UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Designing and Sustaining Industry Partnerships

Slides and Resources:

https://tinyurl.com/WBLpartners

Tony Perry

04/03/2025

ACTE WBL National Conference

By the end of this session…

- Explain the value of **mutually beneficial** school industry partnerships for WBL
- Evaluate evidence of **strategies to create and sustain local partnerships** with industry
- **Develop an action plan** to create or strengthen partnerships in your community

About me

Assistant Professor, STEM Education, University of North Dakota

15+ years experience developing and supporting innovative technology education learning experience

Research Interests: CTE, improving systems and student pathways into emerging technology

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Join the Vevox session

Go to **vevox.app**

Enter the session ID:
474-749-863

Or scan the QR code

My primary role in WBL is...

School or district WBL coordinator

0%

Classroom teacher

0%

Building or district leader (e.g., principal)

0%

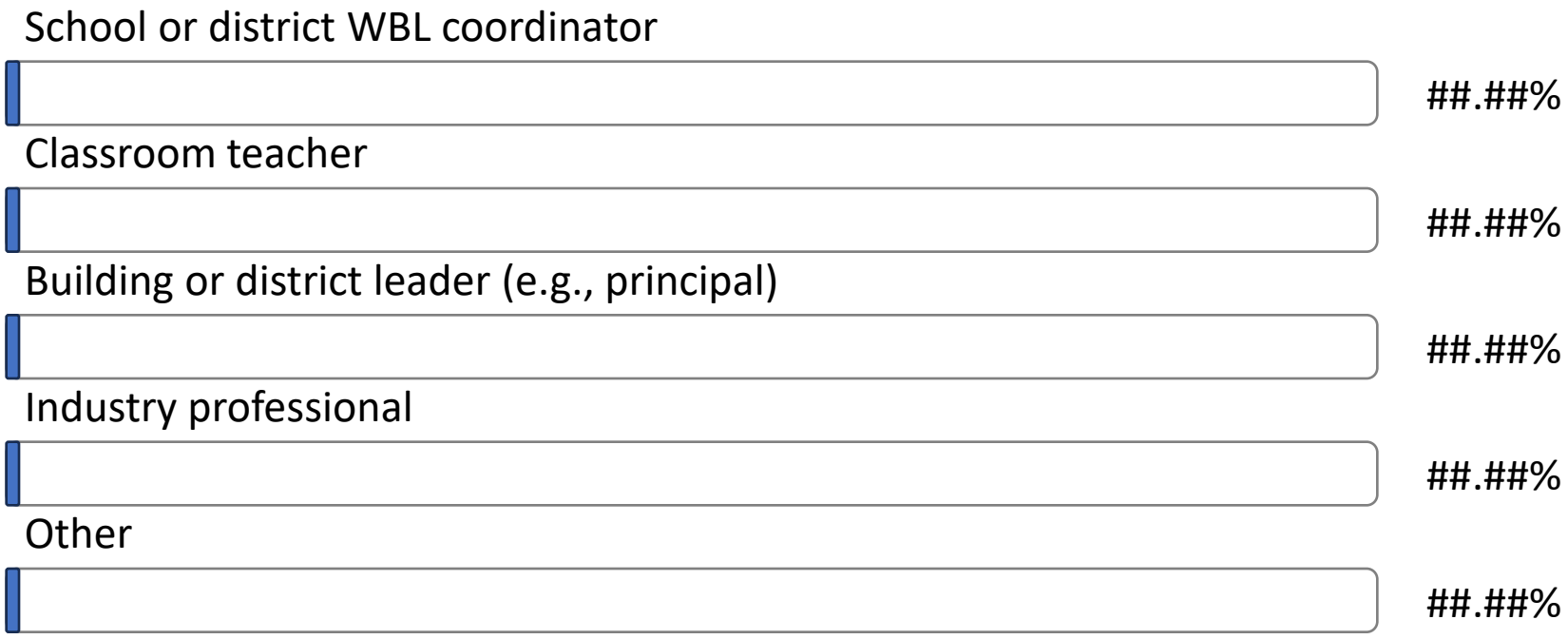
Industry professional

0%

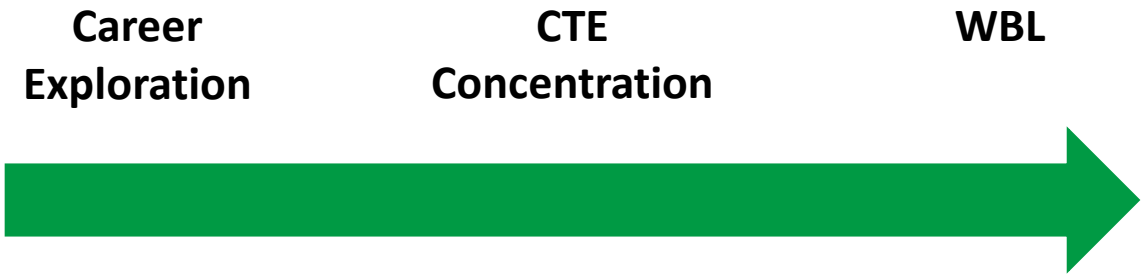
Other

0%

My primary role in WBL is...



Mutually Beneficial Partnerships on the WBL Continuum



Where do we begin to build school-industry partnerships?

WBL Placements?
Advisory Boards?
CLNA?
Something else?

Which statements describe your current WBL situation? (select multiple)

School-based personnel do most of the work to create student opportunities

##.##%

Employers are keen to host summer internships, but working together during the school year is hard

##.##%

We have strong cross-sector partners who care about our students and will do what it takes

##.##%

Employee turnover makes it hard to maintain connections

##.##%

Industry partners collaborate with our school across the WBL continuum

##.##%

Which statements describe your current WBL situation? (select multiple)

School-based personnel do most of the work to create student opportunities

##.##%

Employers are keen to host summer internships, but working together during the school year is hard

##.##%

We have strong cross-sector partners who care about our students and will do what it takes

##.##%

Employee turnover makes it hard to maintain connections

##.##%

Industry partners collaborate with our school across the WBL continuum

##.##%

RESULTS SLIDE

Partnerships over Placements

- Center student experiences, not institutional goals
- Leverage complementary assessments of school-based and industry personnel

Mutually Beneficial School-Industry Partnerships allow…

- Scale and sustainability
- Emergence of new and innovative practices across the WBL continuum
- Equitable access

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Research Data

“Reverse Engineer” the systems of three Existence Proofs

- School-wide experiences
- Evidence of positive student impact
- At least 5 years running
- urban, suburban, rural

What design features do these cases have in common?

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Example: NIHF STEM School, Akron, OH

Career Exploration	CTE Concentration	WBL
Partner-driven PrBL	Three career academies	Student-driven PrBL w/industry mentors
Common design framework across curriculum, start in MS	Student project showcase nights	
“Flex Friday”	Engineer on “loan”	
PL for educators w/industry partner		

of the reasons you could do something like this in your school or community (submit multiple responses)

of the reasons you could do something like this in your school or community (submit multiple responses)

Barriers to partnership

- Most partnerships are **one-sided** (Strobel & Sun, 2020)
- Barriers to partnership (Rios et al., 2014)
  - Structural
  - Cultural
  - Procedural
  - Motivational
- Educators are trained as instructional leaders, not cross-sector organizers (Epstein, 2018)

Existence Proofs

	Mid-America STEM	Northeast Rural	Innovative STEM
Student Experience	PrBL	2 days/week offsite WBL	"Flipped" Internship
Locale	Urban	Rural	Suburban
Region	Midwest	Northeast	New England
Type	Career Academy	"alternative" school	School-within-a-school
Size	~300	~60	~120
Population	2/3 male, otherwise matches district	~1/2 from Tribal Lands	More URM than student population

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Common Design Elements

- Explicit trust-building
- Signals of institutional credibility
- (Striving for) robust systems
- Aligning instructional subsystems with industry practices

Explicit trust-building

"[students] light up when another person totally outside of the education system, **or at least outside of the education system they know**, has an adult conversation with them."

"I think [STEM professionals] get inspired by my students. They always come away being excited with how mature and professional and creative the kids are. **they're not like what they expected**"

-Mid-America STEM Classroom Teacher

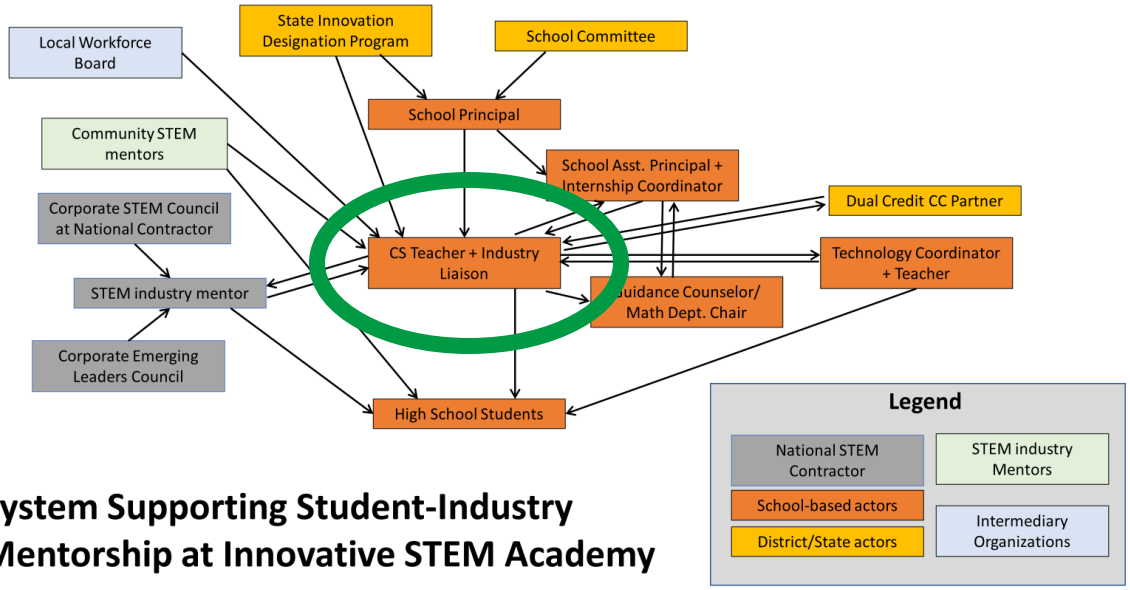
UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Signals of Institutional Credibility

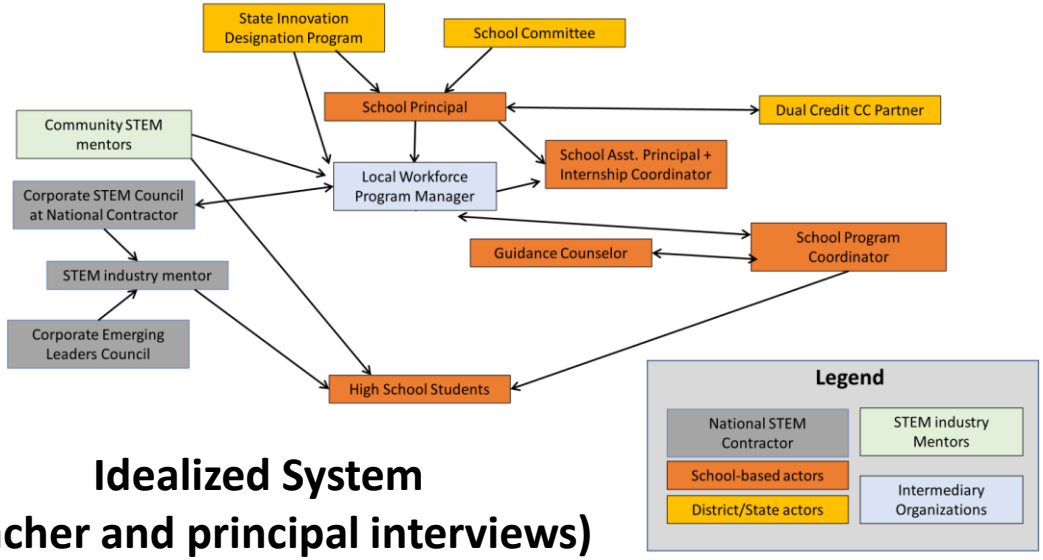
"…I call it our **torches and pitchforks phase** when like people are coming out and questioning our integrity and I'll start sorts of things. And I needed people that had been through it to say, No, this is this is the process stick."

- Northeast Academy School Leader

(Striving for) Robust Systems



System Supporting Student-Industry Mentorship at Innovative STEM Academy



Idealized System (teacher and principal interviews)

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Aligning Instructional Subsystems with Industry

Mid-America	Northeast	Innovative STEM
Flexible Friday for collaboration Engineer on loan for one school year Hosting teacher PD at industry site	Fund student transportation Backward map WBL -> learning outcomes Create student opportunities on-site to fill in gaps	"Flipped Model" with lunch-time synchronous Curriculum co-development w/industry partner

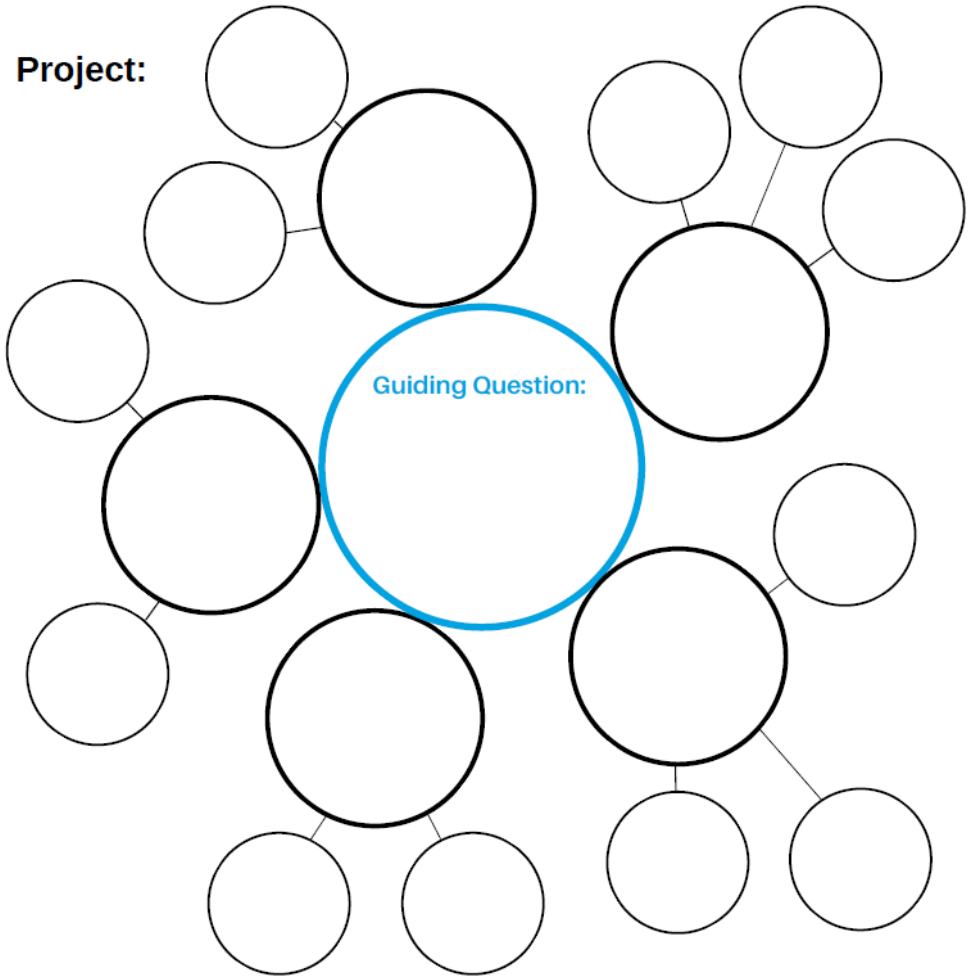
UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Asset Mapping

Identify an existing program or project where you want to grow existing partners

Big Circles: Themes

Small Circles: specific companies/people



https://workforce.education.asu.edu/wp-content/uploads/2024/07/Community-educator-asset-map-v1.pdf

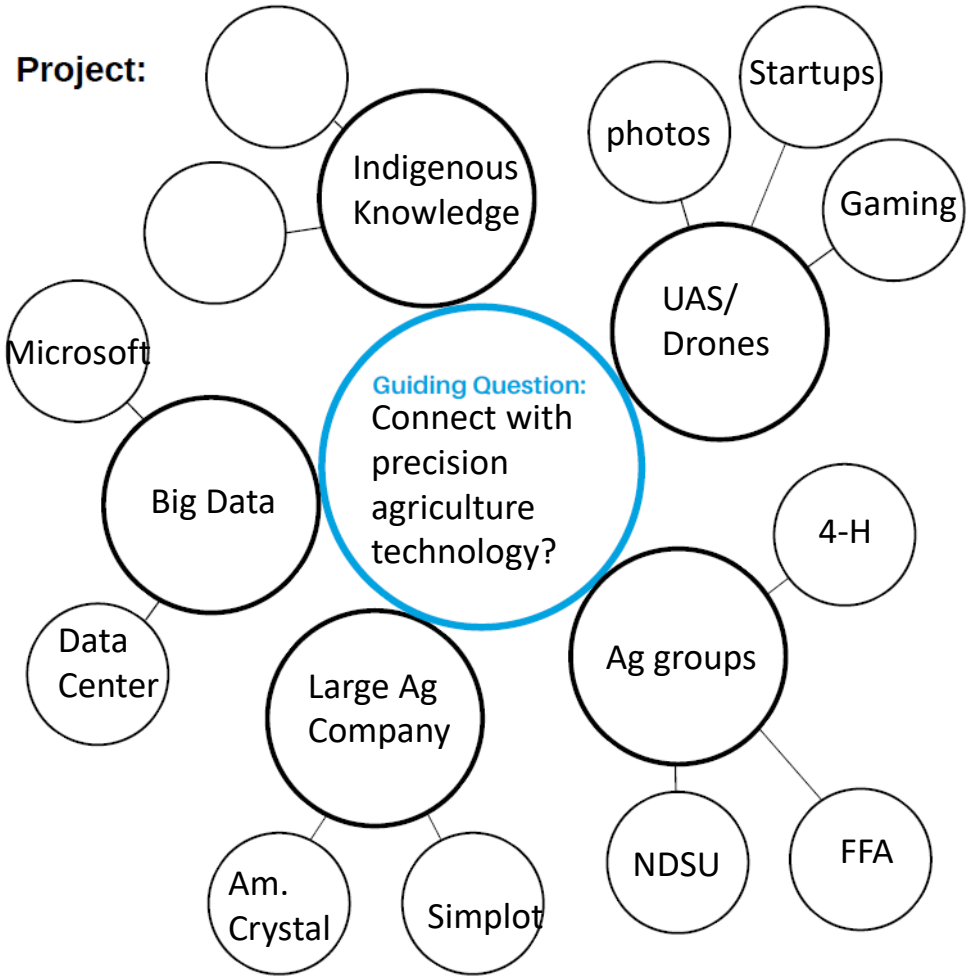
UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Asset Mapping

Identify an existing program or project where you want to grow existing partners

Big Circles: Themes

Small Circles: specific companies/people



https://workforce.education.asu.edu/wp-content/uploads/2024/07/Community-educator-asset-map-v1.pdf

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Next Steps to Growth

Guiding Questions

1) How can I put students, potential partners, and teachers in the same space?
2) Describe the student experience
3) Industry partner assets?
4) Teacher assets?
5) What is our plan to reconnect?

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Discussion

"…I believe in that effort, that interface, the one-on-one contact, that's the difference-maker relationship."

Manufacturing Plant Manager w/Mid-America STEM

Explicit trust-building

student-school-industry connections

Signals of institutional credibility

Right time for the CEO/Superintendent

(Striving for) robust systems

Focus on complementary assets

Aligning instructional subsystems with industry practices

Start with little changes

UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

Acknowledgements

Dick Larson, MIT IDSS

"Never let reality stand in the way of what is possible."

Research funded by the Open Education Resources Foundation

https://tinyurl.com/WBLpartners

anthony.m.perry@UND.edu

UND UNIVERSITY OF NORTH DAKOTA
COLLEGE OF EDUCATION & HUMAN DEVELOPMENT

References

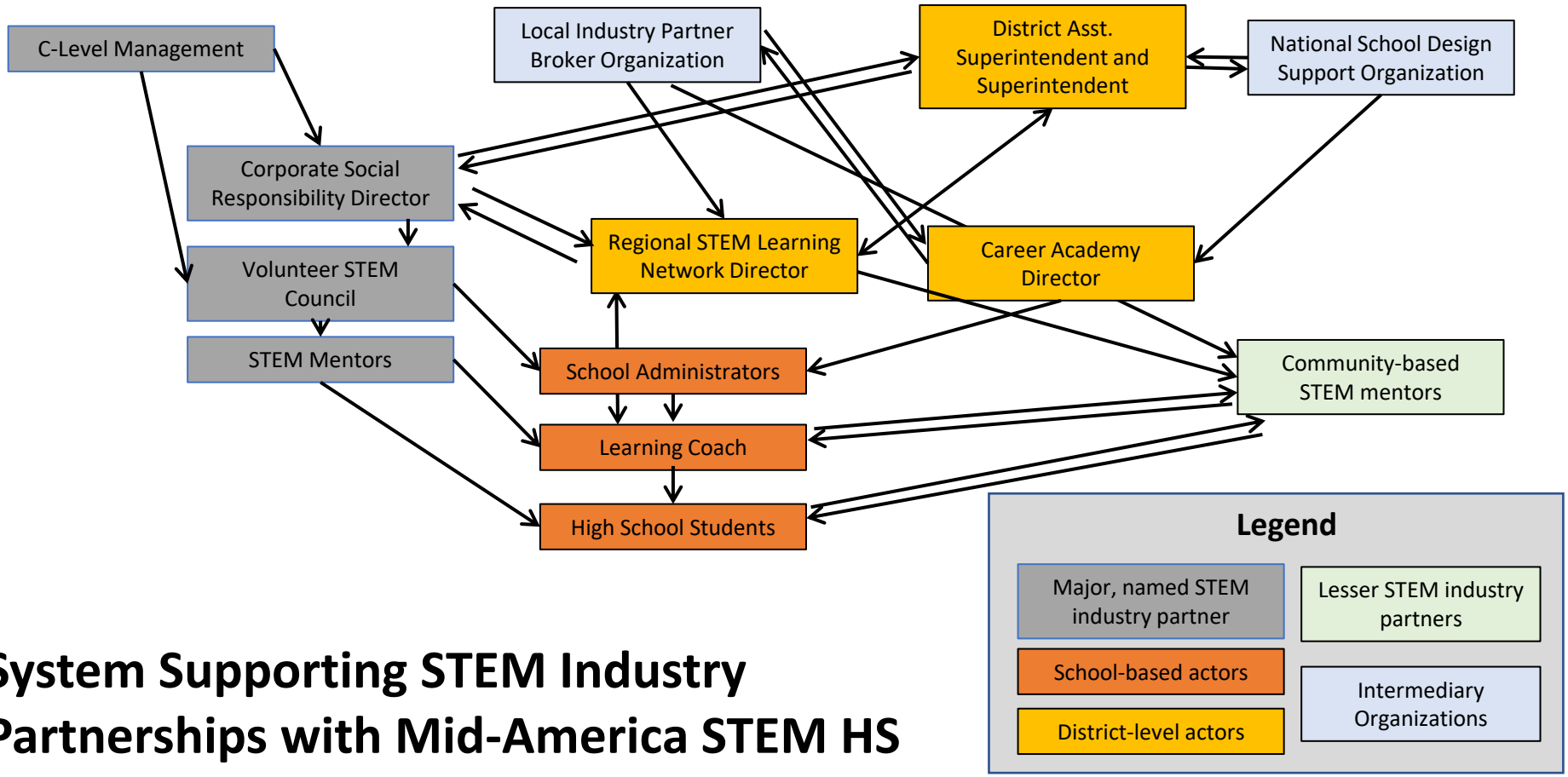
Epstein, J. L. (2018). School, family, and community partnerships in teachers' professional work. *Journal of Education for Teaching*, *44*(3), 397–406. https://doi.org/10.1080/02607476.2018.1465669

Jacobson, M. J., Levin, J. A., & Kapur, M. (2019). Education as a complex system: Conceptual and methodological implications. *Educational Researcher*, *48*(2), 112–119. https://doi.org/10.3102/0013189X19826958

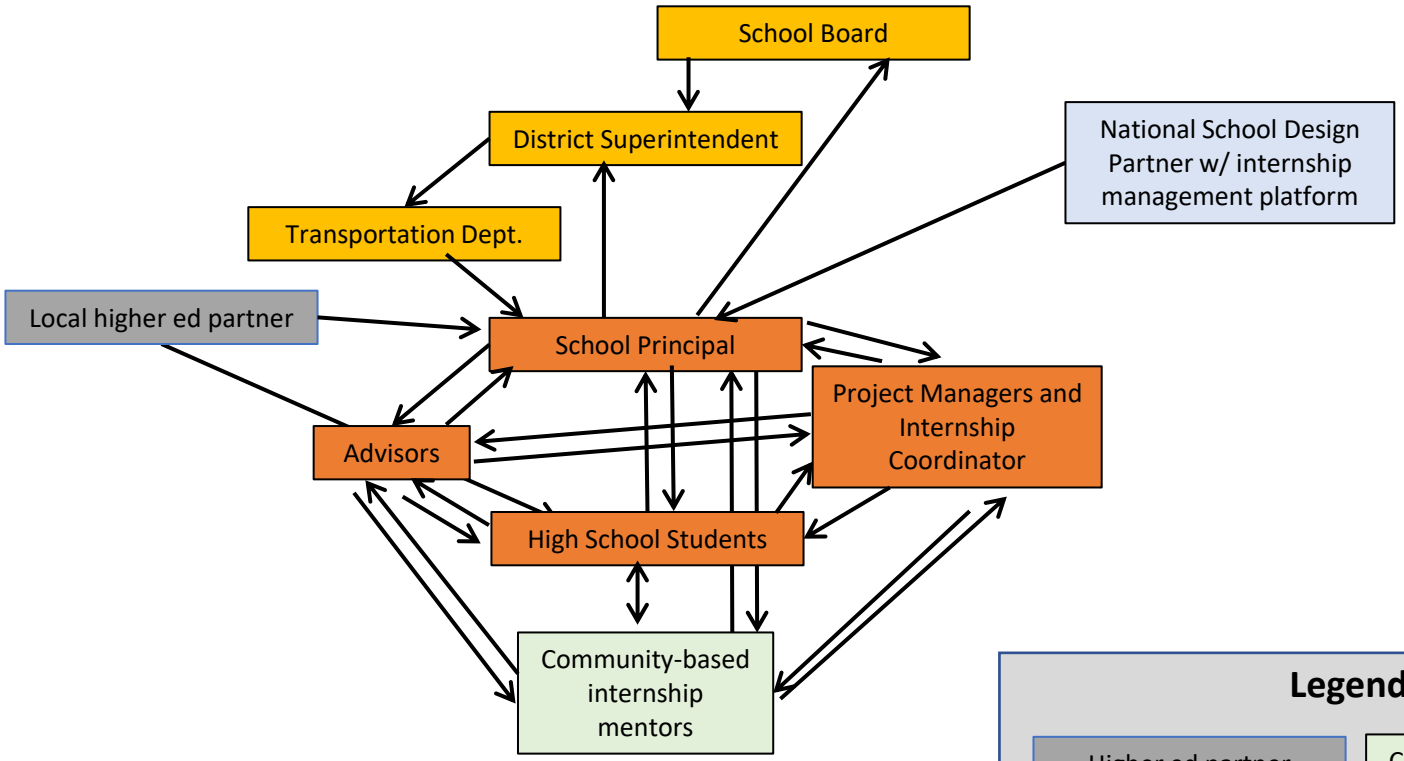
Perry, A. M. (2023). Mutually beneficial school-industry partnerships in STEM education: An aspirational case study. In J. L. Spott, L. J. Sobehrad, & R. L. Hite (Eds.), *Developing and sustaining STEM programs across the K-12 education landscape* (pp. 232–252). IGI Global. https://doi.org/10.4018/978-1-6684-7771-7

Rios, R., Artigas, A., & Casulleras, R. P. (2014). Establishing and maintaining STEM-related school-industry partnerships: Opportunities and obstacles. In C. P. Constantinou, N. Papadouris, & A. Hadjigeorgiou (Eds.), *E-Book Proceedings of the ESERA 2013 Conference: Science Education Research for Evidence-based Teaching and Coherence in Learning. Part 9*. https://www.esera.org/publications/esera-conference-proceedings/esera-2013#strand-9

Strobel, J., & Sun, Y. (2020). Current state and suggestions for the K-12 STEM school industry partnership in the United States. In M. J. de Vries, S. Fletcher, S. Kruse, P. Labudde, M. Lang, I. Mammes, C. Max, D. Munk, B. Nicholl, J. Strobel, & M. Winterbottom (Eds.), *The impact of technology education: International insights* (Vol. 3, pp. 143–162). Waxmann Verlag.



System Supporting STEM Industry Partnerships with Mid-America STEM HS



System Supporting Student-Industry Partnership at Northeast Rural High School