting industry potential of IoT and prof-

itable market reality,” said Jason Shepherd, director, IoT Strategy and Partnerships, Dell. “We are excited about our relationship with Opto 22, the industrial and process controls expertise they'll bring to our customers, and look forward to our continued collaboration.”

Honeywell Process Solutions (HPS) announced it will provide an integrated control and safety system for the strategically important Trans-Anatolian Natural Gas Pipeline (TANAP) in Turkey.

The 1,850-kilometer long TANAP will carry natural gas from Turkey's eastern border with Georgia to its western border with Greece. According to Eurogas, demand for natural gas in Europe will grow at about 2 percent a year through 2030.

Honeywell will provide the project with fully integrated control and safety solution products, technology, engineering and support. It includes the distributed control system (DCS), emergency shutdown system (ESD), and an extensive fire and gas solution consisting of safety systems, fire alarm panels, and a full range of process and non-process area detectors and devices).

Honeywell's system integrates all process control and safety systems and automation software under a single unified architecture at TANAP Stations. The system improves operators' visibility and situational awareness to detect, avoid and respond to incidents that could endanger people, the pipeline or the environment. It will also help TANAP provide uninterrupted supply through the pipeline.

The TANAP project employs some of Honeywell's leading technologies: Experion PKS (Process Knowledge System) advanced automation platform and software applications help improve business performance and peace of mind. Drawing on data from across the pipeline, Experion PKS helps operators make fast effective decisions to improve safety, reliability and efficiency; Safety Manager, Honeywell's safety solution, integrates process safety data, applications, system diagnostics and critical control strategies to detect and prevent dangerous conditions.

As well as automatic, safe emergency shutdown, Safety Manager will also give TANAP tools for root-cause analysis to drive improved system performance; The XLS80 Fire Alarm Control Panel with an intelligent, flexible design and a user friendly interface for the highest safety standards and reliability.

**Next Month: The INSIDER looks back at 2016. Mergers and Acquisitions, The IIoT Gets Real. Donald Trump, Brexit, Elections in France and their effects on Industry 4.0 and Globalism. Jobs, AI and Automation— what will the next decade bring?**

Presenting the 21st Annual ARC Industry Forum  
Industry in Transition: Realizing the Digital Enterprise

February 6-9, 2017 - Orlando, Florida

Industrial companies are starting to employ 'digitalized' business processes and exploit the increasing convergence between operational technology (OT), information technology (IT), and engineering technology (ET) on the plant floor. How will disruptive technologies change existing products and plants? How will open source solutions impact traditional software and automation domains? Is cybersecurity a threat to digitalization? How 'smart' are smart machines? How do Big Data and predictive and prescriptive analytics enable operational change? Join us to learn how the digital enterprise benefits from smarter products, new service and operating models, new production techniques, and new approaches to design and sourcing.

[Industrial Cybersecurity and Safety Analytics and Machine Learning](#)

[Service Performance Management Automation Innovations](#)

[Asset Performance Management](#)

[Industrial Internet Platforms](#)

[IT/OT/ET Convergence](#)

[Connected Smart Machines](#)

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**Marty Edwards**

Assistant Deputy Director, National Cybersecurity and Communications Integration Center  
Director, Industrial Control Systems Cyber Emergency Response Team  
U.S. Department of Homeland Security



**Don Bartusiak**

Chief Engineer, Process Control  
ExxonMobil Research & Engineering

**Keynote Speakers:**

**Who Should Attend**

ARC's Industry Forum is a must-attend event for:

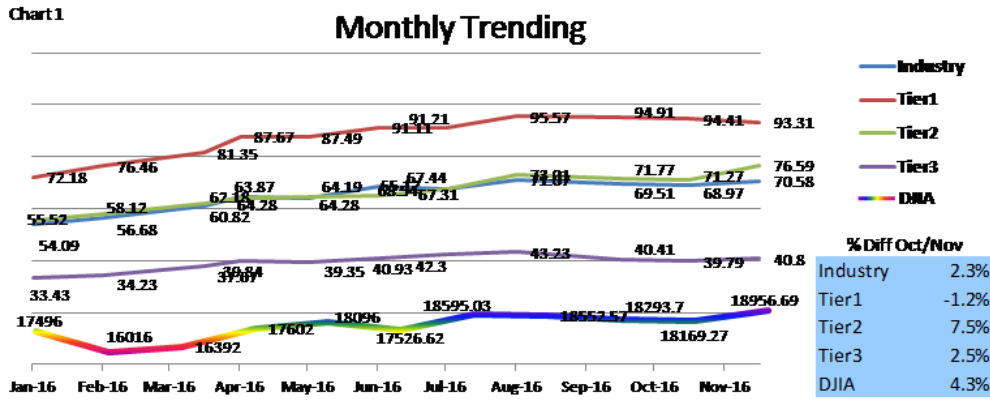
- CEOs, COOs, and Presidents
- CFOs, VPs, and Directors of Finance
  - CIOs and CTOs
  - VPs and Directors of IT
- VPs, Directors, and Managers of Operations
- VPs, Directors, and Managers of Engineering
- VPs, Directors, and Managers of New Projects
- VPs, Directors, and Managers of Procurement
- VPs, Directors, and Managers of Supply Chain and Logistics
- Directors, Managers and Architects of Automation and Enterprise Integration
  - Plant Managers and Supervisors
  - Production Managers and Supervisors

In past Forums, over 50% of the attendees have titles like Chairman, CXO, President, Vice President, Director, or Partner.

# Doing Better, Is It Enough? The Health Watch and MCAA Data

**INSIDER**  
INDUSTRIAL AUTOMATION & PROCESS CONTROL

## Health Watch



Our industry index increased 2.3% since last reporting, but still underperformed the Dow with its increase of 4.3% for the same reporting period. Individual Tiers' performance varied with Tier 1 companies showing a loss of 1.2%, Tier 2 companies an increase of 7.5%, and Tier 3 companies an increase of 2.5%.

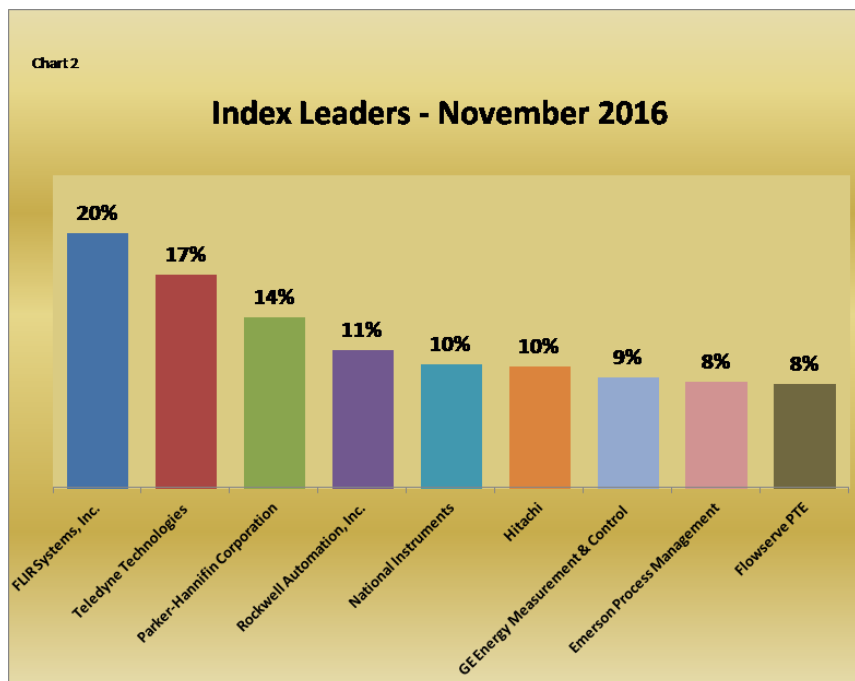
### Flir Systems

Lost 7% last month but made up that plus some this period, possibly due to increased purchases of identification technologies in advance of the holiday season.

### Teledyne Technologies

Moving close to their 52-week high in

stock price, Teledyne doesn't appear to be climbing on the IIoT bandwagon as fast



as others, but they are doing well in cost reduction and higher revenues.

### Parker Hannifin

According to Zacks, "Parker-Hannifin's first-quarter fiscal 2017 adjusted earnings beat the Zacks Consensus Estimate by 2.6%, and also rose a striking 5.9% from the year-ago quarter tally. The year-over-year improvement in the bottom line came largely on the back of their new "Win Strategy" and a fall in the cost of sales.

### Rockwell

As discussed in the cover story, ROK has been buoyed by its relationship with Cisco. Its new CEO, Blake Moret, is still in the honeymoon period with investors and analysts, and ROK has done a great deal of investing in the Industrial Internet of Things.

Other companies of note this month include National Instruments, whose Taiwanese benchmark, Advantech, is one of the losers this month. Also included in the winners column are Hitachi, GE Energy Measurement and Control, Emerson Process Management (now Emerson Automation Solutions), and Flowserve. Flowserve and Honeywell announced

recently that they will work together—thus giving Flowserve the automation company they need to compete with Em-



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erson, and giving Honeywell the valve company they have lacked since their disastrous breakup with what used to be Yamatake (now Azbil).

Losers this month include Keyence Corporation and ABB at a 6% negative, without much explanation. IMI PLC posted a negative 5% as did Azbil (formerly Yamatake), apparently having a decline in both Building and Process Automation.

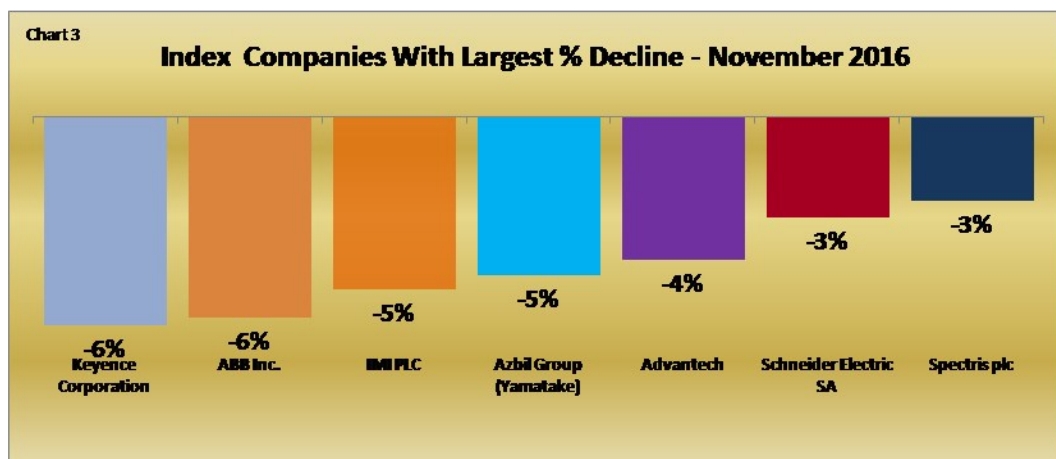
Advantech showed a 4% negative which is interesting since they benchmark themselves quite closely to National Instruments, which showed a 10% positive. It may be that Advantech is showing the results of declines in its largest customer area, what the company calls “Greater China.”

Schneider Electric also had a small negative, as did Spectris plc. It isn’t clear what caused either drop in the index but we should watch closely for the next few months.

David W. Spitzer, PE, reports on the economic situation, as seen by MCAA and ITR Economics.

Alex Chausovsky, Senior Analyst for ITR Economics, presented a glimpse of key industries and markets served

2018 and 2019 respectively. US Industrial Production is now -1.0% but expected to rebound to +2.7% in



by instrumentation manufacturers entitled “MCAA Economic Outlook for 2017” at the end of November 2016.

Gross Domestic Product (GDP) growth has been anemic with continuous growth of approximately +1.6 percent year-over-year since 2009.

ITR finds growth currently slowing (with a low in 4Q2016) but about to turn up into 2017 and the first half of 2018. Two major portions of GDP (consumer spending and government spending) are expected to accelerate and produce a healthier business climate in 2017. GDP growth is expected to be +1.9% and + 3.5% in

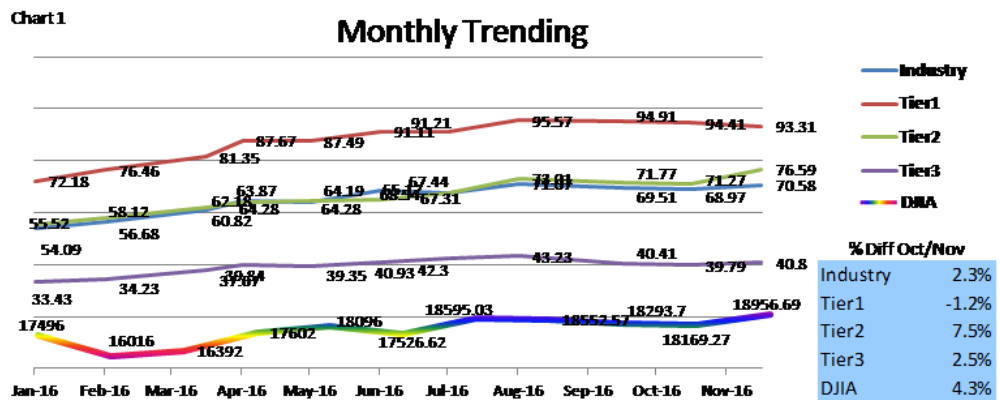
2017. A mild recession is expected in late 2018 and 2019 as inflation and interest rates rise.

The forecast is a somewhat clearer as to how to position your company and team now that the US election is over. That said, it will take the new President 6-8 months to enact legislation and another 15-24 months for it to affect the economy.

Overall, the rate of growth of the economy is slowing but a number of leading indicators indicate that we are now at an imminent cyclical low and about to turn the corner to greater growth in 2017. Canada and Mexico are in similar straits --- without fac-

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## Health Watch

toring in the new President's statements regarding the wall on the Mexican border, immigration and changes to NAFTA.

Non-defense capital goods without aircraft (representative of industry) is now contracting (-3.5%) but expected to grow in 2017 (+4.6%). This contraction (and the subsequent expansion) is felt to be more representative of price pressure for raw materials (such as iron, steel, copper, aluminum, nickel, zinc...) and not necessarily indicative of activity (volume). Metal prices are now rising, so some inflation and higher dollar amounts are to be expected.

Headwinds include the strong US dollar, weak Euro and a weakened Mexican peso. Oil is tracking sideways with oversupply and rising inventories expected to keep the price of oil between USD 40 and 60 per barrel until 2018/2019 --- unless a "black swan" event occurs. Most industries are down year-over-year to include

mining (-10%), mining support (-40%), coal/iron production (-20%), oil/gas well drilling (-50%). Natural gas is up +10%. Note: percentages are approximate.

Overall, there is optimism for growth in 2017 except for power generation. Interest rates and inflation are expected to accelerate as a result of the new President's economic plans --- starting with a +0.25% interest rate hike in December 2016 and more hikes in 2017. Higher wages and higher raw material costs are also expected.

**Editor's Note:** It is not clear as of the end of November what the future

of US efforts to install new manufacturing technologies will be, based on the incoming administration's stated beliefs that government should stay out of business. Efforts to create National Manufacturing Centers of Excellence in a variety of endeavors including Smart Manufacturing, Advanced Materials, and others have been underweigh based on support from the Obama Administration for several years. This has been the US reaction to the German and French support for Industrie 4.0 and the growth of the Industrial Internet of Things. It is not clear that the Trump Administration will continue any or all of these programs. This may well put the US behind Europe and China in the coming years.

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# THE WAY I SEE IT

## Editorial

### The US Election: What it Means for Manufacturing and Globalism

The surprise election of Donald J. Trump to the Presidency of the United States has caused a considerable commotion in the world of politics. It is likely to cause a considerable commotion in the world of automation as well.

I have pointed out previously that the Obama Administration has been the American government that has best supported US manufacturing in nearly 50 years. The support that the Administration has given to new manufacturing technologies, and the creation of National Centers of Manufacturing Excellence has given great impetus to US industry's ability to keep businesses onshore and create new manufacturing opportunities.

It is not at all clear what the Trump Administration will do to assist US Manufacturing. Unfortunately, Mr. Trump's habit of prevaricating and posturing makes it difficult to understand what he really intends to do to help US manufacturers.

He has promised to bring back jobs to the United States— a promise that he surely must know is impossible to fulfill. Those jobs mostly didn't go offshore— they went away due to

automation— and we aren't going to de-automate our plants and factories. In fact, we can assume that we will be increasing our reliance on automation, and whatever the Industrial Internet of Things becomes to keep from having to move more businesses offshore.

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The tide of offshoring has turned, too. Mr. Trump may be lucky, and be able to take credit for this, even though his Administration will have absolutely nothing to do with it. China, India, and other first tier "low cost of manufacturing" countries are not longer that. Very low cost manufacturing is now done in countries like Vietnam, Indonesia, and Malaysia. But even there, salaries and costs are rising. What this means is that we are approaching cost parity around the world. This will tend to keep business where they are, in a new world of "make it there, sell it there." This is already been reflected in the collapse of the shipping container trade and the downfall of the South Korean shipping giant Hanjin, which de-

clared bankruptcy in September.

So, with the Trump Administration unlikely to continue the Obama Administration's support for manufacturing and new technologies, it is going to become important for vendors and asset owners and end users alike to fend for themselves.

While European manufacturers and automation vendors will have the luxury of government support for now, US manufacturers and automation vendors will not. So, US automation vendors, and US manufacturers need to immediately begin to plan for the future with much less support than they had before. This could be a good thing. What it means is that the controls will be off in the oil and gas industry. The Trump Administration, especially since the President-Elect owns large shares in companies like ETF and the Dakota Pipeline, should be extremely favorable to increased exploration and higher levels of fracking that a Clinton administration would not have been.

It remains to be seen what the effect of the Trump surprise win in the election will be on US manufacturing. Clearly, he does not appear to believe in globalism. Since the rest of the world, saving only Great Britain at this point, obviously does, one has to wonder if we will be entering a new period of isolationism under President Trump.

*Walt Boyes*

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Read my Original Soundoff!! Blog:  
<http://waltboyes.livejournal.com>



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The INSIDER is edited by Walt Boyes. Joy Ward is a columnist. Additional reporting is done by David W. Spitzer PE., Rajabahadur V. Arcot, Nick Denbow, and Steven Meyer.



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## Rajabahadur V. Arcot: India will emerge economically stronger, if its demonetization scheme succeeds

The transformation of India's economy continues vigorously.

In the last couple of years, the country has witnessed the launch of numerous programs such as building

100 smart cities, generating 100 GW of solar power, rejuvenation of around 500 existing mid-sized cities that have a population of around 100,000, digitizing India, making India a global manufacturing hub, and such others that contribute to industrial growth and automation market expansion.

What is hogging the headlines in India for the past one week is the recently launched currency demonetization scheme that aims to cleanse India's economy of the evils of unaccounted or black money, corruption and the dubious terror funding through counterfeit currency.

This national debate even overshadows most other global events including the result of the US Presidential election.

While in the short-term the demonetization scheme may slowdown India's GDP growth, many economists believe that in the medium to long-term it will help the country, which is already the fastest large-sized economy in the world, to achieve even faster growth with digital technology playing a big role.

Bill Gates, while delivering a speech in India, has called the demonetization move a bold and important step to deflate India's shadow econ-

omy. He went on to say that India could soon possibly become one of the most digitized economies in the world.

### Goals and beneficial effects

In addition to extinguishing the black money

from circulation, at least partially, the scheme is likely to have other beneficial effects on the Indian economy.

The banking system will witness a massive inflow of deposits and this will help them reduce lending rates which the industry welcomes; some banks have al-

ready announced reduction of lending rates.

The tax collection will go up, helping thereby the government one hand to bridge the fiscal deficit and on the other accelerate infrastructure spending.

Lowering of lending rates and additional funding will spur further economic activity that will ultimately lead to industrial growth. According to financial analysts, the money that does not come into the banking system will correspondingly

reduce the government's liability.

With the flow of counterfeit currency into the country coming to a stop, at least temporarily, terrorist organizations that thrive on them will be starved of funds.

Already there are indications of this happening. The present drive will spur the society to use digital mode for financial system more extensively and already reports say that the use of credit & debit cards and mobile wallets have gone up.

With the flow of counterfeit currency into the country coming to a stop, at least temporarily, terrorist organizations that thrive on them will be starved of funds.



Demonitized Currency

## Rajabhadur V. Arcot: (continued...)

The demonetization measure is aimed at cleansing the country's economy of the evils of parallel economy, corruption, and counterfeit currency.

While there are no precise estimates about the size of India's shadow economy, Bloomberg in its article "*India Goes Cashless*" says that it is perhaps as much as a fifth of India's GDP, or around US\$ 450 billion. However, according to a report in Business Standard, India's leading business newspaper, it could be as high as US\$ 650 billion - Indian Rupees (IRs) 45,000 billion - of which around 20 percent is in the form of cash arising from tax evasion, corruption & bribes, real estate transactions, business malpractices, and such others. The rest is held in the form of gold, jewelry, real estate, and such others. Cash is either stashed under mattresses at homes or parked in tax havens abroad.

One of the planks on which the present Indian government came to power was the promise to rid the country of the unaccounted money, and it has taken two years for the government to act on that.

In a move that took the country by surprise, the Prime Minister of the country declared at a hurriedly-announced television address on November 8th that with immediate effect the high denomination currency notes of value IRs 500 and 1,000 - approximately equivalent to US\$ 8 and US\$ 16 respectively - will no longer be legal money. In their place the Reserve Bank of India, the country's central bank, has issued new notes of value IRs 500 and 2,000 and the entire demonetization process will be completed by the year end.

"Black money and corruption has looted the middle class and deprived the poor of their rights," Prime Minister Narendra Modi said, as reported by Asian News International. "I want to give the poor their rights. I am doing everything possible to ensure the middle class is not exploited and the poor get their dues."

While the element of surprise, which is essential for the suc-

cess of such drastic measures, has been largely achieved, it affected the preparedness. In addition, the country lacks the necessary infrastructure for flawless execution of this mammoth task.

The present drive will spur the society to use digital mode for financial system more extensively and already reports say that the use of credit & debit cards and mobile wallets have gone up.

According to an article in the Christian Science Monitor, some critics question whether the government's push is practical today in a country where, last year, 78 percent of consumer payments were made in cash. The article points out that it may prove especially difficult to spread plastic money to rural areas, where mobile internet access is weak, many cannot afford the high cost of bank transactions, and literacy levels are lower.

### Riddled with challenges but garners support

India is a cash-based economy and most of the financial transactions take place outside the banking system and most people do not even have bank accounts. The entire country with a population of 1.2 billion people has only around 125,000 commercial bank branches, 250,000 Automated Teller Machines (ATM), and 535,000 business correspondents who act as commercial bank agents in places that are not serviced by them. Demonetization involves replacing 16.5 billion and 6.7 billion notes of IRs 500 and 1,000 respectively and together they almost account for more than 85 percent of the currency in circulation. This picture should give a glimpse of the magnitude of the operational challenges.

As a consequence of demonetization, the ordinary man on the street is subjected to enormous hardships. Despite hardships, the general feeling

is that they are supportive of the government's move. They seem to be willing to go through short-term pain for long-term gain!

The Associated Chambers of Commerce of India, reiterating full industry commitment and support, said that demonetization despite short term hardships would lead to long-term cleaning up of the economy.



PM Modi Pushes for Cashless India



## Rajabahadur V. Arcot: (continued...)

Dr Naushad Forbes, President of the Confederation of Indian Industries (CII) welcoming the move has said "Demonetizing high denomination notes can be an effective means of checking accumulation of wealth in cash. The government has taken a measure aimed at the heart of the black cash economy. CII congratulates the Prime Minister and the government for this step."

India's currency crackdown is also viewed favorably by global institutions. According to press reports, a spokesperson of the International Monetary Fund (IMF) has said in response to a question "We support the measures to fight corruption and illicit financial flows in India."

Forbes went on to add, "Given the large role of cash in everyday transactions in India's economy, the currency transition will have to be managed prudently to minimize possible disruption."



tax dodgers and those having ill-gotten wealth will pay dividends and strengthen the financial system ....All the measures which will reduce the black economy are always good for people and the financial system."

### Scheme launched after some deft moves

While the demonetization announcement has taken the country by surprise, it must be said in hindsight, that it has come after a series of deft moves by the government. First was the decision to encourage people to open bank accounts. Under the scheme, which was launched in mid-2014, around 220 million new bank accounts have been opened since then. This was followed by the launch of the Unified Payment Interface application that facilitates money transfers between any two bank accounts with the use of a smartphone.

The issue of national identity cards by the Unique Identification Authority of India (UIDAI), which is mandated to assign a 12-digit unique identification (UID) number (termed as

Of late however, the use of mobile wallets is becoming popular for small value transactions, thanks largely due to startup financial technology companies.

Aadhaar) to all the residents of the country, is largely contributing to the successful implementation of these schemes and tracking all transactions.

The issue of UID is considered the world's largest national identification number project. Of late however, the use of mobile wallets is becoming popular for small value transactions, thanks largely due to startup financial technology companies.

The Income Disclosure Scheme 2016 that commenced in June and ended in September 2016 gave tax defaulters and black money holders an opportunity to voluntarily come clean and the Prime Minister did warn that

those not willing to take advantage of the disclosure scheme should be ready for more drastic measures.

Those who did not take the warning seriously are now regretting their decision.

In addition, the Black Money (Undisclosed Foreign Income and Assets) scheme provided a person with undisclosed assets (including bank accounts) abroad an opportunity to declare by September 30, 2015 and come clean by paying specified tax and a penalty on such assets.

The demonetization scheme targets those defaulters who chose not to avail of the earlier less-harsher schemes.

While the man on the street is facing enormous difficulties largely due to implementation challenges that subject them to pain and hardships, I believe that the demonetization scheme will correct some of the economic distortions and the country would emerge stronger at the end of it all. The efforts are certainly laudable.

**Rajabahadur Arcot is an Independent Industry Analyst and Business Consultant, and Director Asia Operations for Spitzer and Boyes LLC with 40 years of senior management experience. He was responsible for ARC Advisory Group in India. Contact him at [rajabahadurav@gmail.com](mailto:rajabahadurav@gmail.com)**

