



Factory of the Future - Industry 4.0

A Bite-Sized Approach For SMEs To Get More From Their Existing Infrastructures

EXECUTIVE SUMMARY:

A Bite-sized Approach to Getting More From Your Existing Infrastructure

A Circumference Executive Sessions meet-up

Metalumen Inc.

Education Room

570 Southgate Dr, Guelph, ON N1G 4P6

June 21, 2018

FEATURED SPEAKERS:

Michael Eckardt,
President, Eckardt Investments

Marni McVicar, P.Eng.
Principal, mgmt2go



For over a decade, global corporations like Siemens and GE have been aggressively building Industry 4.0 capabilities, sometimes constructing new state-of-the-art facilities from scratch. Ontario SMEs lack the resources to produce this level of disruptive metamorphosis. Misplaced fears, however, of incurring large expenditures to acquire unneeded capabilities are often deterring the improvement of shop floors.

On 21 June 2018, leaders of several SME manufacturers met at Metalumen Inc to discuss the merits and best practices of incremental – bite-sized – approaches to securing the rewards of Industry 4.0.

Master the Present

Preparing for the future, presenters and attendees agreed, starts with understanding and mastering the present. Planning teams must consult factory floor workers, data entry personnel and other stakeholders to develop and articulate an intimate understanding of the company's existing manual or semi-automated processes. This effort goes beyond being a simple documentation exercise; it provides the framework to spawn improvement. As Martin Eckardt noted, automating poor solutions only accelerates existing problems. Shop floor operators are usually the most informed and insightful about existing gaps and inefficiencies.

Benefits of a Bite-Sized Approach

Once companies are reasonably certain that they have optimized their existing processes, they can confidently move forward with discrete projects that will demonstrate and gradually create the benefits an Internet of Industrial Things (IIoT).



Marni McVicar encouraged SMEs to target “low hanging fruit” when selecting initial projects. By adopting an incremental approach, and prioritizing improvements with quick ROIs, SMEs can:

- > Manage costs. Sweeping changes are expensive and unpredictable. A bite-sized approach limits risk and divides the costs into more affordable chunks.
- > Limit operational impacts. Companies can “cherry pick” which processes are impacted, and when these changes will occur to limit unforeseen impacts to other parts of the plant.
- > Constrain the unknown. It is difficult for companies to know what they do not know. Bite-sized approaches limit the potential for unforeseen challenges to disrupt the factory floor.
- > Maximize learning. Incremental changes create gaps where all employees, managers, and customers can learn from recent initiatives before determining next steps.
- > Prioritize improvements. IT departments can master one development before tackling the next improvement. Maintaining a company’s new cloud systems, equipment connectivity or security risks often involves steep learning curves; it is imperative for IT departments to fully understand how to maintain new systems before introducing additional solutions.
- > Encourage validation. Incremental successes can be verified and celebrated. Pauses between steps allow staff to understand and get excited about next steps.

Have a Roadmap

Companies taking a bite-sized approach to developing their factory floors, all participants agreed, must not be nearsighted. Instead, they need to adopt a patient / persistent / visionary approach. At an early stage, each company should develop a roadmap outlining the capabilities they want to eventually secure, along with the steps that they believe will be necessary to get there. Developing this roadmap can, many agreed, be extremely difficult.



Once complete, this roadmap should be widely circulated to employees and even customers. Employees, Stephen McInnes noted, are less likely to make mistakes with new systems if they are onboarded during the early stages of implementing new workflows and are more likely to embrace these changes if they understand how they will improve their job security and the company's future.

Create Space for Experimentation

After developing and distributing this roadmap, companies should not rigidly adhere to it. The route that each company ultimately travels to reach Industry 4.0 functionality will, like most road trips, inevitably include some wrong turns. SME manufacturers, all agreed, should embrace the journey by creating time and space for employees to experiment with novel solutions to known bottlenecks. This encouragement will foster employee buy-in, and produce solutions uniquely tailored to the company's needs.

Fostering a culture of improvement takes dedication and may begin modestly. One participant shared a story about one plant where programs to encourage innovation floundered until one woman suggested that she could undertake two processes if her workstation was moved to a slightly different place on the factory floor. After she demonstrated the benefits of this change, her innovation became a touchstone that inspired the rest of her fellow employees to suggest similar innovations.

Don't Go It Alone

Even with a bite-sized approach, nearly all SMEs quickly discover that their staff lack the expertise and time to undertake these shifts while keeping up with the existing duties. Bringing in third parties is an effective strategy to reduce this burden. When selecting this partner, McVicar warned, corporate leaders must select a team who will work with – rather than for – their company. This precaution ensures that the solutions truly fit the SME's requirements, and enables their staff to mostly or completely manage the solutions once they are fully implemented.



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