Community of Interest Workshop (on Future Scientific Methodologies)

Time Zone: ET	Monday, November 2, 2020
11:00am	Welcome from Co-Chairs (Amber and Ian) Welcome from DOE/SC/ASCR (Rich)
11:10am	DOE Guest Speaker: Susannah Howieson: Laboratories of the Future
11:30am	Meeting Purpose, structure, and process – co-chairs
11:45am	Q&A on process, Attendee tasking in zoom, preparation for entering brainstorming sessions
12:00pm	Enter brainstorming session and begin session

12:00pm - 1:30pm	Break-out Session 1: Define the scope of the problem
	• During this session the
	  ○ Tomorrowland groups must decide on a specific piece of technology that would be widely deployed creating a massive shift in how that science is done (multiple groups may wind up covering the same technology).
	  ○ Interfaces group must decide on who the scientists are, who the agents are, and what type of interaction is needed.
	  ○ Computing facilities group must decide on how the facility is built (localized or distributed), staffed, and expected workload
	  ○ Methodologies group must decide on a single aspect that will be expanded on
	  ○ Future Missions group will decide on a new task the labs may pursue
	• The purpose of this session is to lay the foundation for the next 5 sessions. That is, each breakout group will define a key piece of technology, a new device, or methodology that would have an impact on how the labs/scientists operate. The details should include:
	  ○ What is the problem, issue, technology, device, methodology?
	  ○ Who would develop it (basic research to advanced deployment)?
	  ○ Who would use it and what skills would they need to use it effectively?
	  ○ When would it be expected to be in production use (*N* years in the future)
	  ○ Where, and how widely, would it be deployed
	  ○ What is the setup time and/or process for using it

1:30pm - 2:30pm	Virtual Hallway Conversations

2:30pm - 4:00pm	Break-out Session 2: Implications of this problem
	• Each group will now develop a list of issues and implications for the issue/technology/community they settled on. As the example shows, there are lots of implications for how a technology can be used, or further developed.
	  ○ What other/companion technologies, services, software/hardware must also be developed and deployed
	  ○ Who is/will develop this companion technology/service
	  ○ What skills/knowledge does the end user require
	  ○ What are the training/support requirements

4:00pm - 4:30pm	Plenary Session: Homework assignments made

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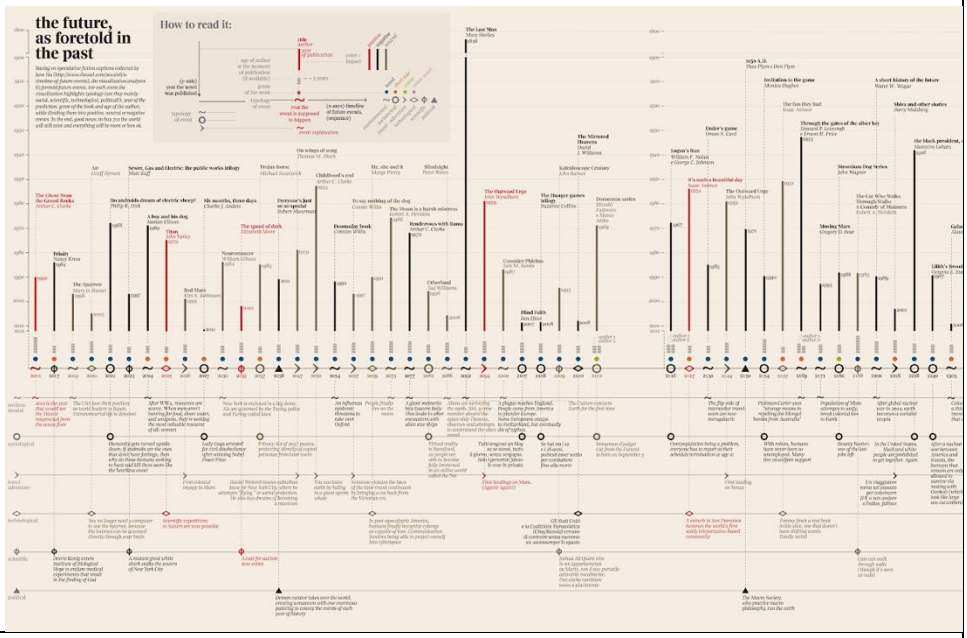
Time Zone: ET	Thursday, November 5, 2020
10:45 am - 11:00pm **(all times Eastern)**	Discussion of goals for Session 2. (Rich Carlson) Activity During Room Assignment (Lee Gimpel)

11:00pm - 12:45 pm	Brainstorm Session 1:
	
	Signpost identification
	• The 1st 30 minutes should be to frame the discussion
	  ○ Introduce visions from day 1 (5-10 min)
	  ○ Discuss and select the vision your team wants to put signposts on (10-20 min)
	  ▪ What do you expect to have in 30 years?
	  ▪ Why do you find this compelling? How will this impact/advance science or DOE's mission?
	
	• ***New work begins***, each group will identify intermediate signposts or milestones that would happen in the shorter and medium terms (2-3 and 5-8 years). What we are looking for is technology or social trends that would give us clues that we are on the right track.
	  ○ Guiding questions - *here to help, feel free to create your own questions*
	  ▪ How would precursor technologies/services be identified?
	  ▪ What are the precursor technologies/services?
	  ▪ Is there a rank order for when specific technologies/services need to be available?
	  ▪ What DOE or Lab policies need to be in place now, in 5 years?
	  ▪ What facilities need to be in place now, in 5 years?
	  ○ Output - a set of signposts that can be incorporated into a diagram like this:
	• 

12:45pm - 1:15 pm	Virtual Hallway Conversations/break

1:15pm - 3:00pm	Brainstorm Session 2: Implications of this problem
	• Now that we have the list of signposts, the groups need to consider how plausible they are and what DOE needs to do to either ensure they happen or the implications of them not happening.
	  o Who is actively working on these precursors?
	  o When would these precursor technologies/services be needed?
	  o What active or pending research programs need to be in place now? In 5 years? 10?
	  o What existing or planned facilities need to be in place now? In 5 years? 10?
	  o What software services or capabilities need to be in place now? In 5 years? 10?
	  o How successful has the community been in meeting previous goals?
	
	Day 2 - Outcome
	• Each group will now develop details for what it would take to get there, and some idea of how plausible this future is.
	• Post everything on-line

3:00pm - 3:30pm	Finishing session

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Time Zone: ET	Tuesday, November 10, 2020
10:45 am - 11:00pm	Day 3 tasks and assignment to rooms

11:00pm - 12:45 pm	Brainstorm Session 1: Pitfalls and Roadblocks
	• Detailed discussions on identifying pitfalls and potential roadblocks. If possible, list in rank ordering.
	  ○ What could prevent the technology/service/device from being developed (funding, materials, policies, researchers, operations staff, etc)?
	  ○ How will progress be measured/evaluated?
	  ○ How will lack of progress be measured/evaluated?
	  ○ Who will decide if progress is being made?
	  ○ What are the consequences of not engaging in this area?

12:45pm - 1:15 pm	Virtual Hallway Conversations/break

1:15pm - 3:00 pm	Brainstorm Session 2: Keys to Success
	• Identify who needs to be engaged, research communities, domain science communities, staff, management
	• Identify needed skills and knowledge (give examples)
	  ○ What benefits would society obtain?
	  ○ What benefits would the science/research community obtain?
	  ○ What research communities need to be involved
	  ○ What domain science communities need to be involved
	  ○ What staff and management communities need to be involved
	  ○ What kind of management structure is required
	  ○ How broadly will this impact society and/or the science community
	
	Day 3 - Outcome
	• Solid base on which to build final report.

3:00pm - 3:30pm	Conclusion