Circumference Technology Services

The Factory of the Future – Industry 4.0

EXECUTIVE SUMMARY:

Factory of the Future – Industry 4.0

A Circumference Executive Sessions meet-up,

Engineering 5, University of Waterloo,

Thursday March 1st, 2018.

FEATURED SPEAKERS:

Ted Byers, *Circumference*
"Industry 4.0 - A Primer."

Isabelle Graveline, *CEO Kilmarnock Enterprises*
"The Factory of the Future."

Duncan Klett, *Co-Founder, Kinaxis*
"Digital Transformation of Your Supply Chain."

Stephen McInnes, *Circumference*
"The Relevance of Connected Factories."

The Factory of the Future – Industry 4.0

In the next 5 to 10 years, our guests agreed, Canadian manufacturing will undergo a dramatic transformation. During the 1990s, companies who embraced CAD mostly thrived, while late adopters often struggled to survive. Today, consumers increasingly expect customized goods at unprecedented speeds and becoming more responsive will require producers to collect and share plant floor data with supply chain partners. Late adopters will struggle to compete with these IoT networks, and some will not survive.

Implementing Industry 4.0 standards will not be easy. Canadian industry, the discussants agreed, is not keeping pace with global innovations. Contributors noted some government research grant programs, but state spending on industrial research is well behind most OECD countries. Corporations, most attendees also agreed, are not spending enough on R&D, and they attributed this failing to a lack of funds as well the common but erroneous assumption that "if something is working, don't fix it." Inaction, however, appears to be the biggest risk. Europe, and particularly Germany, is leading the way, and Canadian manufacturers must innovate if they are going to remain competitive in global markets.

Revolution by Evolution

Although Industry 4.0 is ultimately a revolutionary change in manufacturing processes, the gathering's speakers and guests agreed that an evolutionary approach is best. Data collection and analysis is the first step in identifying bottlenecks. It can provide the necessary insights to implement lean manufacturing techniques and find new efficiencies within supply chains. Incremental steps towards greater connectivity, starting with pilot projects, minimize disruptive risks while maximizing opportunities for feedback that produce lessons learned to guide subsequent steps towards 4.0 ideals.

Change Management Needs To Include People Management

Achieving secure and reliable IoT, however, requires a human touch. Some corporate attempts to implement ERPs, one speaker noted, fail because employees did not understand the personal benefits of the shift and therefore gave the implementation less than full-hearted support. Developing actionable intelligence and solutions from shop floor and customer relations data, however, requires buy-in from all employees. Change management with employees is therefore integral to Industry 4.0 transitions, and representatives from companies currently transitioning to Industry 4.0 identified several effective strategies to enhance employee buy-in:

Employee messaging is key.

Workers will embrace change if they understand the personal benefits. Mitigate apprehension by keeping employees informed about future job opportunities. Perhaps your company plans on acquiring competitors and the new enhancements will allow these employees to manage greater volumes.

Secure strong HR and talent management.

Hiring technology experts is key, but so is identifying reliable and knowledgeable employees whose positions may not survive the transition. Identifying this latter group of individuals and offering to retrain them for new roles will allow companies to retain quality workers.

Arrange for tradespeople to visit 4.0 plants.

This demonstrates to tradespeople that they will still have a job after the transition, what their future workflows might look like, and what skills they will get to learn and acquire.

Cultivate collaborative cultures to improve production agility.

Employees must be allowed to take risks for factories to successfully transition to 4.0. Knowledge silos must be eliminated and ERPs only partly break down traditional boundaries. Cross training, frequent performance assessments and "teaming on the fly"—as *Kilmarnock Enterprises* calls it—are integral to creating nimble and responsive teams.

In Conclusion

Ultimately, the gathering agreed that achieving the Industry 4.0 ideal is a gradual process that leads to revolutionary change. The process begins with data collection and human analysis and builds to a holistic shift in the running of factory floors and supply chains. Manufacturers must make these changes to maintain their competitive edge, and connectivity will remain the first and foundational element to realizing this goal.

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Technology Services

19 Thorne Street, Cambridge, ON N1R 1S3 www.circumference.ca