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Inside this issue:

What's Up With ABB and Other Stories from the Front Lines

On July 23rd, ABB reported its results for Q2 2014. Its stock quickly slumped and a number of analysts downgraded their rating on the automation and power giant.

ABB CEO Ulrich Spiesshofer

Ulrich Spiesshofer, ABB CEO, however was positively buoyant. "Last October, we said that we will drive organic growth through penetration, innovation, and expansion, and now we are delivering results. Our focused actions are paying off and support overall increased order momentum. In the second quarter, we saw encouraging growth in our two largest markets, the US and China."

Spiesshofer didn't spend a lot of time pointing out that revenues were flat in the second quarter, and that higher revenues in Discrete Automation and Motion divisions were able to barely offset a revenue decline in both Process Automation and Power Systems, down 2% and 7% respectively from the same quarter one year ago.

Net profit fell 16.6% in the three months to the end of June.

Weak performance was blamed by Spiesshofer on Power Systems division, and he called turning it around a top priority.

ABB has been divesting many of the divisions it bought with Thomas and Betts, but has also sold off its service division, clearly in an attempt to raise cash and placate the analysts.

Some analysts have noted that Baldor is underperforming as well.

Order intake is a plus, especially in Power Systems. The INSIDER notes that a clear majority of the "wins" ABB has touted in press releases in the past six months have been power projects, or combined Power and Process projects. Only a few have been straight process automation projects. This in the face of the facelift that ABB gave its venerable System 800xA this spring.

Spirit IT State of the Art Flow Computer

Of course, it is far too early to tell if the revamped System 800xA will help bring back process automation business.

In the meantime, ABB's star acquisition, Spirit IT, maker of state of the art smart flow computers and SCADA terminals, leads back to Process Automation and the field devices ABB is known for. The acquisition is intended to be completed by Q4 2014.

For the crusty and suspicious minded INSIDER, we wonder if the Process Automation business is really core. ABB could do

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very well in the Power Industry without the Process Automation business. Just sayin'.
For ABB, China is the focal point. ABB actually held the 6th annual ABB Automation and Power World in Guangzhou, after announcing it would not take place in the US, and giving the impression it would not take place at all. According to ABB, they presented to 4000 global customers.
ABB expects to have over 200 service locations in China, with more than 2000 staff. Interestingly, ABB plans to launch its PCS100 medium voltage uninterruptible power supply series in China first. This product series is claimed to be 99.5% efficient.
Throughout all of this, ABB has been going through an "agonizing reappraisal." We should expect to hear all about the new way forward on September 9, when ABB has its Capital Markets Day. We'll be watching.

HIMA Posts Double Digit Growth and Opens New Subsidiary

HIMA Paul Hildebrandt GmbH + Co KG closed fiscal year 2013 with record sales of 105 million euros. This 16% increase in sales over the previous year was significantly higher than the industry average growth rate. Orders received thus far in 2014 indicate that double-digit sales growth will also be achieved this year.

Pretty clearly, somebody continues to be buying standalone safety instrumented systems, despite the advertising ballyhoo of the past ten years touting the joys of combined BPCS and safety system architectures.

The company increased its business outside of Europe by 40%. The Middle-East, Asian-Pacific and North American regions, in particular, contributed to this success with high sales growth rates. However, incoming orders also increased in Europe relative to the previous year; favorable sales growth was posted in Germany, Italy, in particular.

Roger Van Nuis

HIMA increased its sales by about 21% in North America during fiscal year 2013, while the HIMA global group achieved record sales of 105 million euros, a 16% increase over the previous year. The global sales increase was significantly higher than the industry average.

"Our growth in the Americas was led by new projects in the oil and gas and chemical sectors, both in the U.S. and Canada, as well as by a major, new project in Canada and demand for our HIMax® SIL 3-certified safety system," said Roger Van Nuis, president of HIMA Americas Inc.

In the past year, half of sales were generated outside of Europe, while the other half was generated in Europe.

Globally, HIMA increased sales outside of Europe by 40%. North America, the Middle-East and Asian-Pacific regions, in particular, contributed to this success with high sales growth rates. Orders in Europe also increased over the previous year.

HIMA Executive Team

Orders received thus far in 2014 indicate that double-digit global sales growth will also be achieved this year.

More than 35,000 HIMA safety systems (SIL 3 and SIL 4) have been installed in over 80 countries, where they protect the facilities of the world's largest enterprises in the oil, gas, chemical, pharmaceutical and energy-producing industries. The above-average growth rates in 2013 in the logistics, machine safety and railway sectors show that safety-related solutions from HIMA are becoming more established in these areas, as well.

Carlos Gebauer Nito– HIMA Brazil

"Our broad sector approach and the international distribution of sales are the ideal prerequisites for continued, healthy growth," says HIMA Managing Partner Steffen Philipp, who leads the fourth-generation, family-run enterprise. "Together with CEO Sankar Ramakrishnan, whom I appointed last year, and Reinhard Seibold, who has been supporting us as CFO since May, I am focused on maintaining our economic and entrepreneurial independence."

To serve customers and partners in Brazil, safety specialist HIMA has formed HIMA Segurança e Controle Crítico Ltda (HIMA Safety and Critical Control) and in August will open an office in Sao Paulo. The Brazilian company is HIMA's sixteenth subsidiary.

"Our newest subsidiary reflects the increasing importance of Brazil in the worldwide economy and our desire to provide customers

Cover Story: What's Up With ABB and Other Stories (continued)

in the region with local support and meet local content requirements," said Carlos Gebauer Neto, General Manager Brazil. "Working in cooperation with our local partners, HIMA Segurança e Controle Crítico will supply best-in-class services and support to help companies manage the safety lifecycle of their plants, pipelines and machines."

Among other services, HIMA Segurança e Controle Crítico will provide systems assembly, safety application software programming and testing, on-site acceptance tests, and commissioning and startup services. HIMA expects the Brazilian subsidiary to become the company's center of safety expertise for Brazil and all of Latin America.

Siemens CEO Joe Kaeser

While ABB is pruning its asset tree, Siemens is buying large. Having been beaten in its attempt to keep Alstom European, Siemens has gone on to acquire significant assets from Rolls Royce, and other purchases.

But on July 31, Siemens reported missing its profit target for the third quarter. CEO Joe Kaeser told investors hoping for a quick turnaround that they will have to be patient. As if.

Kaeser unveiled a corporate overhaul for Siemens he called Vision 2020. What this means for Siemens Industry is not going to be known for a few weeks, yet. But speculation is that the industry sectors organization Siemens was so proud of only a few short years ago is history. Persistent rumors of "musical chairs" at Siemens Industry appear to have some truth, as the shakeout continues.

Kaeser blamed continued problems on the energy business, where third quarter profit declined 6%. He said that there was a lack of cooperation on the part of suppliers and service providers, leaving Siemens footing the bill.

"The lesson learned," Kaeser said, "obviously, is that it is better to rely on yourself than on many others." Siemens plans to change the way it relates to suppliers and projects it does not control.

Kaeser said that the problems would persist through 2015, disappointing analysts. Espirito Santo analyst Rob Virdee was quoted on www.whtc.com as saying that the results, "should remind (us) why Siemens trades at a discount to the sector," and sticking to his recommendation to sell the stock.

David Farr

Meanwhile, in Saint Louis, Emerson Electric reported a third quarter proft of $738 million, up 245 percent from the $214 million reported in the prior-year quarter. Emerson's process management division reported a 6 percent increase in sales for the quarter.

CEO David Farr said, "In light of the sluggish conditions in the global economy, operations executed well in the quarter, driving margin expansion, generating robust cash and maintaining focus on strategic infvestment programs, emphasizing our commitment to investing for long-term growth."

Emerson Process Management's 6% growth in net sales seems to have been supported by stable and sustained investment in the global chemical and energy sectors, with segment margin at 20.4 percent, declining from the previous year due to strategic investments.

But not all is rosy at Emerson. Shares of the automation maker's stock slipped on the third quarter update 1.4 percent, as Emerson's Farr said that full year results would come in at the low end of projections.

Emerson introduced a new line of Coriolis Mass Flowmeters, new rotary valve actuators, new SCADA software, and new diagnostics to its Flue Gas Oxygen Analyzers. We can expect to see all of this and more at Emerson Exchange, scheduled for October 6 through 10.

Honeywell Process Solutions announced it will upgrade process control and alarm management systems at the Molikpaq platform on the Sakhalin shelf, Russia, to improve safety, reliability and operational efficiency.

The Molikpaq platform, owned by Sakhalin Energy Investment Co. Ltd., celebrated its 15-year anniversary in September 2013. The platform produces 48,000 barrels of crude oil per day.

"Offshore production is associated with a number of risks to workers, the environment and efficient processes, and demands systems that meet the highest reliability, safety and durability standards," said Frank Whitsura, vice president, Honeywell Process Solutions. "Our innovative solutions are designed to meet the requirements needed to operate in harsh environmental conditions and help our partners to improve their operational and cost efficiencies."

The Molikpaq platform was installed northeast of Sakhalin, 16 kilometers offshore, at a depth of 30 meters. In the winter, the temperature, including the wind chill, can be as cold

Cover Story: What's Up With ABB and Other Stories (continued)

as 70 degrees below zero Fahrenheit.

To modernize the process control system and improve safety at the facility, Honeywell will implement the latest version of its Experion® Process Knowledge System (PKS), which will be extended by the new C300 controller including Foundation Fieldbus license. By enabling unified access to process control, production management and asset management, the distributed control system will help to improve efficiency and profitability, reduce total cost of ownership while helping the facility achieve optimum production of oil.

DynAMo Alarm Suite in mobile app

In addition, Honeywell will install its DynAMo™ Alarm Suite, which leverages more than 20 years of alarm management experience in the process industries, and can help users reduce overall alarm count by as much as 80 percent, identify maintenance issues, and increase visibility of critical alarms that require urgent attention.

Hollysys Automation Technologies, Ltd. (HOLI), the leading Chinese manufacturer of automation and control technologies reported a 72 percent surge in profit for the fourth quarter from last year on strong revenue growth. Looking ahead, the company forecast higher earnings and revenue for fiscal 2015, compared to the prior year.

Net income attributable to Hollysys Automation for the fourth quarter was $21.49 million or $0.36 per share, up from $12.52 million or $0.22 per share in the year-ago period. Excluding non-cash share-based compensation expenses, amortization of acquired intangibles and acquisition-related consideration fair value adjustments, adjusted net income for the quarter was $25.76 million or $0.44 per share, compared to $16.56 million or $0.29 per share in the prior-year quarter.

Revenues for the quarter grew 40 percent to $158.85 million from $113.43 million in the year-ago period. Integrated contract revenue rose 27 percent to $137.22 million, while product sales more than doubled to $13.38 million. Backlog at the end of the quarter was $556.01 million, up 13.8 percent from the year-ago period.

For fiscal 2014, Hollysys Automation's net income was $69.85 million or $1.20 per share, up from $51.99 million or $0.92 per share in the previous year. Adjusted net income was $87.17 million or $1.49 per share, compared to $57.61 million or $1.02 per share in the prior year.

Revenues for the year grew 49 percent to $521.33 million from $349.06 million last year.

Looking ahead to fiscal 2015, Hollysys Automation forecasts adjusted net income in a range of $94 million to $98 million, on revenues in a range of $565 million to $600 million.

Baiqing Shao, Hollysys CEO, said in the analyst call, "In fiscal year 2014 we made solid achievements and delivered robust growth in several areas in terms of financial performance and business operations guidance we announced previously. When we enjoy the exciting moment, we also calmly evaluate the future opportunities and challenges and carefully plan for the future growth."

Baiqing Shao Hollysys CEO

He continued, "The industrial automation delivered solid growth during fiscal year 2014. The actual growth rate was not as fast as we previously expected, mainly because of the influence by the general economic environment. During the past fiscal year China began to adjust its industry structure and reducing the capacity in some industries such as metallurgy, building material, paper mill and coal fire and power, but we gained more market share from rising industries to make up for the loss from decreasing industries. We were doing well in chemical, which took up the largest portion of our revenue in industrial automation, and we were doing better in food & beverage industry and the medical industry."

Hollysys reported increased sales outside of China, and when they seriously begin to market globally, they will be a serious player. The INSIDER is watching.

Meridium Making Bid for Supply of All Asset Performance Management Systems?

GE buys entry into Meridium

Again following the links evident at the Yokogawa User Meeting in Europe last month, where the wireless capabilities of the ISA100 system had resulted in a closer relationship between Yokogawa and the GE Bently Nevada wireless vibration monitoring business, GE announces this month a closer relationship with Meridium. Their new partnership with Meridium, cemented by a GE equity investment in a minority stake in Meridium, will lead to a joint development and distribution agreement that will integrate the Meridium asset performance management (APM) software and the GE Bently Nevada System 1 Asset Condition Monitoring (ACM) technology.

Meridium's APM aggregates data from System 1 and other plant maintenance systems to provide plant engineers with a dashboard of reliability metrics. This new Industrial Internet software offering will enable condition-based maintenance with pinpoint precision, in real-time, resulting in an estimated 10-30 percent maintenance cost reduction. This is a critical capability for customers in the oil and gas, power generation, hydrocarbon processing and other asset intensive industries.

Art Eunson, Bently Nevada

The links between Meridium and Bently Nevada

Art Eunson, General Manager of the Bently Nevada product line, said: "The way we do business is being dramatically altered in the era of the Industrial Internet. We are realizing the increased productivity and efficiency gains from big data and analytics delivered in real-time. The partnership with Meridium will increase value for our customers, allowing them to quantify risk in a near real-time manner. We are unlocking the value of condition-based maintenance, which will lead to reduced maintenance costs, increased mechanical availability and less downtime for our customers."

"Working with GE across mutual clients over many years taught us that together we could produce additional significant tangible value through collaboration and interfaces," said Bonz Hart, Meridium's Founder and CEO. "As we looked at the strengths of each company and our rapidly expanding global markets, working closer together made sense for our clients and to better serve our markets. GE's Bently Nevada operates in a multi-OEM and multi-system world, as does Meridium, so we're also tightly aligned on strategy. GE's minority investment allows Meridium to stay focused on innovation and support our global growth."

The combination of ACM and APM will allow customers to derive more value from big data through contextually relevant insight into asset performance and plant operations.

GE interest in Big Data and Industry 4.0

The combination of ACM and APM will allow customers to derive more value from big data through contextually relevant insight into asset performance and plant operations. This investment is quoted to closely align with the GE focus on leading the Industrial Internet, and connecting intelligent machines, advanced analytics, and people at work. By connecting sensors to maintenance management systems, customers also gain the ability to better manage their reliability strategy and operational risk.

Previous Emerson interest

The GE release said that Meridium serves more than 80 market-leading companies in more than 1,200 licensed sites around the globe. What it did not mention was that in 2009 Emerson Process Management and Meridium announced a unique partnership, aimed to combine the power of Emerson PlantWeb predictive intelligence with the Meridium advanced analytics and decision support technology, in the Emerson AMS Suite: Asset Portal v4.0, powered by Meridium. This new product linked Emerson asset diagnostics with business metrics and key performance indicators, and was built upon the Meridium Asset Performance Management (APM) software framework. This allowed the Emerson AMS system to integrate with computerized maintenance management systems such as SAP PM and IBM Maximo.

Bonz Hart, Meridium CEO

At the time, Bonz Hart had commented: "Meridium is pleased to partner with Emerson Process Management, the respected industry leader in predictive diagnostics, to provide our joint customer base with this new solution."

Sounds like Meridium is making a bid for the overall supply of asset performance management systems to the whole industry.

The Dangers from Enthusiastic PR Agents...

The IHS quarterly market tracker and forecast is described by IHS Technology in a promotional abstract on their website (www.ihs.com) (Please note that I -H-S is the company name, but Microsoft's spell checker insists this should be HIS. This regrettable error has happened before to Walt Boyes in the INSIDER).

The website says their objective is to provide a comprehensive evaluation of the global Industrial Automation Equipment market, and give annual forecasts for forty-seven different equipment types, as well as industry sector and sales channel analyses.

Market share estimates for the leading vendors in the major equipment markets are also presented.

Jenalea Howell– IHS

This looks interesting, but what is their definition of Industrial Automation Equipment?

The lead analyst behind this report is Jenalea Howell, research manager of the IHS Machines and Controls Group, based in Austin, Texas.

Her group covers low voltage AC and DC motor drives, stepper systems, CNC motion control and generators, amongst other similar items: so it seems their 'controls' are not quite defined in the same way as the ***INSIDER*** might hope for, when considering "industrial automation and process control."

Embellishing the information

Worries about the words used did not stop one enterprising UK PR agency issuing a story paraphrasing the press release issued by IHS Technology and describing the report.

Unfortunately, to attract editors in the seedier journals, a few sporting similes were added, for example they said that "After sputtering for the last two years, the global market for industrial automation equipment (IAE), unlike our pitiful England football team, is now poised for stronger growth in 2014".

There were then some references discussing whether this was due to a "steadying of the nerves after some whisky or vodka drinking." Which journals are these people targeting?

PR agents as word-smiths?

The rogue PR agent went on to advise, correctly, that "the automation equipment sector will be impacted substantially this year by technological innovations, IHS believes." They then suggested the technological innovations involved "reliance on the control of digital information" – maybe by some form of dictatorship? What IHS actually said was that "Convergence will transform manufacturing from a productivity-driven process to one that is controlled by digital information." A slight lack of attention to the words, by the PR agent!

The client was European Automation Ltd., (ww.euautomation.com) who are major suppliers of industrial automation spare parts and repair industrial automation equipment from all the major suppliers. Let's hope that the European Automation engineers give better attention to the detail.

— Nick Denbow

There were then some references discussing whether this was due to a "steadying of the nerves after some whisky or vodka drinking." Which journals are these people targeting?

Nick Denbow has been a marketing manager at several suppliers, a talented technical writer for companies like Emerson and Flotech, a pr agent with his own shop, editor and co-founder of ProcessingTalk, and the owner and publisher of The Automation and Process Control INSIDER. Since the transfer of ownership, Nick has been serving with distinction as the INSIDER's European Editor. Having served in all these posts, Nick brings great insight to the market, especially in his opinion posts like this one.

Aluminum Dust Explosion Kills 75— Sensors and Alarms Could Have Saved Them

Reports from Reuters and the China Times have said that a strong Government clamp-down in China has followed the August 2nd explosion at a Kunshan metal processing facility, which killed 75 people and seriously injured 185.

The blast at the Taiwan owned factory, Kunshan Zhongrong Metal Products, which is located in the area of Jiangsu, an hour's drive from Shanghai, occurred when a flame was lit in a dust filled room.

Rescue efforts at Kunshan Zhongrong Metal Products — courtesy of Weibo.com

This plant is one of many involved in automobile part manufacture: it polishes aluminium and magnesium wheel hubs for manufacturers such as GM. Factories located in this area, Jiangsu, account for 40% of China's annual output of such wheels, worth a total of $316m.

Aluminium processing facilities shut down

The State Administration of Work Safety (SAWS) called for a safety campaign targeting factories that process aluminium, magnesium, coal, wood, paper, tobacco, cotton and plastic, among other materials considered potential ignition sources.

SAWS has recorded 644 "large" accidents already this year, killing 2695 people. An investigation into the current blast by a senior SAWS officer has concluded that a "very serious dereliction of duty" had caused the lethal blast.

The president, general manager and manager of the factory, all Taiwanese nationals, have been detained under the charge of crimes against labour safety. Even President Xi Jinping has demanded a full enquiry into this incident.

A total of 214 factories in Suzhou City in Jiangsu were forced to halt their production activities for inspection and at least 135 factories there could be shut down, according to the Suzhou Administration of Safety.

In another report it is said that officials have been ordered to shut all aluminium and magnesium processing factories. Working conditions at many wheel factories in the city are unacceptable, the administration said.

An official at Georg Fischer, which produces cast components for vehicles, consumer goods and machinery, said the company only had to shut down one piece of equipment and expects production at the affected workshop to restart in about a week.

The Beijing Administration of Safety has launched a three-month round of inspection targeting industries involving coal, construction, transportation and explosive materials. The inspection will look at dust, flammable gases and chemical materials that pose safety risks, said the administration.

Kunshan Zhongrong Metal Products Company, according to Reuters, was a Tier 2 supplier to General Motors. GM said it was securing alternate suppliers, and said that it did not deal directly with Kunshan Zhongrong.

But international labor groups have been calling for top of supply chain manufacturers to be responsible for safety throughout their supply chains.

SAWS has recorded 644 "large" accidents already this year, killing 2695 people.

According to an article by Angelo Young on IBTimes.com, the incident was remarkably similar to one in 2003 that killed one worker in Huntington, Indiana.

Explosive dust is an endemic problem across many industries, and automation companies have solutions if the end users will buy them. This is an area where automation systems and sensors can truly save lives and keep production systems running.

Bürkert Flowave New Tech Flowmeter that is Industry 4.0 Ready

It all started at the Hannover Fair in April this year, with a presentation about a new flowmeter system to be launched by Bürkert, including a sketchy description in the associated press release.

Queries to Bürkert suggested that the product was due for launch in the Autumn of 2014, so it seemed correct to wait for the official info.

Now, in August, Bürkert has released a further description of the product, known as 'FLOWave' in their data, but referred to here as Flowave. This data has been presented in the current issue of the journal *Control Engineering Europe*, so it seems to be fully in the public arena.

Bürkert Flowave SAW Technology Flow Meter

The Bürkert description seems to raise more queries than it provides answers.

Their objective seems to be to provide the 'perfect flowmeter', a liquid flowmeter that is similar to an electromagnetic meter in layout, with no moving parts etc, but that can operate on non-conducting liquids, like pure or demineralised water.

The existing Bürkert range of flowmeters includes electromagnetic types, paddle wheels, positive displacement meters and a small bore ultrasonic time of flight.

The initial Flowave target market is in pharmaceutical and hygienic water measurement applications, aimed at replacing Coriolis and ultrasonic meters.

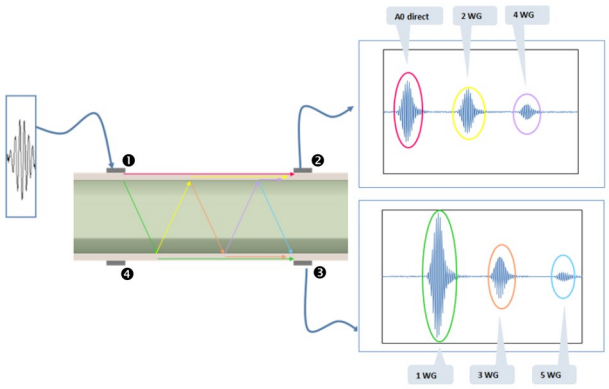
How does it work?

Developed in co-operation with Coburg University in Germany, the Flowave uses Surface Acoustic Wave (SAW) technology to measure liquid flow - as well as density and temperature.

SAW measurement relies on measurements of the propagation of sound waves, ie ultrasonics, in this case at 1.5MHz: Bürkert advises that these waves are similar to those present in seismic activities, but this does not help explain much more about the flow measurement!

According to the most recent press release from Bürkert, the main principle of this flowmeter is based on wave propagation forms similar to seismic waves, which start from an initial point of excitation and spread along the surface of a solid material. FLOWave uses at least four interdigital transducers which are located on the outside of the measuring tube and therefore have no direct contact with the liquid. Each transducer can act as a transmitter or a receiver.

The figure below shows one transducer emitting the wave, part of which travels directly to the first receiver, part of the same signal is transmitted through the liquid to the opposite side of the tube, where it splits again, with a proportion of the signal going to the second receiver and the remainder travelling through the liquid where the process repeats itself.



SAW Technology Flow Meter

Thus, a single excitation leads to a sequence of signals being received by two other transducers.

The absolute time for the wave to travel from the transmitter to

the receiver depends mainly on the tube diameter and the type of liquid.

The difference between the time of propagation in the forward and backward direction is proportional to the flow.

This sounds very much like a time-differential ultrasonic flow meter, doesn't it?

The analysis of all the signals and comparisons based on different criteria such as amplitude, frequency and runtimes, allows evaluation of the quality of the measurement, the existence of gas bubbles or solids as well as the kind of liquid.

A quality of measurement signal that could quantify the presence of bubbles or solids or void fraction would be a winning technology indeed.

The rest of the Flowave description concentrates on the advantages of having the SAW transducers on the outside of the pipe wall, so there is nothing in the flow path to impede or disrupt the flow, and the materials of construction can match the process pipe work.

Bürkert also suggest that the high frequencies used mean there will be no problems from flow or pipe noise and vibration, and that the effects of bubbles and suspended solids are less pronounced.

Maybe their Beta trials will offer some proof of these claims, as personal experience shows the transition from test rig to plant pipework is always interesting! We look forward to hearing the full launch presentation.

CANopen interface

The Flowave product is based on digital electronics and communications, and is said to be one of the first products to benefit from Bürkert's "Efficient Device Integration Platform" (EDIP), developed to open the door to Industry 4.0 for its new product ranges.

EDIP uses CANopen, which will make it possible to operate and monitor multiple Bürkert devices from a single display, and to run independent control functions or to access integrated web servers via wifi, and integrate into other networks, via gateway modules.

It is not clear why Bürkert chose CANopen to be the basis of their digital communication and integration protocol, instead of the far more widely used Profibus. We are reminded of the raft of electronics that are released during times of change in consumer electronics saying "[insert name] ready." WiFi users may recall the large number of routers and gateways that were sold as "802.11N compliant" or 802.11N ready" while the standard was being finalized.

The Bürkert description seems to raise more queries than it provides answers. Their objective seems to be to provide the 'perfect flowmeter', a liquid flowmeter that is similar to an electromagnetic meter in layout, with no moving parts etc, but that can operate on non-conducting liquids, like pure or demineralised water.

It will, in fact, be interesting to see how well Bürkert can "missionary" this new flowmeter product into a reasonably large user base, so we can see how well it actually performs.

For years, Walt Boyes has talked about "Flowmeter Charming" and it might be that this entry in the sweepstakes might be the one.

MCAA Issues 2014 Automation Market Forecast

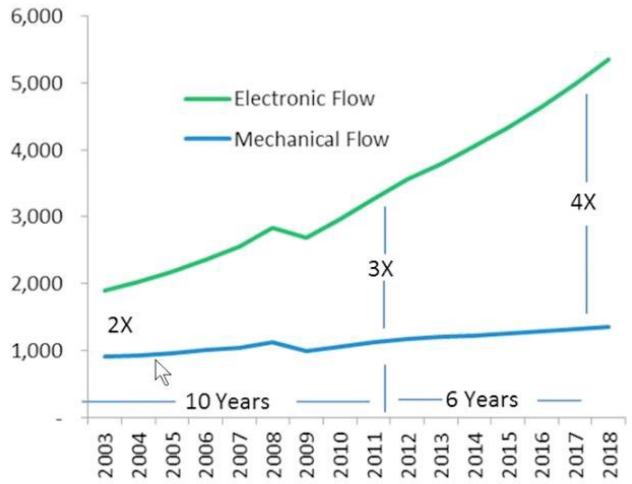
The 2014 Market Forecast published in May by the Measurement, Control & Automation Association (MCAA) provides a five year market forecast for Process Instrumentation & Automation (PI&A) equipment segmented by major process industries that shows the total US market value will grow to $13.6 Billion ($1.3 Billion in Canada) by 2018.

The report, which has 80 pages of detail on 12 product categories, 12 industry segments and estimates for both the US and Canada, also includes a spotlight on the technology displacement of electronic vs. mechanical flowmeters and a spotlight on market developments in Mexico.

Total US Market value will grow to $13.6 Billion ($1.3 Billion in Canada) by 2018.

In July, market analyst, Paul Rasmusson, President of Global Automation Research LLC, reviewed the highlights of the Forecast during a webinar for MCAA members and prospective members.

During that webinar, Rasmusson noted, among other developments, the continuing investment by the Chemical industry in unconventional gas as a feedstock and the construction of fertilizer and ethylene plants which will make the US an exporter, for the first time, of these products instead of a heavy importer.



Technology Displacement

Prepared annually for MCAA members jointly by the market research firms of Global Automation Research LLC and ReMap Sales Planning LLC, the Forecast predicts a 5 Year US CAGR of 4.2% with the Oil & Gas, Chemicals, Refining and Pharmaceutical industries projected as growing at above-average rates while Water & Wastewater, Electric Utilities, F&B, Cement and Mining will remain below average due to factors such as price pressure, cyclical downturns or overcapacity.

Global Automation Research LLC notes that the Oil & Gas Industry which had record high spending in the 2012-13 period will have slow growth in the early part of the forecast period but will recover by the end.

On the PI&A product side, the products with the best growth rates will be flow, level, control systems & remote I/O growing at above average rates. The report highlights that tank level gauging will grow at 9% per year over the forecast period, primarily because of increased construction of holding tanks at each end of the growing crude oil transport business.

In its spotlight on the technology displacement of Mechanical Flowmeters by Electronic flowmeters, the report shows that the displacement has accelerated over the last 15 years such that the electronic flowmeter market which was 3 times the mechanical market in 2012 is forecast to be 4 times the size by 2018.

One could extrapolate that the differential would be 5 times in 3.6 years thereafter (2021) but the researchers believe that is unlikely because mechanical meters remain competitive in a number of applications—including custody transfer and fuel metering—as well as because of the inherently conservative nature of the marketplace which tends to support the use of well-proven technologies such as mechanical level instrumentation. The INSIDER tends to agree, especially when the inertia of the tried-and-true is factored into the discussion.

In looking at the worldwide market potential, the MCAA report notes that lower spending in China, India and Brazil has pulled down the PI&A worldwide forecast through 2018 to approximately 4.5% CAGR with an addition of $10.1 Billion added to the worldwide market total.

This report is available to all MCAA members for no cost. For Non-members the cost of $2,500 can be applied toward dues should a company decide to join within three months after purchasing the report.

Ocean Data Systems Lands B-SCADA and GE Intelligent Platforms for Dream Report Software

Ocean Data Systems sells Dream Report, which vice-president of marketing and sales, Roy Kok, says is, "now the leading technology for automated data analysis and report generation with thousands of installations."

Ocean Data Systems' global marketing and sales vp, Roy Kok

The reason you may not have heard of them is that they market almost exclusively through OEMs.

Kok continues, "Dream Report delivers connectivity to all major HMI/SCADA, Historian and business data sources through either proprietary or industry standard drivers. Our markets," he says, "include process, hybrid and discrete, with special functionality for Life Sciences (Pharmaceutical and Biotech), Water, Wastewater, Heat Treating, Building Automation, Energy Management and Manufacturing Operations."

Recently, Ocean Data Systems announced partnerships for OEM distribution with B-SCADA and much more importantly, GE Intelligent Platforms.

Dream Report already includes drivers for most GE Intelligent Platforms products...

GE Intelligent Platforms will become an OEM of Ocean Data Systems and will deliver Dream Report to their customer base.

Dream Report already includes drivers for most GE Intelligent Platforms products with direct interfaces for Proficy® HMI/SCADA - iFIX, Proficy HMI/SCADA - CIMPLICITY, Proficy Historian, and a combination of open standards such as OPC DA, OPC AE and OPC HDA and business standards such as OLE-DB and ODBC to interface with their other products. Over time, additional interfaces will be developed as necessary to provide the best integration experience for customers. GE expects to begin reselling Dream Report by the end of August.

"GE Intelligent Platforms customers have already been leveraging the benefits of Dream Report in their applications," said Kok. "This partnership will extend that relationship to more and to future customers."

"GE prides itself on delivering leading technology in all areas. Our focus on Real-time Operational Intelligence (RtOI) means that we deliver the right information to the right individual at the right time," stated Prasad Pai, product manager for Proficy HMI/SCADA products, "and Report Generation is an important component in that information flow."

In addition, B-SCADA, which just closed an investment round with Yorkmount Capital Partners LP, has announced that they have joined the Dream Report "Proven Partner" program and are recommending Dream Report as their solution for automated report generation.

What this means is that B-SCADA and Ocean Data Systems have tested their combined products and will collaborate to support their joint customers. B-SCADA delivers SCADA solutions and services for Windows and the Web.

Dream Report communicates directly with B-SCADA's software through their specialized Web Service and will access both real-time and Historian data. Dream Report then offers the ability analyze, format and deliver their

Ineos Invests in shale gas terminal

Ineos Petrochemicals at Grangemouth, Scotland, has received approval of an infrastructure loan guarantee of GBP230m ($385m for their investment in a new import terminal to store and process ethane from US shale gas. The ethane is required to replace the dwindling supplies of North Sea gas, which has been the main feedstock for the plant, and the contract for this supply will end in 2017. Current supplies only allow the plant to run at 60% of capacity. Ineos contracted with TGE Gas Engineering GmbH for the construction of the largest ethane storage tank in Europe, with a capacity of 33,000 tons of liquid ethane. The whole investment will be

INEOS' Jim Ratcliffe

around GBP300m ($500m), with GBP9m coming from Regional Assistance Funding from the Scottish Government.
The plan for Grangemouth is identical to the one at INEOS' Rafnes facility in Norway, which will start importing US ethane from 2015. Ineos Chairman Jim Ratcliffe said "Our ability to import US shale gas underpins the future of manufacturing at Grangemouth. It is a vital step towards preserving the long term future of the Grangemouth site."

Ocean Data Systems Lands B-SCADA and GE Intelligent Platforms

(continued)

data in the form of reports as PDF, CSV and Excel files, emailed, transferred via FTP and posted to the Dream Report interactive Web Portal.

Ron DeSerranno, B-SCADA ceo

"B-SCADA addresses a wide range of vertical markets," explains Kok. "One thing they all have in common, is the need to capture information for compliance and performance reporting. Dream Report is the ideal solution for report generation in the automation market."

"We know of many applications that would benefit from the flexibility and ease of use that Dream Report delivers," says Ron DeSerranno, president of B-SCADA.

"We've commissioned the development of B-SCADA interfaces to be included in the standard edition of Dream Report. This collaboration makes perfect sense for us in support of our joint customers, and the Dream Report Proven Partner program is a great way to display our collaboration."

In addition, according to B-SCADA, Status Enterprise and Dream Report combine to create a total automation solution with tools for continuous process analysis and optimization. B-SCADA says you can create beautiful reports through an intuitive drag-and-drop interface, and schedule them to run automatically for display locally or over the Web.

B-SCADA says that from compliance reporting to performance, efficiency, and maintenance reporting in discrete, hybrid and process automation markets, Dream Report provides the perfect reporting solution for today's most sophisticated HMI/SCADA software, Status Enterprise.

B-SCADA is one of the new wave of SCADA and control system companies taking advantage of the new technologies of the cloud and the fact that almost all HMI software runs on COTS (Commercial Off-The-Shelf) hardware.

There are literally dozens of these small SCADA companies, trying to supplant Wonderware as the best known and most used HMI and SCADA software system in the world.

"We know of many applications that would benefit from the flexibility and ease of use that Dream Report delivers," says Ron DeSerranno, president of B-SCADA.

Most of them are well under $10 million in annual revenue.

B-SCADA has just closed a funding round, selling 2,424,242 shares of common stock at a price of $0.33 a share to Yorkmont Capital Partners LP, an investment of roughly $800,000.

Yorkmont Capital Partners, LP is a private, Texas-based, limited partnership with Yorkmont Capital Management LLC serving as its sole general partner and investment manager.

The INSIDER believes that we will see much more from companies like B-SCADA as the Internet of Things and Big Data pave the way for a democratization of control systems. We believe that small, agile software-based companies will be able to respond to the great challenges ahead in an effective manner.

Distributed Temperature Sensor

Yokogawa released a new version of their distributed temperature sensor, the DTSX3000, claiming industry leading measurement length and temperature resolution. It offers a 1 metre spatial resolution on a fibre-optic cable up to 50km in length. In just ten minutes the DTSX3000 is capable of measuring the distributed temperature along a 6 km fibre-optic cable, with a top-level temperature resolution of 0.03C, 20 times the precision possible with conventional products.

With these significantly improved capabilities the DTSX3000 is said to be ideal for monitoring the temperature distribution in power lines, and high or low temperature liquid and gas pipelines. In shale gas fields such sensors are needed for monitoring minute changes in temperature in the bedrock. The DTSX3000can monitor inside wells during the gas recovery process.

An outgrowth of the Yokogawa DTSX200 sensor, it has already found application unconventional oil and gas wells, the detection of leaks of high- or low-temperature liquids and gases from pipelines or tanks, and the detection of abnormal heat build-up in coal and wood chip conveyors. Temperature readings are displayed on a monitor, allowing maintenance personnel to quickly spot and respond to any problems.

Hydrocarbon Visual Flame Detection Systems

As one of the "Platinum" level sponsors of the July Yokogawa User Meeting in Berlin, Draeger made one of the new technology presentations offered to delegates.

Doug Longstaff, Global Solutions Manager for oil and gas/chemicals, introduced the concept of their new "Innovative visual flame detection technologies", presented as a replacement technology for older techniques like combined UV/IR flame detection, Dual IR, Triple IR and Multi-IR flame detection.

These older techniques were all quoted as regularly suffering from spurious trips, and also it was pointed out that rain and water droplets absorb IR energy, making the effective range of these technologies - that rely on the detection of the energy radiated - much lower in outdoor situations in the rain, or when a water spray might be present.

This immediately got my attention, since it was back in 1983 when I was recruited back into Bestobell in the UK to launch the Armtec UV/IR flame detector, said at the time to be the answer to the problems inherent in both UV and IR single technology flame detectors. Obviously Draeger suggest even UV/IR is now old technology.

Draeger Flame 5000 detector

The new Draeger Flame 5000 detector technology on offer is a "Visual flame detector", using an explosion-proof colour imaging based CCTV system.

The device processes live video images to detect the characteristic properties of hydrocarbon flames by means of its digital signal processing and software algorithms. Because this is a visual and video system, the sensor has video images, that can be analysed afterwards to give event analysis to the user, and show the cause and source of the fire: a built in memory card allows recording before and after an alarm.

Further, the live video provides instant visual verification of a fire to the operator, eliminating the need to send any personnel in there, into potentially hazardous situations, just to check that the sensor is "telling the truth".

Because the detector uses video imaging, whose view can be checked, the installation is simple and easy, and it is easy to check that the correct area is being monitored. The alarm relays operate independently of any operator monitoring, to trigger shutdown systems and fire extinguishers.

Draeger Flame 5000

Draeger claim the detection range for a 0.1 square meter fire to be 44 metres, within a 90 degree horizontal field of view, exceeding the coverage area and range of any currently available flame detector. Further, the image processing software is so effective that normal false alarm sources have been eliminated, and the detector is suitable for SIL2 applications.

This immediately got my attention, since it was back in 1983 when I was recruited back into Bestobell in the UK to launch the Armtec UV/IR flame detector...
—Nick Denbow

Draeger promotion

The impression is that there is a major campaign going on from Draeger to promote this new detector into the oil and gas and chemical industries, as represented by the Yokogawa European customer base.

Doug Longstaff is also scheduled to make a similar presentation in the *HazardEx* regional training conference sessions planned in Aberdeen and London in the Autumn of 2014 - although the Draeger presentation will not be included in the similar events in Rotterdam, Elles-

Siemens and Kuka Co-Operate in Robotics

Kuka Roboter GmbH, based in Augsburg, Germany, has been developing more effective

ways of incorporating robots into automation systems. Specifically there has been a major effort to "jointly optimize the interplay between the Siemens Sinumerik CNCs and Kuka robots in a variety of machine-tool environments."

In July 2014 the delivery of the 500,000th Siemens motor to Kuka was celebrated at an event in the Siemens motor plant in Bad Neustadt, Germany.

The demand for industrial robots is growing. According to the International Federation of Robotics (IFR), 1.66 million industrial robots will be installed worldwide by 2016 – an average increase of 100,000 units per year over the last five years

IN future these mechanical assistants will be able to perform machining steps such as polishing, deburring, drilling and milling. This expanded functionality is opening up new areas of application in industries where robots are already in use today, for example the automotive, plastics processing, aerospace and power industries.

Hydrocarbon Visual Flame Detection Systems (continued)

mere Port and Swansea.

With the Yokogawa deal announced in July to market the GasSecure ISA100 wireless hydrocarbon gas detector, Yokogawa can benefit from an alliance with a flame detector company. Possibly this Yokogawa interest would be enhanced if there were to be a wireless variant of the detector imminent, transmitting a video clip on the triggering of an alarm? We will wait and see. But how will Draeger develop this technology further?

Micropack Visual Flame Detector

Micropack Engineering, based in Aberdeen, has been a pioneer in the field in optical fire and gas detection technologies for 25 years, specialising in the requirements of the North Sea offshore oil industry. As a result Micropack has been involved in the development of many of the leading detection technologies available on the market today. From the early 1980s, Micropack supplied technical safety consultants specialising in the development, commissioning and support services for fire and hazard assessment offshore, for example to the Chevron Ninian field. Working closely with operators such as BP, they developed systems to overcome the false alarm problems experienced offshore, which led to the first generation of Micropack visual flame detectors – tested on an FPSO test site some 15 years ago. These now have an established record for reliability and minimal false alarms: one of the customer quotes from their website is "We installed the Micropack Flame Detector over 10 years ago onboard our FPSO. To date, it has proven itself by eliminating our false alarm problem".

Micropack FDS 300 Flame Detector

With conventional IR detectors, one of the frequently quoted source of problems offshore is from the hot CO2 exhaust emissions from gas turbines, which are strong and significant at 4.4um, the prime detection wavelength for IR detectors. The Micropack data stresses however that clean burning fires, such as those from methanol, hydrogen and sulphur, cannot be detected using their VFD. Micropack also claim that the sensitivity of their flame detectors is not affected by water on the optics, and they are not blinded by the contamination typically found in offshore environments. The latest version, the Micropack FDS300/301 range was first launched in March 2012, and is now based on a colour CCTV system, using the third generation of software.

Micropack fire safety consultancy

The Micropack expertise and business is still based on their team of technical safety consultants relating to flammable gas and fire hazards, and in recommending the placement and type of detectors to be used on oil and gas installations and petrochemical plants. This led to Micropack developing its own range of mapping tools, capable of quantifying the per-

> **"We installed the Micropack Flame Detector over 10 years ago onboard our FPSO. To date, it has proven itself by eliminating our false alarm problem."**

New event detection tool 90% faster than traditional

Dr. Michael Baldea and graduate student Ray C. Wang of the University of Texas at Austin beat the average detection time in the Tennessee Eastman Challenge Process by over 90% using their centroid analysis tool. The Tennessee Eastman Process is a benchmark problem that is used to evaluate new strategies for improving chemical plant operations. Of the twenty faults considered, their approach detected six faults in less than 30 minutes each. Additionally, it detected three faults that were either missed or signaled far too late by 12 other techniques published in the literature. The results were presented at the May 2014 meeting of the Center for Operator Performance, which funded the tool's development.

The technique has been successfully applied to detection of surge in a large, multistage compressor, where analysis of past surges identified an event signature hours before surge onset. It is currently undergoing testing for other faults. The goal is to create a tool that will help operators identify problems before they occur. Mark Nixon of Emerson Process Management and member of the Automation Hall of Fame said, "Being able to detect and visualize faults before they occur is very important. The methods being worked on by the COP are very promising. We look forward to testing these techniques on a wide range of applications."

Hydrocarbon Visual Flame Detection Systems

(continued)

formance of fire and gas detection systems. The development of the unique Micropack Visual Flame Detector, and the software algorithms used, was only made possible as a result of the work of their scientists and engineers studying the characteristics of fires and flames, and fire detection techniques. Micropack is based at its own purpose built fire test facility within the Grampian Fire Brigade's Fire Training Centre in Portlethen, Aberdeen.

Micropack purpose-built facility at the Grampian Fire Brigade in Portlethen, Aberdeen

Supplying the consultants as well as the sensors themselves can sometimes be seen as not the best business practice, but the VFD technique was given a major boost in 2011, when an independent review on loss prevention by FM Global (Global Property Loss Prevention Data Sheets 5-48, January 2011) recommended that such visual imaging flame detection systems be applied as the default technology for the following commercial and industrial applications:

1) Outdoor, open areas such as oil rigs, oil fields, mining operations, and forest products.

2) Indoor locations such as industrial plants, boiler or other large vessel protection, turbines, and some clean/chemical rooms.

The Draeger and Micropack units

The photograph available of the latest Micropack FDS300/301 looks very similar to the product offered by Draeger, as the Flame 3000/5000, but is in a different colour. It would appear that Draeger have struck a deal to supply the Micropack unit through their marketing network, giving Micropack access to worldwide sales representation for their technology. It also helps Micropack, who are now able to recommend either Draeger or Micropack VFD units when appropriate.

It does appear that Micropack make a different claim about the detection range capability of their unit, compared to the Draeger claim quoted above: the FDS300 is designed to detect a 0.1 square meter hydrocarbon pool fire at up to 60 metres (197 feet), within a 110 degree cone of vision, in both indoor and outdoor applications. Commenting on this, Adrian Lloyd, Director of the Micropack US operations states that: "The FDS300 boasts a much longer detection range than conventional flame detectors, thus providing our customers substantial savings in installation costs."

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1) Outdoor, open areas such as oil rigs, oil fields, mining operations, and forest products.

2) Indoor locations such as industrial plants, boiler or other large vessel protection, turbines, and some clean/chemical rooms.

Happy Birthday, Opto22

Opto 22 marks 40 years of operation since founder Robert Engman and his wife Mary Jane started the company in 1974 in Huntington Beach, California. Beginning with optically isolated, liquid-epoxy filled solid-state relays (SSRs), Opto 22's range of products grew to include input/output (I/O) modules, computer-based I/O systems, industrial controllers and software. Today Opto 22 hardware and software products are used by more than 50,000 customers in applications in industrial control, energy management, remote monitoring, and data acquisition.

Opto 22 has often led the way in technology for industrial automation and was instrumental in bringing microprocessors into automation—both in PC-based control and in programmable automation controllers (PACs). Opto 22 designed the first flowchart-based control programming software, brought the first Ethernet-based I/O unit to market, and easy-to-use software, *groov*.

Opto 22 has prospered with the same private ownership and the same business philosophy: produce quality innovative products based on open standards, treat employees and customers well, design and manufacture everything in the U.S.A., and provide free product support and pre-sales engineering. Opto 22 products are sold through a global network of distributors and system integrators and used by engineers, technicians, machine builders, and OEMs.

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Rajabahadur V. Arcot: Ensuring cyber security calls for increased public awareness and transparency

The National Institute of Standards and Technology (NIST) seeks information to build a reconfigurable cybersecurity test bed for industrial control systems (ICS). The main objective is to provide guidance on the best practices for implementing security strategies within ICS without negatively influencing the process performance. It is important to note that the best practices are those that do not degrade performance of the process and control systems. The test bed will include several industrial control simulation scenarios. Yet other goals of the test bed are to motivate methods by which control engineers can leverage security engineering to design control algorithms that extend safety and fault tolerance to include advanced persistent threats and measure the performance of industrial systems during a cyberattack. In its approach paper, NIST has outlined the research goals, performance metrics and asked companies for information on how they would address the requirements. While this initiative, coming as it does after the advisories on a serious of control system cyber vulnerabilities, is extremely timely, it is equally important to increase the transparency and public awareness.

With information technology professionals developing faster more-powerful user-friendly computers and applications, control system suppliers began to leverage the power of information technology with gusto. Somewhere, as the trend evolved, crucial point an insecontrol tem, however ture rich may be, not what the ical

Rajabahadur V. Arcot is an Independent Industry Analyst and Business Consultant with 40 years of senior management experience. Until recently, he was responsible for ARC Advisory Group's business operations in India.

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frastructure industry or end-users want was missed. Control system architecture now allows the use of commercially off the shelf devices and technologies including the use of remote access to Cloud. While these developments make the control systems easily accessible and more user friendly, they also enhance their vulnerability to cyber-attacks.

The perpetrators of Stuxnet have opened the Pandora's Box of cyber warfare and Dragonfly / Havex RAT is the latest to come of it. Security firms, such as Symantec, Kaspersky Lab, F-Secure, and others have released information about these malwares. Their reports typically provide information about the number of control system installations affected by the malware, how they operate, and sometimes give an overview of where the control and command centers are located and such others. However, specific information about the affected plants, whether they have taken remedial actions, the success of the remedial measures is sketchy, for so-called security reasons. For the same reasons, control systems suppliers also reveal very little about their responses.

For example, according to information available in the public domain, Symantec has notified Havex affected victims and relevant national authorities that handle and respond to Internet security incidents such as the Computer Emergency Response Centers (CERT) and Department of Homeland Securities. However, there is no serious information about alerts or advisories from any of the ICS suppliers. The mitigation strategies recommended in the related alerts or advisories include measures such as implementing IT best security best practices, using strong passwords, ensuring all operating systems and public facing machines to have the latest versions and security patches, and similar others. While it is agreed, that these are mandatory cyber security measures, it is not clear how they would serve the log-term goal of making control systems cyber secure, as the mitigation measures are not specific. Despite following these guidelines, control system cyber-attacks go on.

The question is does such non-disclosure due to security or any other unstated reasons really help the end user industries and prevent malicious actors, be they state actors or others from

Rajabahadur V. Arcot, continued

continuing to keep discovering and exploiting new and more serious vulnerabilities. The secrecy really results in the stopping the spread of critical awareness among the end users and encourages the hackers to find new attack vectors and deploy them. Even now, hackers, who are well ahead in exploiting the vulnerabilities, probably feel emboldened by the cloak of ignorance or lack of awareness and cooperation among end users and technology solution providers / control system suppliers. At least in this apart of the world (India), most end users are largely unaware of the strategic implications, not well informed, and ill prepared to counter them effectively. There is a certain degree of complacency. This threat will not pass away unless all stakeholders who could be victims of such attacks are on the same frequency. It is time for all of them to introspect and accept that some drastic rethinking is urgently required on their part. It is time to recognize that rightful demand of the ends users for control systems that are more resilient to cyber-attacks and are built on security as the cornerstone. Otherwise, serious consequences, that we all want to avoid, are waiting to happen.

The secrecy really results in the stopping the spread of critical awareness among the end users and encourages the hackers to find new attack vectors and deploy them.

Victor Marinescu: Specialized Personnel in Argentina, Percentages that Worry...

(*Victor Marinescu is an independent automation journalist based in Argentina. This is his first contribution to the **INSIDER.**)*

Specialized Personnel in Argentina: Percentages that worry...

Among the most difficult positions to cover in Argentina are those which require specialized formation such as industrial technicians, engineers, manual workers, accounting and financial personnel and specialized operators.

63%

According to a study by Manpower Group, which surveyed 37,000 employers from 42 countries, the phenomenon of the lack of qualified personnel is global.

The countries which have more problems in finding qualified personnel are Japan (81% of the employers do not cover the key positions), Peru (67%), India (64%) and Argentina (63%). The lowest values are in Spain (3%) and Ireland (2%).

Among the most difficult positions to cover in Argentina are those which require specialized formation such as industrial technicians, engineers, manual workers, accounting and financial personnel and specialized operators.

The Argentine employers sustain that the difficulty for covering the key positions with qualified personnel is due to the lack of candidates experience (48%), of technical competence (21%) and directly to the candidates scarcity (17%).

12%

In Argentina there are few university graduates, despite the fact that there are lots of students; the majority does not finish their studies.

And here apppears the importance of the different levels of graduation. In industrialized countries, such as Australia, Korea, Russia and Poland, more than half of the young population is graduated from universities.

In our region, the highest levels of university graduation correspond to Puerto Rico and Cuba, with 46%. Panama has a university graduation of 23%, while Chile, Mexico and Venezuela have 19%.

These numbers from UNESCO also indicate that the graduation in Argentina is very low, almost 12%.

14%

Another indication of the growth potential of any country is his human capital in areas of science and technology. The UNESCO study shows that there are many countries where the university graduation rate which corresponds to these branches is more than 25%.

In Latin America this kind of graduation is leaded by El Salvador with 26%, followed by Mexico (25%), Colombia (23%), Chile (20%) and Panama (19%). In Argentina, the level of graduation of these scientific and technological careers reaches only 14%.

THE WAY I SEE IT
Editorial

Automation, Labor and Politics...and Science Fiction

It has been apparent for some time to those who are paying attention that increased automation and smarter manufacturing systems will be the vehicle to return manufacturing to the United States. This is a good thing, or is it?

According to John Bernaden, Director of Communications for Rockwell Automation, wearing his Smart Manufacturing Leadership Coalition hat, we are looking at a permanent loss of 26% of jobs in the next ten years. Almost all of those jobs will be manual labor, or lower paid labor on assembly lines. These are the jobs that we will be losing, and the people who can least afford to lose their jobs will be the most affected.

As members of the automation community we have an obligation to think about what to do about these people. It is already happening. Take a look at Ferguson, MO.

In 2000, the town's population was roughly split between black and white with an unemployment rate of 5%. By 2010, the population was two-thirds black, unemployment had exceeded 13%, and the number of residents living in poverty had doubled in a decade.

There are a lot of interacting causes for how Ferguson declined so far so fast. But one of them surely is the closure of the automobile plants in Saint Louis County, where many of the residents of Ferguson worked. As Smart Manufacturing, or as it is called in Europe, Industry 4.0, continues to make a comeback in the US, it is the jobs that the working people of Ferguson, and hundreds of towns just like them, won't be getting— because they won't be coming back.

This is a new thing. This isn't socialism. This is divorcing how you live from what you do.

One of the tenets of the Star Trek universe as envisioned by creator Gene Roddenberry, was that the Federation had become so wealthy that no one was obliged to work. "We work at what we want to," or words to that effect, came from Captain Kirk in one of the early episodes.

But wait, you say, isn't this socialism?

No, it isn't. It is something quite different. Socialism requires everybody to work, and gives back what everybody needs. In Roddenberry's mind, and in the minds of a lot of modern theorists, this may be the real social achievement of Industry 4.0, or Smart Manufacturing. We have the power to become so wealthy that we can provide a good living to anyone, regardless of how they work, or what they do.

What a scary thought.

But do you want to see hundreds of Fergusons in the next ten years? The people of Ferguson aren't truly angry about Mike Brown, or the arrogant brutality of the police. They are, at bottom, angry because they don't believe that anything they can do will help them out of the poverty they find themselves in, and that their children will live in all their lives.

I don't want to see proletarian riots (because this isn't about race, it is about class) for the next generation. I don't want the future depicted in the movie *Elysium*. That is not a sustainable choice for us, or anyone else. Even China is automating as fast as they can.

So, how do we deal with the results of OUR labor? How do we deal with the fact that as automation professionals, our community will be the proximate cause of either a permanent split in society, or the growth of a new society in which what you do and how much you make do not define who you are and how you live?

This is not an easy issue. But it is an issue we have to confront. And soon.

Walt Boyes

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