**PowerPoint Outline #1 for OMA, COMP Subject Matter Experts: “Ohio’s Future Is Made Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**

**For use with OMA, COMP K–12 Presentation Slide Deck #1: “Ohio’s Future Is Built Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**  
**Designed for Industry Experts Presenting to K–12 Students in the Classroom**

**PURPOSE OF THIS CONTENT SET**

The Presentation Content Sets equip industry subject matter experts (SMEs) to confidently present advanced manufacturing career pathways to K–12 audiences.

The Content Sets are scaffolded to offer varying degrees of support for SMEs. The first layer of scaffolding is the Presentation Slide Decks which include brief notes of scripts, support and suggestions for delivery. See sections under individual slides for those details. The Presentation Outlines provide additional scripts and best practices in classroom delivery on a slide-by-slide basis. The Presentation Guides extend the content by providing alternative scripts, additional questions, pro tips and classroom insights and also are organized on a slide-by-slide basis.

Options are considered just that - optional. They are designed to provide variations for Ambassadors to better personalize the presentations. Feel free to eliminate all options and follow the presentation strictly as the slide deck suggests.



**Slide 1 – Title Slide: “Ohio’s Future Is Made Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**

* **Goal: Establish credibility and create excitement**
* **Content**
  + Speaker self-introduction and brief qualifications
  + Organization logos
* **Speaker Notes**

Welcome students

Optional Ice Breaker: “How many people here have family members who work in advanced manufacturing?” Discuss briefly allowing students to get their voices in the room.

**Slide 2 – Advanced Manufacturing Solves Some of the World’s Greatest Challenges**

* **Goal:** Introduce the concept simply.
* **Content:**
  + Grows the economy, businesses, communities, and families worldwide
  + Makes products better, faster, and smarter
  + Combines creativity, technology, and teamwork
  + Offers careers in sector occupations as well as cross pathways such as design, software development using AI, supply chain, transportation, and storage solutions
* **Engagement Tips:**
  + In advance, request a seating chart or name tags and use students’ names throughout session

**Slide 3 – Driving Change through Advanced Technology**

* **Goal:** Make it relatable.
* **Content:**
  + Technology has become a cornerstone of Advanced Manufacturing, reshaping the way businesses operate and how they connect with the world.
  + Examples: sneakers, phones, cars, medical devices, airplanes, sports gear
* **Engagement Tips:**
  + Discussion: “Is there a difference between manufacturing back in the day and today’s advanced manufacturing?”

**Technology Use**: Traditional manufacturing relies on manual processes, while advanced manufacturing incorporates automation and digital technologies.

**Production Speed**: Advanced manufacturing typically offers faster production times due to streamlined processes and robotics.

**Customization**: Advanced manufacturing allows for greater customization and flexibility in production compared to traditional methods.

**Quality Control**: Advanced techniques utilize real-time data and analytics for improved quality control, unlike traditional methods.

**Resource Efficiency**: Advanced manufacturing often uses resources more efficiently, reducing waste and energy consumption.

**Workforce Skills**: Traditional manufacturing requires less specialized skills, while advanced manufacturing demands a more skilled workforce proficient in technology.

* + Ask, “Can you guess which of these are made using advanced manufacturing?”
* **Share Video** Center image is linked to Video: Show A Day in the Life of a Machinist video 0:01:35: Career OneStop <https://www.careeronestop.org/Videos/careeronestop-videos.aspx?videocode=51404100>
* 💡**Pro Tips:** Ensure videos are all cued to the starting point. Eliminate any ads.

**Slide 4 – Technology in Action**

* **Goal:** Add the Wow-factor.
* **Content:**
  + Identifying several high-interest technologies: robotics, AI, 3D printing, laser cutting, automation
* **Engagement Tip Ideas:**
  + Ask: “Can you name these technologies used in Advanced Manufacturing?”
  + Pass around 3D-printed objects or small parts
  + Provide a short simulation or demonstration
  + Ask, “What would you invent if you had a robot to help?”

**Slide 5 – The People behind the Machines**

* **Goal:** Humanize the field.
* **Content:**
  + Jobs include engineers, designers, machine technicians, programmers, quality specialists
  + Stress teamwork and problem-solving
* **Engagement Tips:**

**Share Video:** A Day in the Life…advanced manufacturing occupation from Career OneStop. A Day in the Life of a Machinist 00:01:35 <https://www.careeronestop.org/Videos/careeronestop-videos.aspx?videocode=51404100>

* Who works in Advanced Manufacturing?
* What skills are needed?

💡**Pro Tips:** Ensure videos are all cued to the starting point. Eliminate any ads.

**Slide 6 – Skills That Will Power the Future**

* **Goal:** Connect to what students already do or learn in school
* **Content (simple terms):**
* Help student makes connections (build relevancy) to what they do each in school to their futures: Building Skills to a Better Life
  + Math + Science → Understanding how things work
  + Art + Design → Creating new ideas
  + Technology + Coding → Making machines move
  + Communication + Teamwork → Getting the job done
* **Engagement Tips:**
* Discuss Ohio-based resources so they can look on their own later. Links and QR codes coming up in this presentation. (Options: Drive Ohio, Making Ohio, Community Colleges, Manufacturers, COMP). It will come up again in Slide 14.
* Younger Students: Art = designing new cars for the future; Math and technology = creating new technology to make those cars run for many miles
* Older Students: Art = designing new cars for the future; Math and technology = solving supply chain challenges to ensure production remains at effective levels

**Slide 7 – Living Wages**

* **Goal:** Increase understanding of wage capabilities – what is possible in the short term through the long term.
* **Content (simple terms):**
  + Advanced Manufacturing wages hourly wages
* **Engagement Tips:**
* Discussion: “How much would I make annually if I decided to go into semiconductor manufacturing? What would I make annually if I was considered a senior leader in semiconductor manufacturing? Could most people live comfortably on that?”
* Source: BLS 2025<https://www.bls.gov/>. ([https://www.bls.gov/iaa/tgs/iag31-33)](https://www.bls.gov/iaa/tgs/iag31-33)

**Slide 8 – Ohio Manufacturing - A New Career that Has It All**

* **Goal:** Inspire curiosity.
* **Content:**
* Share video: Ohio Manufacturing - A New Career That Has It All.<https://www.youtube.com/watch?v=exkSblxdU0Q> OMA. 00:30:00. 2024
* Discussion: Not only are there opportunities to earn strong wages, there are many existing routes to get into the industry. Discuss onramps for Advanced Manufacturing careers: (CTE, STEM, STEAM classes in K12, Community College degrees and certificate programming, University (4+) year degree programming, on the job training, and Ohio Technical Training Centers.)
* **Engagement Tips:** Discussion: How many here know we build Hondas right here in Ohio? Do you know anyone who works at Honda? If so, what is their job?”

**Slide 9 Demonstration**

Optional space for demonstration based upon SME’s background and materials availability

**Demonstration space** slated to allow time for a demonstration option. Demonstrations should stay within 10 minutes and can vary based upon SMEs expertise, what they can share from their own or other industries, materials available, etc. Getting students involved in the demonstration is a plus but not an absolute. Ambassadors provide materials.

💡**Pro Tips:** Select a demonstration you feel students may not have witnessed before, something with a “Wow! Factor” if at all possible. Note: *If more time is needed, eliminate activity in slide 11 or 12.*

**Slide 10 Optional Activity for Younger Students - Penny Flipping Flow - Elementary and Middle School**

* **Goal:** Increase engagement through hands-on activity
* **Content: *Optional Activity to Demonstration***: Instructions for Younger Students (grades 2-8). If performing a demonstration, there will likely not be time for an additional activity (slide 10 or 11).
* Before the presentation, ask the teacher for support in helping students and teams be prepared so transition time is limited. During the activity, ask the teacher to support by being a “design consultant” to the students. This activity can be done in teams, pairs, or individually. Make it Relatable to what kids are experiencing between their world and the world of work. See Guide #1 for full instructions.

**Penny Flipping Flow Activity:** <https://www.ohiomfg.com/wp-content/uploads/2025/11/MakingOhio_GroupActivity_PennyFlippingFlow.pdf>

**Instructions:**

**Materials Needed:** Pennies (or other coins), Paper and pen/pencil for recording

**Round 1 – Large Batch:**

Divide participants into a line of roles. (reporter, timer, penny starter, participants)

Give the first person a batch of 10 pennies.  
Each person must flip all 10 pennies before

passing them on. Time the round and record results.

**Round 2 – Smaller Batch:**  
 Repeat the process but reduce the batch size to 5 pennies.

Record the time and results again.

**Round 3 – One-Piece Flow:**

Repeat with a batch size of 1 penny (true one-piece flow). Time and record results.

Have 1 predetermined reporter from each group share results with the full group.

**Discussion:**

* Compare how batch size impacted flow, lead time, and overall efficiency.
* Reinforce the principle that smaller batch sizes reduce waiting, improve flow, and get value to the customer faster.
* What wastes did you notice when using larger batch sizes?
* How many people were actively involved?
* How did smaller batch sizes change teamwork and flow?
* How did teamwork change when batch sizes were reduced?
* How can we apply this lesson to our own processes?

💡**Pro Tips:**

* + Be prepared with materials readied prior to presentation.
  + Practice timing of activities to ensure it will fit into the allotted time frame.
  + Assign. Or allow students to self-assign roles (reporter, timer, penny starter, participants)
  + Be prepared to help students who may require additional support
  + Request the teacher be on standby to assist
  + Celebrate the successes openly and with the full group

**Slide 11 Optional Activity for Older Students - Middle and High School**

**Activity: Paper Airplane Lean Principles Purpose:**

Students will practice the five lean principles: Identify Value, Map the Value Stream, Create Flow, Establish Pull, Seek Perfection through a hands-on paper airplane challenge. The activity illustrates how teamwork, material flow and continuous improvement drive efficiency, quality and customer value.

* **Goal:** Increase engagement through hands-on activity
* **Content:**

***Optional Activity to Demonstration***: Instructions for older students (grades 9-12). If performing a demonstration, there will likely not be time for an additional activity (slide 10 or 11).

For Older Students (MS and HS): Activity Option to Slide 9. Students will practice the five lean principles: Identify Value, Map the Value Stream, Create Flow, Establish Pull, Seek Perfection through a hands-on paper airplane challenge. The activity illustrates how teamwork, material flow and continuous improvement drive efficiency, quality and customer value. See Guide #1 for full instructions.

**Materials Needed:** Paper (1 sheet per airplane per round); Stopwatch or timer (optional) Workspace (tables or desks - optional); Roles such as Material Handler, QA, or Customer InspectorPaper (1 sheet per airplane per round), Stopwatch or timer (optional) Workspace (tables or desks – optional); Assigned roles such as Material Handler, QA, or Customer Inspector

**Directions:**

1. Identify Value: Begin by discussing how only the customer defines value (example: Apple vs. Android preferences).

2. Map the Value Stream: Assign folding jobs (up to 8 steps). Optionally add a material handler, QA, and customer role. Run the first round of airplane building and track results.

3. Create Flow: Use hallway traffic as an analogy for flow. Run the second round, asking the team to reduce delays, bottlenecks, and unnecessary steps.

4. Establish Pull: Explain the difference between push and pull using the homework example. Run the third round, this time having the team build based on demand rather than stockpiling.

5. Seek Perfection: Reinforce that improvement is ongoing. If time allows, run a fourth or fifth round, challenging the team to refine their process further while reducing waste.

**Discussion:** How long did it take to get the first airplane to the customer? How many airplanes were completed and shipped? How many operators were used? How many defects occurred?

How much work-in-progress (WIP) was left at the end of each round?  
How did teamwork and communication impact performance?  
How did small changes add up to major improvements?  
How does this exercise connect to real-world manufacturing and continuous improvement?

Special thank you to The M.K Morse Company and Stark County Manufacturing Workforce Development Partnership for providing MakingOhio with this activity.

<https://www.ohiomfg.com/wp-content/uploads/2025/11/MakingOhio_GroupActivity_PaperAirplaneLeanPrinciples.pdf>

This activity will need pre-presentation preparation. Presenters may need to bring materials. Watch the time limits and allow no more than 15 minutes start to finish. Before the presentation, ask the teacher for support in helping students and teams be prepared with materials so transition time is limited. During the activity, ask the teacher to support by being a “design consultant” to the design teams. Make it Relatable to what kids are experiencing in their world and the world of work.

Note: This activity is better suited for high school students but with enough time may be useful with middle level learners as well.

**Optional Activities** [https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx#Outreach](https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx)

* **Engagement Tips:**
* Keep it fun.
* Optimally students will report to the full group once the project is complete. Note: this can take some time, so timing may need to be adjusted elsewhere.

**Slide 12 Pathways to Manufacturing Careers (1/2)**

* **Goal:** Show that many “on ramps” or routes exist to enter into a career in advanced manufacturing. Review how many routes exist to enter advanced manufacturing occupations and the many routes that can vary by interest levels.
* **Content:**
  + High school CTE or STEM programs
  + Community college programs
  + Apprenticeships, Internships, Externships
  + University degrees in engineering, design, project management
  + Ohio Technical Training Centers
  + On-the-job, work-based learning and certifications
* **Engagement Tips:**
* Discussion: How to get started if you have an interest in learning more about advanced manufacturing careers (see slide chart for talking points; follow up on following slide)

*Recommendation Note: Counselor orientation will be needed (to include pathway discussions and resources)*

**Slide 13 – Pathways to Manufacturing Careers (2/2)**

* **Goal:** Make it actionable and leave them excited about the future. Discuss steps they can take now to start creating their own career pathways.
* **Content:**
  + Seek science, math, and CTE classes
  + Investigate local STEM clubs, robotics teams, maker fairs, and summer camps
  + Take virtual tours or online challenges
  + Tour an Ohio Technical Training Center
  + Check out your local community college and learn about financial assistance opportunities
  + Ask your counselor or STEAM teachers about it
* **Engagement Tips:**
  + Share images or actual products providing solutions to common concerns and challenges found in everyday life

**Slide 14, Discovery Session, as an Activity Option (if time allows):**

* Open and explore 2-3 websites in real time on personal devices or provide physical handout for (QR Code and URL):

COMP [https://www.centralohiomanufacturingpartnership.org](https://www.centralohiomanufacturingpartnership.org/aws/COMP/pt/sp/home_page)

Drive Ohio <https://drive.ohio.gov/workforce>

Jobs Ohio h[ttps://www.jobsohio.com/](http://www.jobsohio.com/)

Making Ohio<https://www.makingohio.com/tools/#outreach>

Ohio Association of Community Colleges<https://ohiocommunitycolleges.org/>

Ohio.Gov<https://ohio.gov/residents/resources/workforce-programs>

Ohio TechNet <https://ohiotechnet.org/>

OMA Youth Tools<https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx>

Note: Slide 14, Discovery Session, is an optional slide for discovery if/as time allows. This will not be as useful for younger students. Adjust by touring one or two sites as a group. The option will arise again in the next two presentations.

**Slide 15 – The Future is Made with You!**

* **Goal:** Leave them excited about the future and the role advanced manufacturing can play in it.
  + Sample Scripts: “Thanks for exploring with us!” “Thank you for spending time with me today. I am looking forward to being here again next week and sharing more about the many opportunities in advanced manufacturing careers.”
  + Ask for teacher feedback when timing is suitable and consider adjusting the next presentation based upon that return.
  + Leave POC contact with the classroom teacher and school counselor..

**🔧 Presentation Tips for SMEs** (listed here and notes section of slide deck as reminders and incorporate into training)

* Use Presenter’s Guide for additional support
* Keep it visual, interactive, and use analogies (“Robots are like helpers that never get tired”)
* Use wow-factor via live or video demonstrations
* Use hands-on activities, incorporate movement as often as appropriate for content,
* Include real examples, actual career salaries and case studies detailing success stories,
* Provide opportunity for projects completed in teams
* Use props: Bring small robots, 3D-printed items, parts, giveaways,
* Use Career OneStop “A Day in the Life” videos: Share short occupation videos to help demonstrate what it looks like to be an electrical design engineer, modern auto technician, clean room technician, software and technology designers, etc. <https://www.careeronestop.org/>