Session I Notes

Expansion & Engagement

- Jason -science consultant - PD for teachers NE Board
- Adriana - SE - Rockwell Collins - Education Outreach
- Linda - SE - Cedar Rapids - home schools - student voice- Panara Bread franchise owner
- Scale-ups are great and spread stem to all and not just scale-ups - New Science Standards
- Engagement- parents to advocate for kids - parents need to ask for it. Build it and they don't all come - stakeholders to make noise
- In curriculum and not extra curriculum
- In sports - parents are welcomed in - schools do not invite parents in - parents work with school and help develop STEM programs and STEM for all - more than just make sure kids do their homework.
- FRC- kind of like sports - but the schedule battles with other extra-curricular activities
- How did soccer develop their programs throughout Iowa - easy to start - no one owns this -
- Are people intimidated with Math and Science - do parents feel that it is over their heads?
- Rural populations - and low SES populations
- Adaptive technology to work with kids who need to meet their skills where they are
- Building skills and work habits - start in elementary
- Growth mindset - don't use SMART - use that you are such a hard worker
- Farming kids for instance is STEM -
- Start young and keep STEM going throughout the school
- Nature is a great way to easily for schools to use to teach STEM - many are free
- Institutional Constraints - programs that don't stay strong over time - the system destroys the drive to change the world
- Stem - student are the center of the learning and not the teacher
- Bring in experts also - BIG - Manning - re-energize -
- Dropout for smart kids is higher than even some other levels
- FRC and STEM programs have now a purpose and
- TAG programs - still funded and some funding for at risk kids and other programs
- We aim at the middle of our student populations - we are ignoring the highs and the lows
- Dan Cox - By partnering with other school districts and working together
- STEM Best helps to fuel innovation
- Math, Science, Tech, and Engineering teachers are also a part of STEM - not islands

● STEM and next gen science standards will help to promote the use of hands on activities and not just the textbook
● Assessment - how do we measure STEM and
● Employees leave when the manager and have a 360 degree on teacher evaluations with students - evaluate the employee and then help in the areas they need
● Measurements in soft skills as well as skills
● No Child Left Behind - You have to want to learn
● Tony Wagner - Creating Innovators - Let the kids explore

Business Engagement

D. Barajas NC
K. Harrington SC
J. Bedward NW
D. Dohlman SE
B. Ulmark SE
S. Saunders
H. Callanan NC
A. Ladd SW
S. Singleton SC

Desire/Interest:
- Interest in skills gap for entering workforce
- Mobilize current engineering workforce to support STEM
- Keeping youth in the area
- How to get industry involved in recruiting talent in IT

Solutions/Ideas:
Monthly breakfasts in SE for business/STEM/Education event – Quarterly? – to start out
- How will we keep talent
- How to prep a student for an internship at specific industry
- Partner with organizations already working on this idea (TAI)
- Checklist of to-do things, not rhetoric

- Future oriented – where is industry going in 5, 10, 15 years, and how can MS, under-represented communities, etc. prepare for that?
- Tech enhancements
- Pairing industry peers – those already "gung-ho" for STEM – educating their industry peers
- Marshalltown Business Education Alliance (Barajas). Meetings are open! Share with managers to disseminate to boards. Potential example of this type of solution:

  - Education – Elementary to Community Colleges
  - Large and small local companies
  - Six topics – advocacy to state and federal government
  - Tasks and goals – come each quarter with your work done
  - Organized sophomore (in high school) tours and shadows last week. It took 18 months to plan, one week to execute.
  - Remember Business/Education alliance is there to SUPPORT education goals and strategic plans, NOT tell education what to do.   * Culture point
  - *Help students find INTEREST in local careers – ex. Local industry design challenges/exposure to some success. Festival connection? Business reverse festival?
  - Drive outreach like this in every region annually. Flagship event. Use tech to connect the regional groups.
  - Give business and industry their own Constant Contact newsletter with greater focus on industry content, especially for areas with negative population growth, for those communities to support each other.
  - Keep in mind each community is unique.
  - Action groups to carry out some of these ideas, could come from advisory board sub committees.
  - Use LinkedIn as a communication vehicle
  - How do you overcome the fact that other regions may have fewer Industry Resources?
  - Give high school kids current problems in industry to solve

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Data and Reporting

8 in session

- Evaluation Summary – talking points – Why we are doing what we are doing
- Communication of the data and reporting
- Want to be able to target into region (include with talking points). Data on the back end
- Regional specific data at the end
  - Participation
  - How many kids are participating related to free and reduced lunch
- Where kids go and what they are doing
  - Following up with kids
- Outcomes – are kids going into STEM, are we moving the needle?
  - Are we interviewing kids to determine interests?
- This is the goal, this is what we do and outcomes.
- Scale-up next year. Front load it with why it's important.
- Documents on why we are doing this. Want to be able to slide something across the table.
- Need to make a case on why we should get funding.
- With legislative cuts, talking points on why STEM should have funding.
- For teacher, show the date why it is important to implement Scale-up.
- Talking points for business and teachers/administrators
- Educate those applying about what we are looking for.
- Are we attracting new kids into STEM?
- Return on investment
- Trend lines in Public University – more females.
- If the data is not what we want – STOP, reflect and go in another direction.
- Adding ACT question on STEM in talking points.

Is there a web portal to dive into regional data?

Example FIRST
- FIRST has marketing site on website that has one-pagers. Targeted for audience.

STEM Festivals
- Follow-up conversation after the event.
- What resources did you get from the event?

Evaluation
- Have CSBR go to regional departments to discuss highlights of the report.

The group does not like or have time for digesting the 300 page report.

Regional Success Stories

4 participants

"Mini" STEM Festivals better than the big formal productions. More cost efficient and almost self-sustaining once started. Organizations can work within themselves to contact businesses and location.

SC used to have a larger line item in the budget for festivals and then groups became dependent on these. Now without the same levels of financial support new groups ae starting festival efforts in their own realm such as I'll Make Me World – Iowa.

Structure may be a little different but meeting many of the goals of a traditional festival.

Consider having festivals at different times of the day and year – not all evening, some Saturday or weekend or afterschool.

Some Festivals are better in the fall some in the spring depending on who sponsors.

Preschool Festival in Woodbine focuses on a specific audience age group and brings whole family to meet the early childhood objectives. Win-win for all involved and little expense. Includes formal school programs, HeadStart, and other preschools I the county.

Related piece; Univ of Iowa has a STEM committee that brings together any department who touches STEM to have dialogue and look for overlaps. This group sponsors a STEM Lunch Bunch. Dr Mark McDermott is the coordinator. "Replaces outreach in a silo" – phrase of the day…

SE STEM Day at the Ball Park. Preps with emphasis on force and potion, health/ exercise activities. Cost factor for this.

Value in learning more from other regions – could consider flip the process and combine with other STEM initiatives- for festivals and many other related activities.

- Could we combine field trip funds as part of scale up?

- Could funds be provided for substitute teachers to allow teachers out of classroom time?

- Connect to Pre-Service Education such as PBL activities around the state pre-service programs

Do more outreach to informals/OST to get participation. Some regions really focus only on formal education and so have trouble getting informal partners.

Out-of-School (OOS) Engagement

- OOS is an opportunity to inspire kids in a different way
- Many OOS programs partner w/ local districts already
- O'Brien and Sioux County Extension offices currently run a check-out system through NWAEA. Extension owns the kits and uses the AEA van system and training to get the kits to educators. Kits vary from EV3 to NXT to AWIM to EiE.
    - This model could be replicated for better utilization of STEM Hub kit check-outs
    - Managers could encourage OOS educators to attend AEA trainings alongside formal educators
- Many informals are partnering together (Extension, Libraries, etc)
- Additional engagement is needed w/ business and parents
    - Extension offers a student camp showcase for parents to see and discuss their students work
- There is a need to collect STEM Festival variations and best practices

- The STEM Hubs currently do 5-10 minute activity festivals well but could learn from models of full day, 45 minute session experiences (O'Brien & Sioux County Extension STEM Festival, WLC STEM Institute, Girls Go STEM, etc)
- Professional societies and organizations should also be engaged in OOS STEM education
  - LULAC, SWE, corporate organizations (women engineers, black engineers, young professional networks, etc)
  - These groups would be great mentors
- More strategic collaboration needs to occur so that we're not competing for the same students and duplicating efforts
- Develop a toolkit for informals
  - Scale-up info, FRL numbers, festival resources
  - Speak in informal language so you can connect w/ people who don't know the K-12 lingo
  - Develop an OOS toolkit similar to the business engagement toolkit where contact info of exemplary models is listed
- Utilize religious centers to get underserved students

*Communications – No attendees for Session I

Session II Notes

Mission/Vission

- Bob - Chair for Boy Scouts - SE - Ask what is our mission
- Jason - NE - Keystone AEA
- Barb - SW Comm College
- What is the specific Mission Statement
- Target groups within our mission statement - are we getting to our correct audience
- Do we have data to support that information
- The ones that come are the ones that would come anyway
- Exposing all kids to opportunities to all kids
- Make sure it gets embedded in curriculum everyday and not just after school experience - this will help with equity
- Provide opportunities - and teachers don't always that part of the activity
- Are our standards too rigid?
- Teacher training - can we broaden access to STEM
- How can we give access to all
- Would be better off to have a STEM person in each school funded by the state
- We need a mini- stem hub - so we have resources that are easily accessible
- Part of the scale - up to mentor others?
- Festivals - use a handbook on how to do the - year2, year3 - Sarah Deery has a playbook for that
- Kits should be a part of the curriculum
- AEA's provide PD with new standards
- Kits meets the curriculum and all supplies you need Foss kids
- If a teacher changes grade levels -
- Educate our educators to think outside of the box and look critically at what they are doing
- Teachers come with ideas and ask for funding - innovations - and mentor others as a part of it
- How do we measure mentoring and sustainability - what do teachers turn in to STEM at the end of the year?

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Equity and Access

- Students underrepresented engaged in STEM careers
- With data out there not much improvement
    - Females in engineering
- Concerned with academic success for all
- Need to see benchmark moving in interest and achievement
- Disadvantaged youth – first generation college
- Mid-skill jobs not being overlooked
- In communication, messages need to be careful with semantics
- Converse better with companies regarding their talent pipeline
- Create talking points from Equity Working Group and other Working Group (one-pager recommendations and what was done) Might inspire people to get involved
- Within TAG there is separate funding available through school
- Look at Heat map to determine priorities. Heat map does not show quality of programs, just where.
- Need to have educators report at the end because we need the data.
- Initiative needs to go where people are and determine pocket of needs. Partnering with nontraditional organization would benefit council
    - Target marketing effort of DHS, community, clergy, etc.
    - Who is community serving underrepresented area and target/communicate with them.
    - Go to where the parents are
- Feels can only serve equity issue in school.

Question for application – What will you do to engage all students in the respective age group?

What are we doing to move needle in STEM related to equity?

- Need to get the younger children involved in STEM
- Scale-up Programs – creativity within our school to allow growth (Innovation Fund)

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Board Member Engagement

2 participants

- Local Govt rep on the membership list but sometimes is a "watcher" and not a direct participant in STEM—not like a teacher.

- Policy hole in the connection to STEM as member takes leave time to attend STEM Board and other activities rather than being a STEM participant.

- Private workplaces seem to be more directly engaged in STEM programs and activities—local govt doesn't have funds or resources to engage at the same level for city workers or other specifically public jobs.

- As a Board member first time to read and participate in Scale Up process was eye-opening.

- Technology options great for some members – telephone or computer – but does not replace the process of building a vision—creating synergy

- State Fair opportunities are interesting – want to hear more about them

- When reaching out to academic partners, like community colleges, not all will return calls or engage in a STEM relationship.

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- o Extension offers a student camp showcase for parents to see and discuss their students work
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Communications – Attendees: Janet McMahill, Stacey Singleton

- Educating attendees on the history of Strategic America assist the STEM Council
- At a Glance piece is a great tool for STEM education
- Dovetail a story about how SA is a corporate partner who gives to the STEM Council
  - o Other corporate partners can relate to story
  - o Show if I can't donate dollars how can I donate time
- How can we tie in business and industry with communications
- Don't have enough educators, nor enough people going into education
- Show data and report to SAI, ISB, ABI, etc
  - o SAI have a bigger presence, possibly during the second day
- Have a media training session for all speaking about STEM
  - o Need to speak that same STEM jargon
- Educate regional board members on how to volunteer at STEM Day at the Fair
- Need to create blurbs or word tracks or scripts, need to help regional board members easily speak to STEM

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- Need to provide better ways and/or tools to regional board members so they can communicate STEM happenings
  - Possibly a media toolkit – could include press release, social media posts, etc
  - They want to promote STEM but don't know how
- Try to get morning TV segments
  - Could be someone from operations team, regional board members, or regional managers
- Promote YouTube channel and videos
- Social media repository so regional board members can quick go in and grab content and post
- Need to better promote communications happenings
- Work with radio stations in high school and colleges – APEX, Central Campus, DMACC
- Get in school newsletters
- Get in front of legislators to show STEM is working
- Drake STEM building will open in August

Business/Industry Engagement

J. Bonner NC
L. Johnston SW
A. Johnson SE
A. Pargmann SC
G. Thomas SW
C. Rankin IA STEM
B. Bunkers

- Industry engagement as a form of educating consumers
- Industry can help give kids examples of problems to solve that are complex with no perfect solution.

Sharing of current practices of industry/education engagement
- ISU Extension partners with area businesses as much as possible to pair student learning with the real-world example of that learning in practice.
- Have business and industry help youth "Dream Bigger" by exposing them to the variety of careers that exist in their own back yard.

- Have industry help educate youth and teachers about what the future in that industry looks like by the time youth hit the workforce.
- Bring together: business, industry, education, students, success stories.
- Foster industry's interest in the youth earlier in the STEM pipeline, before they graduate.
- Educate students and parents about fast-track career options. Good careers exist without a college degree.
- Teacher Externships are valuable. John Deere helps push them to their industrial peers in the area.
- The hardest part has been getting smaller businesses engaged. How do we find solutions for those people? Use our successful partners from Rockwell Collins, John Deere, etc. They have a framework for how to get started, and are willing to share.
- Who do you start with to engage the company? It varies. Start with HR department, who can help connect to the correct person.
- How do you help existing relationships survive employee turnover?
- Create a database of those connection points (organization, position, name, contact info).
- How do we retain workers/businesses in small communities? Home-grown workers tend to stay.
- We need ways to help think through companies' concerns with intellectual property. RC hires the educator as an employee of RC to mitigate the legal risk. Allows students' developments to still be RC's intellectual property. JD has the externs come in as contract employees. Can we provide a list to others who are interested of different ways our current partners have handled the concerns of intellectual property?

Is the STEM Council supporting board members enough in terms of what you want to do in terms of business/industry engagement?

- Mainstreet initiatives, Cradle, College, Career conferences are a great way to get the smaller businesses involved in the network.

How do you take advantage of your Intermediary Network?

- We could do a better job of connecting our boards and community contacts with them.
- Great resource for business engagement.

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Session III Notes

Expansion & Engagement

- Pre- apprenticeships - NW - businesses and community college
- Rocket Manufacturing was shared as an example -
- Talk to businesses and
- Acumold - tool and die - micro plastic parts - DMACC has a partnership with them for internships - Jr and Sr college students - metro is different than rural communities
- REG - Ames - high school - they want to mold them and train them
- NCC - Beth- female mechanic -
- What does your community have that the conversation could spark
- Company will pay for continuing ed - Valley Junction area - how do businesses attract more employees
- Help businesses look at high schools
- Is there a plan out there that works that we could share on how to do this
- We need an example of stem programs that they could use to create their own
- Would it help to have a regional company/school to show how this works
- What do you need as a board and focus on what this year - set goals and pick a project for the board to do - take festivals and add a business engagement piece
- STEM Fests - businesses - ag stuff - summer camp - partner with a business
- Businesses are willing - but sometimes - it is hard to get the businesses to come together - ask businesses how we can help them -
- Mid American Energy - FRC - share model and large and big businesses - share your models with others -
- As board members - could you capture the stories out there and share the stories with area businesses

Equity and Access

- Virtual tour – Rockwell and John Deere
- *Please contact them for further discussion. Will put $ behind concept.

- Programming impacting schools from outside organizations, i.e. Rockwell and John Deere.

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- Application question pertaining to equity should pertain to class and not school.

- Desire to focus on minority areas. Look at minority enrollment numbers.

- Partner with organizations such as SWE, SHPE, NASBE

- Provide programs that are support and not added on.

- *Like to know results from today's meeting

Regional Success Stories:

2 participants

- Community is a STEAM program – support many ventures

- Business engagement may look different if STEAM. Discussion about the STEM Brand and why the basic letters are supported.

- Business engagement is good—as a workforce person, can see the many ways that STEM skills are needed by new hires.

- Soft skills --in agreement with comments from LtG. that lots of emphasis is needed in this area and would encourage at any opportunities STEM Festival or other meeting times.

- Question about whether Intermediaries are understood in the Iowa model – no one at the table knew anything about Intermediary.

- Legacy Foundation in Ottumwa has $ available for Educational Activities.

- Girl Scouts are working on further developing their STEM program

- Some Christian outreach efforts but a question as to whether science views caused any riffs?

- Celebrate successes in the media for visibility.

- Monthly newsletters are good but not everyone receives one.

- Public awareness of brand – sometimes STEM means different things to different "groups".

- Tell the story more and again when there is a success.

- Connect the dots…firefighters have Explorer program that has lots of STEM – does any area consider that a STEM activity?

Support of Computer Science

- More information needed on FY19 $500K incentive fund – will the CS working group develop the plan for this money? Will it flow through STEM Council?
- Every student should have CS course to graduate but how?
  - ○ Enlist business professionals to teach
  - ○ AP, PLTW, code.org
- Higher education needs to have CS teacher prep courses
- Could "teacher-less" classrooms be a model?
- Continue to encourage BOEE to limit barriers to teaching
- Utilize Iowa Online AP Academy (currently offers 2 CS courses)
- Get away from the idea that teacher needs to be the expert

Board Member Engagement

Gilbert Thomas SW
John Bonner SC
Stacey Singleton SC
Misty Grey SW

- Board member orientation
    - Acronyms
    - Common challenges facing education
    - Common challenges facing workforce development
    - Common challenges facing Iowa STEM
- Recruit employers who have hired past STEM program participants as board members
- Need more board members from business representing the rural areas in each region
    - How? Identify communities, ask the county advisor who might have the capacity and interest to serve.
- Look at board member makeup. More education-related representation than business-related representation in board positions.

Other topics:
- Steve Gilbert, apprenticeships
- Data collection – past program participants: where are they now?
- Mentoring