Advisory Council Discussion Notes, August 14, 2012

Thanks to table facilitators: Disa Cornish, James Hoelscher, Kris Kilibarda, Beth Kulow, Jane Bradley, Ted Neal, Steve Triplett and Teresa Finken, for these notes.

Question 1:
After this morning's update, what are your impressions of the Council's accomplishments to date – behind schedule? Ahead of schedule? On target? Off target? How so?

- The accomplishments are on target, but that is impressive. The progress is impressive considering the timeline and budget.
- "The state is ripe for the advances in STEM". It had to take many people at many levels – legislative collaboration. Everyone is ready to take the next steps and understands the sense of urgency. This initiative is important to all Iowans.
- It will be interesting to see how private funds can/will be leveraged. Can that be pursued systematically?
- There will be pressure on monitoring the project to show data. What we can show after one year of funding will be important in terms of impact. Will the state tests show impacts of these [scale-ups] efforts? Anecdotal stories are important when data is limited.
- Story banking could be a possibility to relay success stories to the public. Raising public awareness is key.
- Administrators also need to be targeted – at what level is buy-in needed to result in action? Administrators? Parents? Businesses?
- People looked at the timeline a year ago and thought – "that is not possible or at least not probable" and looking at what has been accomplished, it is amazing
- The time forming the council was worth it, there are many different sectors represented and all are working hard!
- All members feel they are represented and engaged – very encouraged
- It appears the focus is on the kids
- Although the same set of accomplishments would not be impressive years down the road, right now they are because we are breaking new ground and having to create everything.
- All people involved having been willing to make tough decisions and stick with the decisions.
- A large part of the progress is the leadership – we don't want to lose Jeff
- Another important part of the success was in setting priorities…with a small operation what is the best way to leverage to get things done.
- Excited that that scale-ups will be in schools – how do we get more teachers and more students?
- The scaling-up process is exciting

- Excited to continue to pursue public/private partnerships
- Overall happy with the pace but need to keep going
- There is a good sense of urgency

Are there any places we are off target?

- Not really, just places to consider…
- 4.7 million needs to be leveraged by business and industry partners to sustain programs
- We need to look at the private funding model and make sure it is deliberate and thoughtful. For example, if a corporation is funding a major initiative, how does it make decisions about also supporting a "start up" initiative or contributing to the overall state fund? We must be careful not to "burn out" or overburden our partners; we also need to allow them to focus on programs that fit within their areas of passion
    - Are their particular companies that have an interest in certain scale-ups?
    - It is important to remember that different companies have different needs and will be able to/want to support in different ways
    - Year two – required business match – yes or no?
- Scale-up – we spent a lot of time talking about the process and how it will work…
    - everyone cautioned about the importance of making the application relatively easy for organizations
    - we discussed the challenge of adding to a school day or to the work of the teacher however, we all recognized that real change happens in the classroom and that is the likely location where the most kids will be impacted
    - everyone is doing a bit of "wait and see" what happens – lots of questions about how the roll-out is happening and what it will look like in various communities
    - all members recognized that we have the best intentions (for the kids) but are interested to see the details
    - Importance of state-wide exposure and reaching the most kids in this process was highlighted
- Council's accomplishments exceed and are ahead of expectations
- Momentum is critical as efforts similar to this sometimes fizzle
- Metrics and assessment are important to measure success and seem to be moving in the right direction
- Continue to link metrics to Skilled Iowa and need for middle-skilled workers – target these jobs and businesses
- What are the long-term impacts, are we moving up?
- Will there be positive feedback from employers?
- This project is long-term, must be patient. Results are not immediate and expectations of results should be managed (continue to inform that this is LONG term change)
- The consensus is that the initiative is ahead of schedule. There has been a tremendous amount of enthusiasm generated. The Lt. Gov and Pres. Allen have done a remarkable job in chairing the council. Kudos to Jeff Weld and the IMSEP staff for generating tangible results. Some were skeptical that the current pace of implementation could be achieved - very impressive. We must continue to recruit business and industry participation. Even the launch at the Principal facility was a strategic way to incorporate business. This is really a Sputnik era in Iowa STEM - we need to create a change of mindset and maintain a sense of urgency.
- Impressed with what has been done since Halloween. They seem to be staying on target/schedule.

- Everything seems complex and to get all of the things done that have been done is incredible.
- Some of the group was looking for a balance of this complexity- especially a balance between IMSEP's role and the STEM hubs roles.
    - The hubs aren't necessarily ready for free reign, but IMSEP does seem to have a little too much control for the amount of staff involved.
        - Constantly busy is not sustainable.
    - So how do we break their role?
        - Let hubs take control of things like communication within their area.
            - Could put some of the branding out for contract
        - What CAN the hubs do? What DON'T they have the ability to do?
- We are running year to year as of right now- can we get more support from IA legislature?
- Are we on target with our accomplishments?
    - We (those involved) think everything is great, but teachers and parents have no idea what is going on.
    - We need to get out the message to the general public
        - *Why* is it important?
        - *What* are we doing?
        - Use PSAs?
        - If people knew about it and thought it were important, it may affect legislature
        - Misconception of 'Technology' of STEM
            - Not just 1:1
- "STEM on steroids"
- Very aggressive schedule – exceeding expectations
- Structure is allowing for success
- State is very focused – building infrastructure
- Concern – Funding is too tight/need flexibility
- No Experimental Fund
- Each Region is so diverse that the funding cannot be the same across the regions
- Communication/Branding
    - Start at State Level
    - Messaging needs to be the same
    - Should be in place already
    - How will we communicate
- Legislature will be pressured to fund again based on results and community awareness

Question 2:

After hearing about the FY 2013 budget expenditures for activities of the STEM Council, what are your thoughts on how the funds are being used? What changes to funding streams would you recommend for FY2014 and beyond?

- Would like to see a breakdown of the budget by school-level; preschool, elementary, and secondary. Hub managers should be looking thoughtfully at what age groups the scale-ups are serving.
- Are there specific expectations about how scale-up funding is expended? By the number of kids, resources, etc.
- Moving forward, the state or private investors should pick up the remaining balance of hub expenses and resources such as hub manager salary, travel, indirect. The hubs are not fully funded by the initiative and would like to know if there are other sources of funding.
- Importance of raising local funds – private/business contributions to this initiative is important. Perhaps they could match funds for scale-ups.
- Thinking about accountability – aligning the hub manager responsibility with action plans to start integrating. Hubs have some requirements in MOU. One expectation should be building public awareness.
- What is "messaging?" Is it public awareness? If $50K is for public awareness, that's not enough for a campaign. Could build relationships with media and obtain private investments.
- Good to see so much of the budget going directly to the Hubs and to kids
- Evaluation will be very important to show impact and the state-wide picture.
- This year the focus is on baseline and basic indicators and not on large-scale evaluation which is good because it allows more money to go directly to programs/kids; however there was much discussion about needing to make sure evaluation was increased in upcoming years
- We also discussed the importance of qualitative data – people connect with stories so we want to use data on achievement, attitude/interest, and include stories
- A question was raised – what are our measurables?
- We can also look at the information from the individual projects.
- Good transparency this year – keep it up!
- Discussion of IMSEP-supported projects
    - Good projects
    - Overall agreement that moving forward, these need to be in the mix with scale-ups – must be fair and vetted in the same way
        - Should we create different categories and rubrics for year town (ie – after school, in-school with summer PD, multi-year, etc.)
        - Real World Externships don't seem to "fit" with the others but funded by NSF – perhaps this doesn't go in the scale-up mix
        - Is there another way to implement some of these?
- Expand on the existing platforms with a "finish it up" agenda. Particularly PLTW but add the bioscience component
- Promote the sharing of resources as was evident in the presentation about PLTW
- Identify what education needs in the way of broadband/high-speed internet and then identify gaps in interconnectivity – establish the standard for education
- Place someone from education on the advisory committee for Connect Iowa.

- Create a foundation or a pot of funds to be used to support creative efforts and programming (through Dept. of Ed.?)
- Establish discretionary funds for innovative education with enough flexibility to be practical for IMSEP (foundation may help with this if flexibility is adequate)
- Reach out to the Iowa Business Council for support of education (foundation – see above)
- Conduct State-of-STEM presentations to key business organizations such as Iowa Business Council to build that relationship and support
- $300,000 for STEM staff at regents should go to regents and come out of STEM Council budget
- Funds do need to be allocated to heavily promote the initiative and to "keep the shine on the penny" over the next 1-3 years (This is a long-term undertaking.) Questions arose as to how and why PLTW, ITeach, Externships etc. selected for funding and whether they could or would be replaced with the scale-up projects. The group supports the current funding but was just curious as to how the allocation came to be. Several felt that the short-term key to funding is to focus on the Regional Hubs to equip the managers with the resources necessary to create a physical presence with business and industry.
- Is there any plan to leverage corporate/financial $?
    - Matching money
    - Need to expand beyond the legislature
        - Worried about Western IA
            - Not enough big corps
        - Could we spread the money to where it is needed?
        - How do we get online learning to spread?
    - Could we set up a PayPal at IMSEP website?
        - Let the people that can only donate $10-$20 do it!

- We are "tight stewards of the work we have been given," but this leaves no room for innovation.
    - Need discretionary funding
- Give the STEM Hubs the ability to be entrepreneurial
    - Allow autonomy in the STEM hubs
        - What works in 1 region may not work for another
- Look for those corps that are all about STEM
    - *Ask* them for money.
    - Be conscientious of putting big corps so high up that small corps feel they can't contribute
- No one at IMSEP in corporate relations or corporate giving
- How much of this will ever reach a kid in a class?
    - Doesn't seem like much
- Generate donors!
- Informal education needs to feel a part of this, they also have tight budgets and the ability to leverage funds.
- Legislature not direct how funds are spend
- Position for grant writer (other than external support)
    - Needs to be a fulltime position
    - Possibly one grant per month

    - Track funding Statewide for STEM
- Increase the marketing line
- Percent of budget needs to be allocated for experimental "scale-ups"
- Budget Match – What is the percent for funding
- Go to Business/Corporations with a long term plan for matching funds
- Need strong regional connections but partner with big players
- *all at the table agreed: Create a letter/position paper/ that contains an industry blueprint with involvement in the STEM initiative

Question 3:

In your folder are six "pressing recommendations" culled from Action Plans. Which ones rise to the top in your opinion? Which one(s) would you like to help bring to reality? (Summary of Action Plans/pressing recommendations listed at end of this doc.)

- F. Incentivize businesses – Need to get creative as a state. Other than money could offer visibility such as free advertising, sponsorships, fellowships, scholarships. Could there be a collective "pot" of private money? A major line item for business donations. (Deb is interested)
- E. Public awareness. Already spoke on the importance of this throughout the conversation.
- C. Web portal would be great.
- D. STEM-focused school – Would be high impact, but lower feasibility. If it were a virtual school, much more possible. This could provide/increase accessibility to very rural students. Virtual academics so students don't have to leave their schools. In a virtual environment lessons could be provided in labs or businesses. If you establish a virtual school, could everything else be folded in such as the web portal resources?
    - Students also need to be well-rounded and learn soft skills outside of content such as communication, team work, etc.
- We had different opinions about which one was our "top" pick but there was overall agreement that all of the actions were important. Some question on what wording meant on a couple.
- We had some discussion on what a STEM-targeted school would look like
- Generally, we spent the most time talking about teacher development (whether in initial preparation or PD) and public awareness
    - Teachers must be able to implement the research-based curriculum and assessments – help change the structures so they have more ability to do this
    - Importance of LOTS of collaboration among all agencies that prepare and develop teachers
- Public awareness
    - What is STEM and why is it important to you and your family?
    - We want everyone to see him/herself in STEM or as a STEMist ☺
        - Perhaps stories/posters/ads with various people explaining why STEM is important to them or in what ways they are STEMists
    - It is important for the message to be strong and positive
    - Make it cool to be in STEM
    - There is nothing that says STEM isn't important but there is no recognition for it. How do we make it as important as sports?
    - We talked about being clear in our own definition of STEM – is it the physical science and engineering only? What is the role of life science, the health/medical sciences?

- Priority was B -> A -> D with C,E, F last (F was addressed above so is important)
- B – no additional comments
- A – Modify by
    - standardizing professional development offerings with high quality opportunities that are assessed for effectiveness.
    - Have PD offered by others, not necessarily AEAs, as some are not as effective as others creating inconsistencies in training. Maybe a competitive process.
- D – Modify by
    - Instead of "establishing" state "promoting" or "transforming" so it's clear these are not new brick-and-mortar schools
    - Use as a way to recognize schools who have implemented change to support STEM
    - Some concern over making the entire school/curriculum STEM as this may not be appropriate for all children and could be limiting in other areas of education (ie. Would art/music students be encouraged to do STEM related activities? Would history classes be geared toward STEM, etc.)
    - Not clear what this means….

- The highest priority for the next 12-18 months is (E) increasing public awareness of the importance by launching a marketing/communications program. However, the the campaign(s) should address the unique needs and perspectives of students, parents, teachers, prospective teachers, business/industry, entrepreneurs, community colleges, colleges and universities etc.

  Tied for second were A and B. However, the group felt A should be a byproduct of achieving B. Focusing directly on A could be perceived as adding a layer of bureaucracy to the Iowa system rather than focusing on the difference making elements of B.

  The group also gave F (Incentivizing Iowa Businesses) a high ranking due to the importance of keeping industry involved in Iowa's STEM efforts.

- Our group believed that Option A would not be able to affect secondary schooling. The AEAs are more directed towards elementary
- They also believed D & A are closely related
- Some of our group believed option B should be done concurrently
- With option C our group thought adding GIS mapping as well could be a lot of info to a site
- Our group believed option D would be helped by the existence of a STEM endorsement
- Option E, Option F
- Other thoughts on Question 3:
    - Money on the workforce development side not included on the education side could be useful
    - Public awareness is important
    - Public/Private partnership
    - E and F seem to be the most important
    - C is important for getting everything off the ground
- Our action plan: Year 1: C,E,F – C is eminently doable; Year 2: A, B, D

- *All at the table agreed: Tie between B and E
- B Conversation
- Could be very challenging to implement but seems to be the most important/valuable
- What does it mean to be a STEM teacher?
- "Create STEM endorsement"
- Teacher prep programs need to be looked at
- Need more ag development
- E Conversation
- Communicate prior to implementation; otherwise, people make their own communication
- Combining B/E will impact the entire system
- Regional Impact needs to be removed from STEM manager – created at state level and adjusted
- D – needs to be at the bottom or completely dropped off the list
- C
- Add to public awareness campaign
- School boards need to be added as stakeholders
- Need to complete with marketing and community awareness
- Will fall into place with B
- Use in collaboration with A and B
- A
- The AEA does not have the funding to truly partner
- Funds are going to the local schools instead to determine PD
- AEA go to the local school districts --- be proactive with PD rather than the school districts letting the AEA know what they would like
- standards need to be aligned with PD
- State assessment is NOT aligned with content standards
- Money for PD needs to be allocated in a different manner
- F
- Incentivize needs to be changed to "encourage"
- To business owners this means tax break!
- Needs specific list of needs
- Employees want to help – need space for them (John Deere)
- United Way Model – recognize the people like United Way does with a luncheon
- ABI – Regional Conversation
- Need to be added in – 350 members
- Provide direction on how they can support
- Volunteer
- Support
- Coordinate so the volunteers are truly assisting
- Coordinate Regional Areas
- People are only being asked once
- "One stop shopping"
- Different messaging is absolutely necessary to local/regional/statewide/national businesses

Other General thoughts:

- Don't put all responsibility on hubs to create info
    - Allow info from areas to transfer
    - Don't worry if people *do* or *do not* buy into the 6-hub model
    - Don't want to have to look through 6-hubs' info
        - Have it in one place
- GIS mapping of how many kids are participating in programs. Could be a focus of Hub managers.
    - Helps ensure kids who don't have resources in their area get them
- Could hub managers be influenced by what they do and do not like?
- Some scale-up programs didn't apply because of the deserve/don't deserve issue. How can we fix this?
- Our group saw a problem with having 12 scale-ups and only 12
    - They would like to use their discretion on which ones to implement
    - They would also like to have a percentage of discretionary spending to be used for innovation
        - Use on a program that seems great!
- Concerned with diversity in STEM
    - Included in everything!
    - We need to normalize 'advanced degrees"
        - Engineering
    - How are we engaging women/girls? How about the Hispanic population?
- What is the nature of central authority in the Hubs?
- Concerns about getting the general public involved in the hubs
    - Don't worry so much about getting the 'right name'
- Bring in student focus groups
    - What do *they* want from their education?

*****PRESSING RECOMMENDATIONS**********

Of the 19 transformative recommendations to emerge from Action Plan Working Groups, these six are seen as especially pressing by leadership for the coming 1 to 3 years. Remaining recommendations of the Working Groups will be promoted in the future.

A. In partnership with Iowa's Area Education Agencies, establish a STEM Professional Development inter-agency coordination center that provides vision and leadership for all PD providers in STEM education.
   - Coordinate professional development of STEM educators preK-undergraduate to recognize and nurture STEM talent, especially among students of traditionally under-represented groups.
   - Promote project based learning, transdisciplinarity, and real-world applications, as well as the Common Core standards in mathematics and the Next Generation Science Standards.
   - Coordinate professional development and evaluation on blended learning environments utilizing interactive technologies.
   - Broaden the audience for STEM PD to include supervisors, cooperating teachers, mentors, administrators, instructors, and higher education faculty.
   - Broaden the pool of PD deliverers to include private sector professionals.

B. Improve STEM teacher training, licensure, and retention.
   - Encourage and support collegiate instruction using open-ended problem solving, integration of technology applications and engineering design concepts, inquiry-based methods, and team teaching.
   - Encourage and support time to degree to be 4 years including student teaching, and the equivalent of a content-area major for secondary teachers.
   - Encourage and support field experiences with teachers of demonstrated mastery.
   - Create rigorous alternate pathways to the classroom for STEM professionals.
   - Create a STEM endorsement for secondary and a STEM emphasis for elementary teachers.
   - Encourage and support all teacher preparatory institutions to partner with the private sector in providing internships/externships for teachers-in-training and their instructors.
   - Identify and cultivate exemplary "demonstration labs" for real time or virtual use in preparing new STEM teachers.
   - Build in incentives such as "endowed chairs" to attract new and retain master STEM teachers.
   - Encourage and support districts to fund STEM teachers' engagement in professional societies.

C. Build a web portal to house a best-practices clearinghouse (a comprehensive searchable database of curriculum, demonstrations, partnerships… directories of resources local, regional, national, international) and an on-line repository of all educational assets and professionals within Iowa.

D. Establish regional STEM-focused schools.

E. Increase public awareness of the importance of STEM by launching a campaign to include multi-media messaging focused on STEM careers (including teaching), and an incentive/recognition system for schools and districts – e.g., the "Iowa District Excellence Award in STEM" (IDEAS) .

F. Incentivize Iowa businesses to commit workforce, facilities and other resources such as equipment to STEM education. And in turn promote the Iowa Workforce Development Skilled Iowa initiative through schools, colleges, and informal educational facilities.