



Smart Eco-systems: Enabling teams to make smart decisions faster.

& WHIN EDUCATION SUPPLY CHAIN

JANUARY 2019

REPORT

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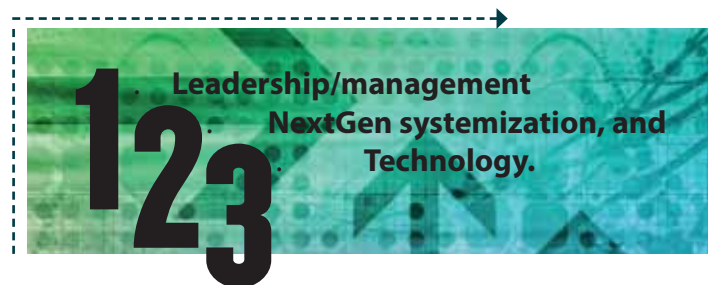
INTRODUCTION TO THIS REPORT

WHIN Education and WHIN Supply chain are two projects at Purdue, funded by the Eli Lilly 'WHIN' Project. In this report we highlight what we have already done to support manufacturing in the ten-County area around Purdue. The ten County area comprises Benton, Carroll, Cass, Clinton, Fountain, Montgomery, Pulaski, Tippecanoe, Warren and White. WHIN-Ed engaged with 139 manufacturers, with 94 of those being outside Tippecanoe County. Below are some of the ways that we are already supporting companies. Watch this space for further support initiatives as they launch!

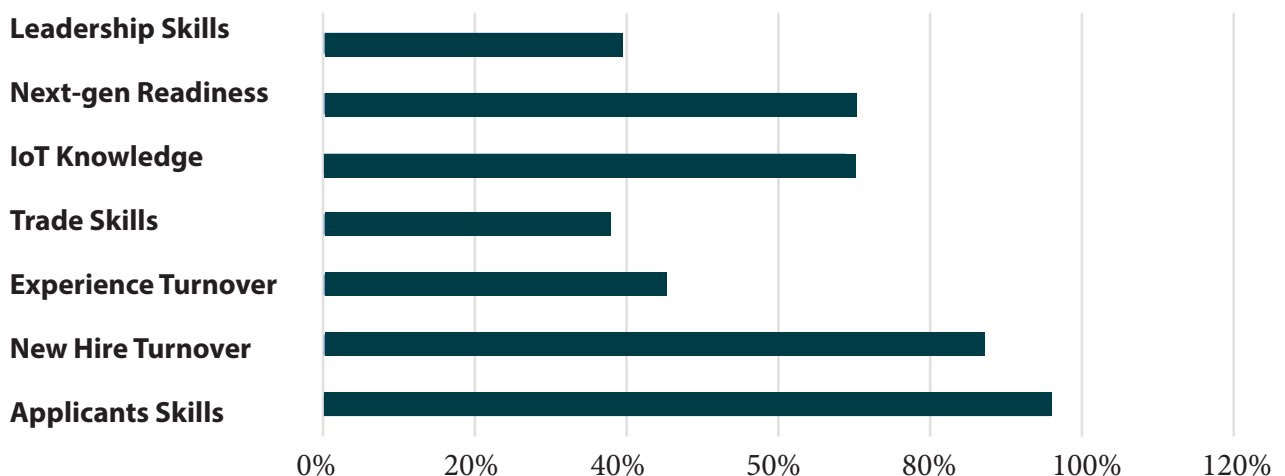
MAIN ISSUES FOR LOCAL MANUFACTURERS

Results of Gap Analyses from engagement with companies

The figure shows the most pressing concerns facing over 80 surveyed companies locally. Applicant skills and new-hire staff turnover are the most concerning issues facing our manufacturing companies and preventing change. Many companies have full order books, but do not have enough staff on the ground to keep up with orders. The employment & on-boarding needs are frequently so demanding on management time, that there is no capacity left to take on developmental projects. All issues fall into three dimensions, these are:



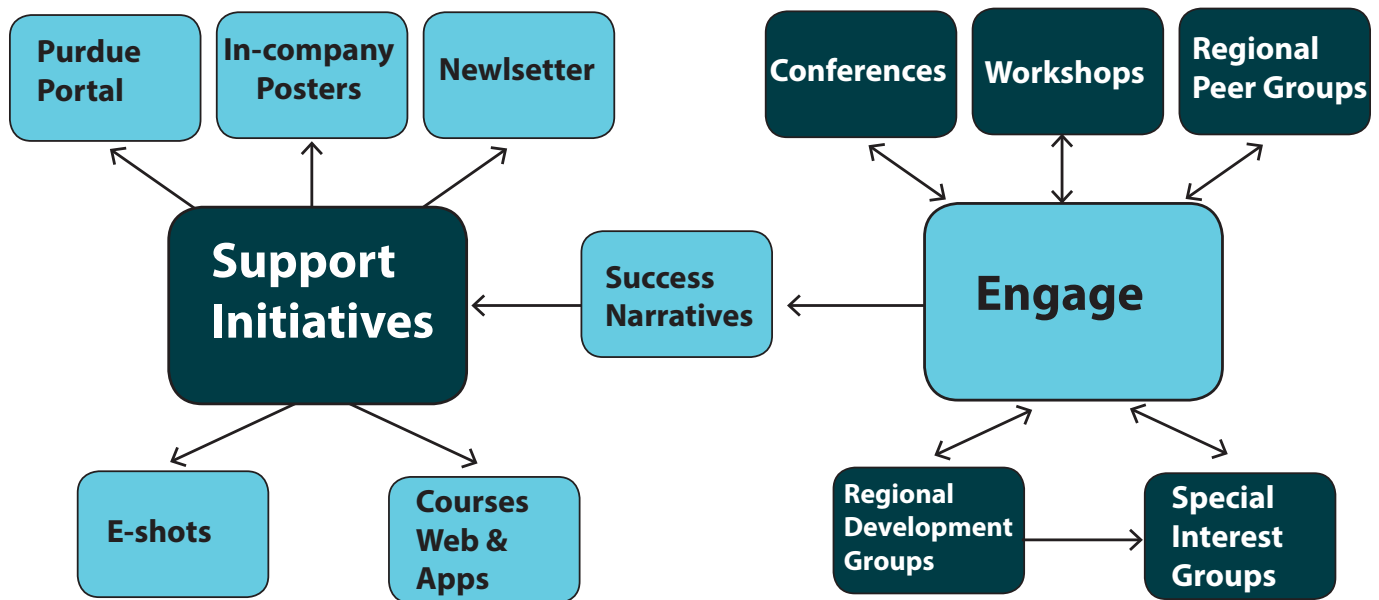
The areas of need have been mapped across the three dimensions to establish the current map of needs in the area. Our objective is to narrow the gap; read on to find out how we have started doing that already.



WHAT WHIN EDUCATION IS DOING TO SUPPORT COMPANIES

The schematic shows how WHIN Education support-initiatives, coupled with proactive engagements, tie together to leverage impact across the ten County area. As well as the Education themes shown, there are a number of generic development projects helping companies develop smarter. We are supporting expressed needs in management, shop-floor systemization and technology, (please see Projects Leveraging Excellence). All the 'Engage' initiatives are working now and being rolled-out more widely. In the 'Support' initiatives, we have already published the first Newsletter. All the other

support activities are either coming within a couple of months and certainly within the half-year. We have and are building generic, success narratives (word, audio, video) to help spur the take-up of all initiatives and to leverage the confidence and desire of companies to move closer to optimal manufacturing excellence. These narratives are also available to educators, parents and kids to show manufacturing in a modern and attractive way that attracts high-school leavers into a career in manufacturing.



*WHIN Team:
(left to right)
Dr. Angus McLeod,
Roy Vasher, Steven
Dunlop, Dr. Ananth
Iyer*

WHAT WHIN SUPPLY-CHAIN IS DOING TO SUPPORT COMPANIES

#1 Web-scraping

With 85% of OEM purchasing going outside the State of Indiana, anything we can do together, to improve vertical movement of goods and services will impact on business success. Web-scraping is our start point and has indentified 360 WHIN manufacturers and company details. We aim to create a web-based, interactive site where you can identify goods and services that you supply, so local OEMs and others can buy from you. Additionally, when you enter consumables that you want to buy at lower cost, we aim to feature these, so consortia of local companies can bid for bigger orders, reducing costs; it should be a WHIN-WIN!

#2 FREE Supply-chain Conference

February 15th is the date of the FREE one-day GSCMI conference entitled, 'Ethical Global Supply Chain – Made by transparency, regulations, training' featuring speakers from Starbucks, American Axle & Manufacturing, TATA Consultancy, Telamon and InTek Freight & Logistics. Registration and details at gscmi.org. While there, visit our Krannert Engagement Center and get exposure to drones, 3D printing, wearables including Google glass and augmented reality technology, or book an appointment: dcmme@purdue.edu

CONSULTANCY PROJECTS LEVERAGING EXCELLENCE

Company-specific projects are flowing in due to pressing needs. As well as pointing out how we can help with generic education (workshops, courses etc) within the WHIN grant, these company-specific projects are consultancy-based and not supported by the WHIN grant. Independent project work with Purdue and other partners, can help make a positive impact on operational excellence. Already, nineteen potential projects are in the supply funnel. These

projects include the use of sensors to predict machine failure and weld-quality, data-handling and paper-to-digital systems. The gap-analysis project that WHIN Education completed in 2018 indicates strongly that management projects will also come forward, including staff-retention initiatives and coaching-skills for supervisors as key examples of first concerns expressed during our surveying period and since then. If you have projects that will help your business become more operationally excellent, please reach out. We are here to help!



WE HAVE BEEN SEEING LARGE GAINS IN EFFICIENCY RESULTING FROM IN-COMPANY AND PURDUE-SUPPORTED PROJECTS WITH OUR TEAM.

WHIN



BUZZ WORDS, EXPLAINED.



✓ **BUZZ WORDS: BLOCK-CHAIN EXPLAINED,** *by Angus McLeod*

In the day, I used to conduct Business Process Investigations for pharma industries, so my client's could understand all the factors influencing inter-corporate transactions in their supply-chain, from goods-in to goods-out. The investigations defined best practices and flagged up the necessary changes needed to prevent failures. Block-chain is a similar approach to inter-corporate transactions, but based wholly in the cloud. Every step in the process of transacting business is owned. Everything waits if one step is not satisfied by meeting the contracted requirements. In effect, the block-chain is a shared ledger containing a complex chain of transactions (events) that are specifically and immutable fixed. Block chain leads to higher efficiency and reduced costs. Not for the faint-hearted!

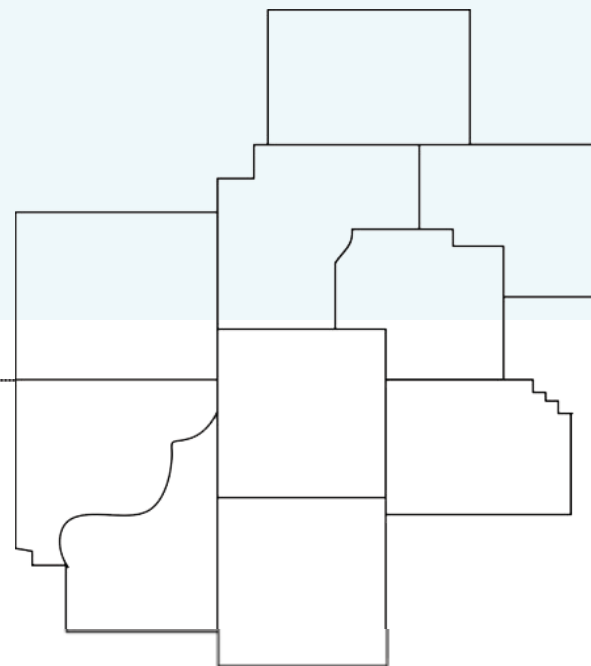
✓ **BUZZ WORDS: INTERNET OF THINGS (IOT) EXPLAINED,** *by Roy Vasher*

The Internet of Things is simply a web-based means of connecting data between systems. The simple public example is making a purchase by touching an enabled credit/cash card with a reader in-store; the connection is between the store and your bank. In manufacturing, IoT can connect data from sensors and logging devices, via programs to ERP systems both in the plant, but also, between a

company's locations and/or with the supply-chain, including suppliers and customers. Automating the connected systems can lead to reduced costs, improved efficacy and lower unit costs.

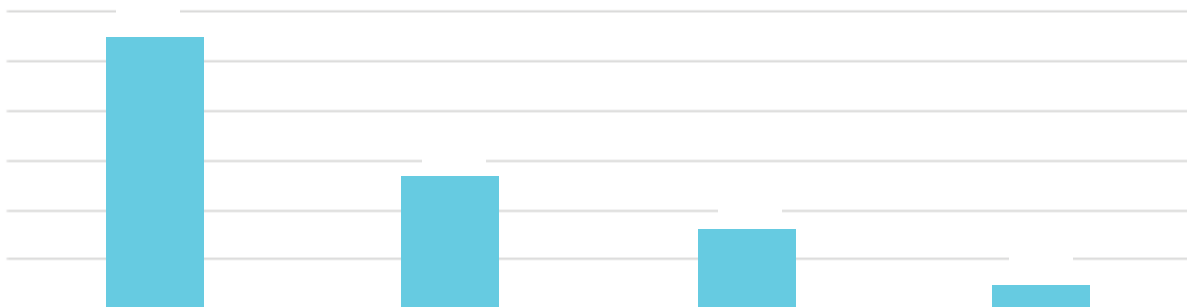
✓ **BUZZ WORDS: SMART ECO-SYSTEMS EXPLAINED,** *by Steve Dunlop*

Smart Eco-Systems happen when we get smart about all three dimensions of advanced manufacturing. These are, leadership/management, systemization (NextGen Manufacturing) and technology (including digitalization, IT/OT, sensors and Internet of Things). With our competition now being in other nations, rather than just down-the-road, we need to catch up with the quiet revolution that is already happening world-wide. By working with you across all three dimensions, we can help. Excellence in all three dimensions are needed to be successful. Whatever your corporate levels of attainment are, we want to help.



IOT SURVEY RESULTS: A LONG WAY TO GO

The graphic shows that the majority of WHIN manufacturing companies do not have any IoT technology or experience of IoT. Some manufacturers have machines that generate data and a sub-set of these companies are capturing the data, but do not know what to do with it.



WORK-CULTURE FOR OPERATIONAL EXCELLENCE

At all levels from shop-floor to Strategic Management, human resources are vital. The biggest issues facing WHIN companies are hiring and retaining productive staff, on-boarding and retaining those that are not yet productive. Retention is art and science and always requires changes in work-culture from top-to-bottom. One of the most important of these changes is raising the man-management skills of supervisors and coaching skills are repeatedly identified as current needs. WHIN Education is rolling out free short courses very soon to help management change the dynamics and improve the skills of workers as well as achieving better retention rates.

Our remit is predicated on education providing productivity enhancements that generate wealth and leverages competitive manufacturing competences. Our course offerings are invariably bite-sized learning between five minutes and fifteen minutes. We are running workshops and some will soon be available regionally, often hosted by companies that we have already identified. Team-based coaching helps people to apply the learning and where applicable, project-work embeds that learning, providing confidence to achieve more and creating quantifiable manufacturing value.

IN-COMPANY PROJECTS & SUCCESS

We have been seeing large gains in efficiency resulting from in-company and Purdue-supported projects with our team. Examples include over 30% production-line improvement (a scheduling Purdue project) and in-company Value Stream Mapping projects, stimulated by our WHIN-Education free workshops, running since July. We are stimulating more in-company projects—watch THIS space!

REGIONAL COOPERATION & PROJECT GROUPS

We established the first Regional Group of non-competitive companies in the North-East of the WHIN ten-County area. Originally conceived as having meetings 6-8 annually, the first group has been meeting monthly. The objective is to inform, cooperate and then test out projects in-company. As the companies are non-competitive and 'next-door', there is a higher potential for real collaborative synergy, to drive education and real changes in-company. Another two Regional groups will be launched by end April 2019.

SPECIAL INTEREST GROUPS IN EDUCATION & SUPPLY-CHAIN

Our Special Interest Groups bring non-competitive companies together. The companies learn from their errors and their successes. The first of these is an ERP (Enterprise Resource Planning) Special Interest Group and we expect other groups to form where the needs of several companies are shared. Topic areas may include, Value-Stream Mapping, Business Cases for Investment, Coaching-skills for Supervisors, Staff

retention best practices, on-boarding and leadership. These Special Interest Groups may be local/regional groups or, more widely-based, depending upon the numbers of companies wanting to get together. Why not suggest a Special Interest Group?

Contact us!
Steve Dunlop,
dunlops@purdue.edu



NECESSARY CHANGE: BUILDING CONFIDENCE ‘BIT-BY-BIT’

The DCMME (free) Conference at Purdue University in late September had some key messages. One of these, repeated by several speakers, is that technology is being applied successfully in many local companies, but ‘bit-by-bit’. Decisions for innovation can be a stretch for smaller

companies. Would-be projects such as data-analyses, machine-learning and IoT may not be initiated due to lack of know how, confidence and appropriate work-culture. What works, in real manufacturing businesses, is not to put off progress, but to start with smaller technology projects, succeed and move on

from there. Confidence breeds more confidence for innovation. WHIN Education has been promoting projects to do just that and with early successes in manufacturing. Where should you start your necessary change? Call us!

LEARNING FROM ‘LEAN’

Wabash Valley LEAN Network hosted our own Roy Vasher, to talk about LEAN, or NextGen best practices, informed by his experiences at Ford and Toyota, where Roy influenced change and development of the Toyota

Production System. Roy’s most important message is that to successfully roll out a LEAN program, it is vital to build a vision to energize all employees, so they embrace and support the LEAN initiatives. That message means linking LEAN outcomes to individual and team

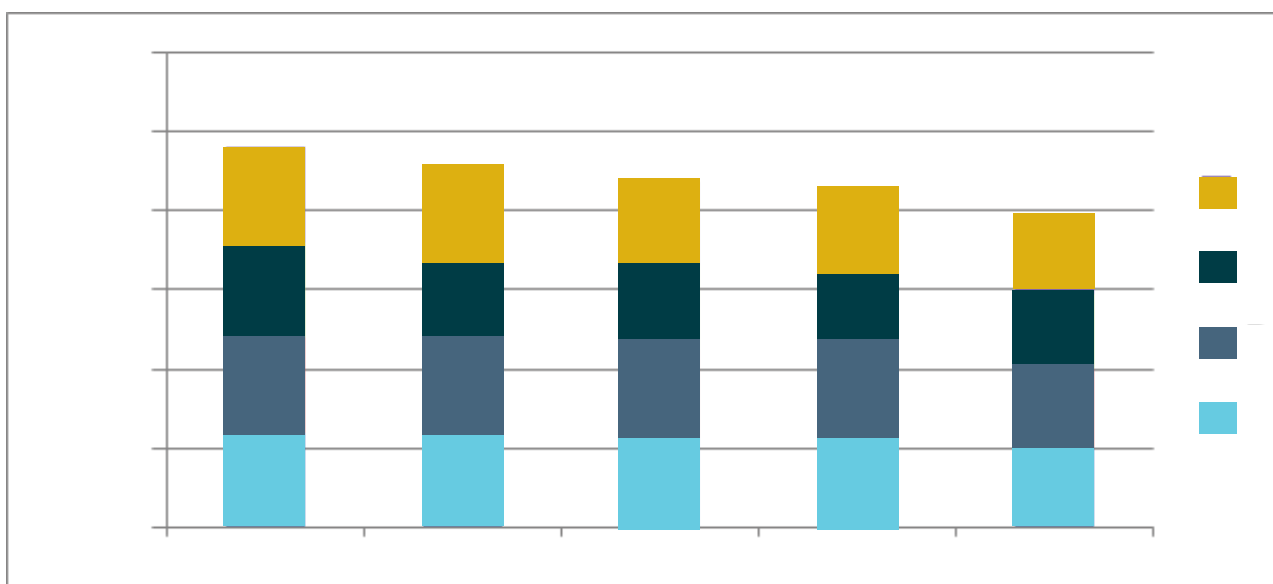
advantages. The work-culture has to be ready to take on new systems and technology. Is your work-culture ready for change?

MANUFACTURING COMPETENCIES: HOW ARE YOU DOING?

The figure shows the FOUR areas that make up the best-of-the-best and a top potential score of 24 (left column is perfect)! These are:

- Shop-floor skills (blue)
- Shop-floor systemization (red)
- NextGen awareness & application (green)
- Leadership Agility (purple)

To be our best, we have to upskill in all four areas. *Where should you focus?*



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Smart Eco-systems: Enabling teams to make smart decisions faster.

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