Understanding the STEM Skills Gap:
A Regional Perspective
Skills Gap – Definitions

- **Hard skills** – Student content knowledge as derived from state assessments

- **Soft skills** – Student creativity, collaboration, nimbleness, problem solving, time management, etc.

- **STEM skills** – numeracy and the ability to generate, understand and analyze empirical data including critical analysis; ingenuity, logical reasoning and practical intelligence
Perceptions/Rationale

This study was derived from STEM Collaborative meetings, conversations, and activities:

- **Business and Industry** – There is a skills gap, new employees must be trained, current employees must be retrained

- **Education** – There is no skills gap, education provides students with the skills to succeed in life

- **Community** – No perceptions
Geographic Region for this Study

Counties:

- Barron
- Clark
- Chippewa
- Dunn
- Eau Claire
- Pierce
- Pepin
- Polk
- Rusk
- St. Croix
District Information

- **District Demographics**
  - 1 urban district, one of the 10 largest districts in Wisconsin
  - 10 suburban districts, near a larger metropolitan area
  - 36 rural districts, not located near a populated areas

- **STEM Credits Required for Graduation**
  - 3 Mathematics – **no specific requirement for kind or type**
  - 3 Science – **no specific requirement for kind or type**
  - 0 Technology
  - 0 Engineering
The Inquiry

- Evaluated area school districts for
  - Student achievement data
  - Course taking activities including advanced high school options, STEM
  - Graduation rates
  - Post high school plans
  - AP courses
  - AP assessment scores
  - STEM extra curricular activities

- Interview subset of regional employers as to their understanding of what the “STEM Skills gap” meant
Additional Information Gathered

- Statistical data from Wisconsin Economic Development Corporation

- Momentum West’s Regional Talent Initiative
  - Resource Library
  - Action Plan
What We Learned

➢ Education’s perspective
  ▪ Students have an opportunity to learn STEM hard skills

➢ There is an opportunity to learn concern

➢ Course availability varies greatly from district to district
  ▪ Students have access to distance learning

➢ There is a perceived relationship between post high school plans and course opportunities
What We Learned

Education continued:

- Student soft skills are not easily determined.
  - ACT assessment activities are helping

- The hard skills gap perceived by companies is really an issue of opportunity to learn
The Study Continued

- Interviews took place about corporate workforce needs, questions
  - Hard and soft skills needed for new employee are?
  - Hard and soft skills needed in 5 to 10 years?
  - Hurdles faced when hiring someone new?
  - Employee retention?

- Types of companies interviewed
  - Education
  - Industry
  - Business
  - Health care professions

- Countless meetings and discussions about the study took place
What We Learned

- **Interviews:**
  - More to hiring: soft skills, location, hours
  - Companies will work with an employee to retain that person
  - Unemployment rate is actually low, so the pool of candidates is limited
What We Learned

- Perceived need for soft skills
- Perceived need for soft skills and in short supply
- Perceived near adequate supply to meet needs

Education pipeline

K-12  AS/AAS  BS/BA
What We Learned

Perceived understanding skill sets needed for growth

Perceived understanding of skill sets needed

Education pipeline

Industry 4.0/advanced manufacturing focused

Perceived skills set of available workforce

K-12 AS/AAS BS/BA
What We Learned

- Interviews:
  - More to hiring: soft skills, location, hours
  - Companies will work with an employee to retain that person
  - Unemployment rate is actually low (2.6-3.4% for the region), so the pool of candidates is limited
  - Shortage of candidates for position makes it difficult to grow
Next Steps

- Soft Skills Analysis:
  - Comparison of student extra curricular activities (Science Olympiad) vs. students not participating in extra curricular activities
  - Further study on why there is a perceived skills gap
  - Action items for STEM Collaborative
Thanks for listening!!

➤ Questions?