NEW Manufacturing Alliance
INDUSTRY 4.0 TASK FORCE – WEBEX MEETING MINUTES
Thursday, January 28, 2021 – 1:30 to 2:30 PM

ATTENDEES: **Aaron Koats**-YASH Technologies, **Adonica Randall**-Abaxent, **Amy Kox**-NWTC, **Ann Franz**-NEWMA, **Aslinn Merriman**-Sargento, **Barb Lamue**-New North, **Bob Webb-**Nsight/Cellcom, **Brian Schauf**-Schreiber Foods, **Bruce Wisnefske**-Sargento Foods, **Dan Heiser**-St. Norbert College, **Dan Mincheff**-NWTC, **Debbie Thompson**-NWTC, **Dennis Somers**-WI Lift Truck, **Dr. Sabrina Robins**, **Jake Manchester**-MTU, **Jamie Maier**-Concurrency, **Jill Thiede**-NWTC, **Jess Thiel**-Insight, **Joe Brittnacher**-Ariens Co., **Joe Girard**-Wipfli, **Josh Delforge**-Marquis Yachts, **Mark Kralovec**-PCMC, **Matt Merrick**-Jacobs, **Mike Schlagenhaufer**-Acuity, **Paul Link-**Alliance LS, **Scott Herron**-New Resources Consulting, **Scott Wagner**-MTU, **Steve Meyer-**FVTC, **Steve Straub**-FVTC, **Tony Olson**-Excelion Partners

UPDATES

DATA ANALYTICS TRAINING NEW COHORT

The fall 2020 class had 18 participants, representing 13 companies. A post survey was conducted and found 100% of the participants would recommend the training to a co-worker. Due to the great response, the training was offered again to the full membership. The current class has 64 participants representing a wide range of occupations from 35 companies. The Data Analytics training will be offered again in April.

MICROSOFT GRANT – INDUSTRY 4.0 STUDY

NEWMA received another Microsoft grant that will be utilized to update the '**2019 NEW Manufacturing Alliance Needs, Skills & Talent Survey'** conducted in partnership with St. Norbert College. Questions will be finalized in May. The updated survey will be sent to NEWMA's full membership sometime during November/December 2021.

INDUSTRY 4.0 TASK FORCE SURVEY - PROGRAMMING

Ann thanked members for participating in the December 2020 '**Industry 4.0 Task Force – Member Feedback**' survey. Results included a variety of Industry 4.0 best practices/topics members would like to present or have presented. Members are encouraged to contact Ann, Joe Brittnacher, and/or Brian Schauf with any additional case study ideas.

COLLEGE/INDUSTRY MEETING

The February 25 Industry 4.0 Task Force meeting will feature college/university reps discussing present and future degrees, in addition to how you can get involved with student sponsored projects.

INTRODUCTION OF NEW CO-CHAIRS

Brian Schauf, Schreiber Foods, and Joe Brittnacher, Ariens Co., were introduced as the new Industry 4.0 Task Force co-chairs. Brian and Joe are excited to lead, continuing and expanding upon the great work that has already been done.

UPDATE: PAINT COHORT PROJET – JOE BRITTNACHER

Participants represent Alliance Laundry Systems, Ariens Co., Excelion Partners, and KI. Timeline:

- July 2020 – Formalization of cohort participants
- September – Completion of project charter
- November – Kickoff with Excelion Partners
- December – Began first modeling exercise
- January 2021 – Completion of first modeling results
- March – Begin 2nd modeling exercise

All members went through the initial research and development together. Members provided insight and shared their project goals. Common problems and resources were also shared. The main focus is on paint process parameters; determining process variables, while allowing for more efficiency and output. Ariens Co. was the first company to put data into the model. Alliance Laundry Systems has begun adding their data, followed by KI. The cohort allows speedup of the process compared to working individually.

Accomplishments: Day-to-day operational insights for cohort members, generated via collaborative efforts and sharing of resources. With the completion of the model, members can go back to their organizations and share data.

What's next?
- Completion of a modeling exercise for all participating cohort organizations.
- Further individualized investment by cohort participants.
- Each company can take what they learned and apply whatever works best.

How can members replicate this approach? There is a need to connect Industry 4.0 members that share commonalities in areas such as:
- AR / VR
- Automation
- Data Collection
- Cyber Security
- IoT

Members are encouraged to contact Joe Brittnacher with any questions *or* if you would like to get involved in the Paint Cohort.

SCHREIBER FOODS CASE STUDIES – BRIAN SCHAUF

CASE STUDY #1 – DIGITAL TWIN / ENGINEERING SIMULATOR

Background: Blending Unit Operation, Multiple: Lines, Plants, & Customers
Problems: Cost Sensitive Unit Operation – Understand how to overdose or underdose as the problem.

How do we build a tool that can:
- Evaluate each instance of the same unit operation?
- Compare each instance to expectation by instance?
- Build on previous experience?
- Share results to large user groups?
- Keep flexible to add new knowledge?

One Extreme – Use an Excel Spreadsheet
Spreadsheets work great for simple models, pattern recognition visualization, and data manipulation. Excel spreadsheets become limited when there is larger data. Other lessons learned included freedom to change, version control, procedures on loading and using data.

Another Extreme – Custom Built Simulator
Scalable, with multiple users getting the same answers. Limits manipulation errors and can include Machine Learning data models. But there can be limited Inquiry, designed to answer 1 or 2 key questions. Complexity adds costs.

DIGITAL TWIN CONCLUSION
- Critical for Collaboration (especially with COVID)
- Time Value to Create (Initial build done quickly on a spreadsheet.) Scalable value can take a longer time.

CASE STUDY #2 – LEARNING / DATA INTENSIFICATION / BIG DATA

Problem: New way to control, technology advantage – Reduce losses, between samples and between reset event.
Complications: Increased the data available. Introduced new types of variables. Connected to non-related data.

Questions
- How do we use big data to find which factors can be use in automation?
- How do we use machine learning algorithms to gain new knowledge?
- How will we use this knowledge in a control schema?

We had to decide what they were going to do with the data in the end. Where we could apply data and create a meaningful prediction, and use operationalize Machine Learning. Where we could find factors and investigate cause/effect to use in automation, we chose only to use Machine Learning tools as operations research. A lot of work was put into the data to determine it as a cause or an effect.

What we have learned so far, from both Case Studies

Building a process & road map to know where you are at. – data science / data engagement

- Define project objective and determine how your customer will use the outcomes
- Knowing the difference between Machine learning vs. operations research
- Building a Model (aka Digital Twin)– know customer & maturity of result needed
- Poor Data – Missed Data are going to happen; it is always part of the work.
- Data Literacy is important – we will be working on data literacy through projects as a priority.

Members are encouraged to contact Brian Schauf if they have any questions or would like more information.

SARGENTO FOODS PROOF OF CONCEPT CASE STUDY – ASLINN MERRIMAN

Leveraging Your Data

Presenter: Aslinn Merriman, Emerging Technology Architect

Aslinn provided a brief history of Sargento Foods Inc. The company's philosophy is to "Hire good people and treat them like family." Leonard Gentine, founder, created a business family. Their inspiring journey is shared in the book *Treated Like Family* by Tom Faley. The book tells how the entrepreneur built Sargento, a billion dollar cheese company.

Sargento has a strong history of innovation.

- First shredded cheese (1958)
- First resealable packaging (1986)
- Ultra-thin natural slices & chef blends (2012)
- Balanced Breaks (2015)

Sargento's **Emerging Tech Program** was started to inspire new and different thinking around technology in order to rapidly innovate.

- Taking ideas forward through the lens of experiential learning.
- Using a proactive and strategic point of view.
- For the benefit of new and/or improved products, processes, or services for our employees, and suppliers or customers.

Situation

Currently, there is not a tool to analyze sensor data and give the sustainability team actionable insights from a machine's sensor data to uncover efficiencies.

Objective

The objective of this proof of concept is to use predictive analytics from Sargento sensor data to find energy savings while optimizing performance of their systems.

Use Case & Objectives

It was decided to test an air compressor. Objectives: optimize production costs, extend air compressor life cycle, and reduce energy consumption.

Proof of Concept Data Collection

- 1st – Research IoT sensors.
- 2nd – Define length of good data.
- 3rd – Format the data.

- 4th – Share the data every two weeks.
- 5th – Define the KPI's.
- 6th – Connect other data sources.

Data collection began. A history was built of how much data was being collected. The data was streamlined to allow for better readability.

Steps 5 and 6 are where the work began. Defining the KPI's was the most difficult part of the process. Smarter questions need to be asked to get smarter outcomes. Better questions needed to be asked. Trying to do the project in 90 days was too short of a timeline.

Analytics Journey – Machine Sensor Data Journey
- Older machines did not have sensors and could not be used, as they did not have the type of data needed.
- Newer machines did not have enough data / right data (2 weeks' worth – 1 year was recommended).
- Vendor did not understand processes.
- Weak use case, difficulty joining other sources of data.
- Data scientists needed applicable machine expertise.

Lessons Learned
- Choosing a vendor with machine expertise and having them onsite to see what you do is very important.
- The data is rich, but they are limited with server size. Most of the data had to be very explained.
- Start with a simple use case.
- Develop a clear problem statement.
- Invest in sensors and tools.
- The right partner is key!
- Data advancements do not equal people advancements.
- Have an executive sponsor. Sargento's VP of engineering provided excellent feedback.

It is important to meet people where they are at. Their language had to morph and change to be able to communicate. Sargento will have a subject matter expert teach people as they journey through the process. Aslinn shared that they learned a great deal from the process and will do another proof of concept with the same team in 2021.

Where is your organization on their data and analytics journey?
- Currently Researching
- Descriptive Analytics – What happened?
- Diagnostic Analytics – Why did it happen?
- Predictive Analytics – What will happen?
- Prescriptive Analytics – What should I do?

Members are encouraged to contact Aslinn Merriman with any questions or if they would like more information about Sargento's Proof of Concept case study.

UPCOMING ALLIANCE EVENTS
- February 19, 8:30 – 10 AM: Starting or Enhancing Your Youth Apprenticeship Program Workshop
- February 23, 8:30 – 10 AM: HR Leaders - Retirement Readiness Seminar
- March 2, 8:30 – 10:30 AM: NEWMA Quarterly Membership Meeting focused on Recruitment/Retention
- May 4: 9th Annual Excellence in Mfg./K12 Partnerships Awards at Stone Prairie
- October 26: ACP Partnerships Meeting

- October 26: 10th Annual Excellence in Mfg./K12 Partnerships Awards
- October 27: Manufacturing First Expo & Conference
- November 4 *(Tentatively)*: Internship Draft Day

NEXT MEETING DATE/TIME/MODALITY/AGENDA

The next Industry 4.0 Task Force meeting is on Thursday, February 25, 2021, 1:30 p.m. The meeting will feature the colleges/universities discussing present and future degrees, in addition to how you can get involved with student sponsored projects. Agenda:

- ✓ Welcome & Project Updates
- ✓ College Presentations
- ✓ Industry 4.0 Survey
- ✓ Upcoming Alliance Events
- ✓ Next Meeting Date/Time/Location/Agenda