Focusing on the Individual: Changing everyday practices in response to large-scale cyberinfrastructure

Paper No. 324-1

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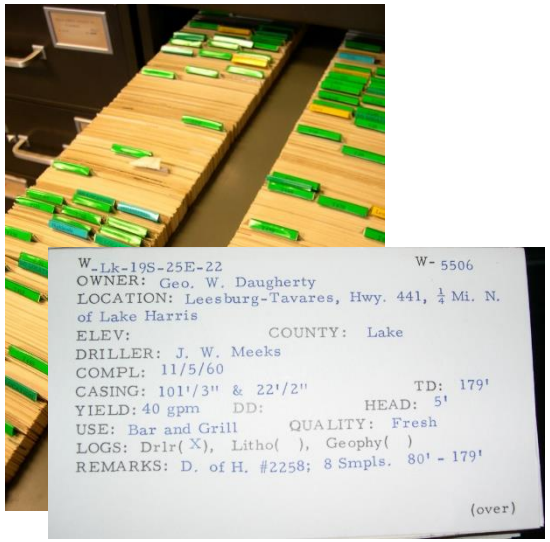
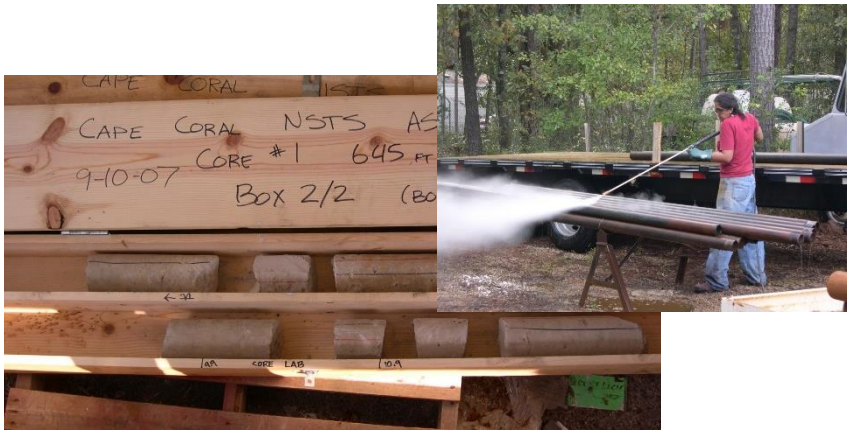
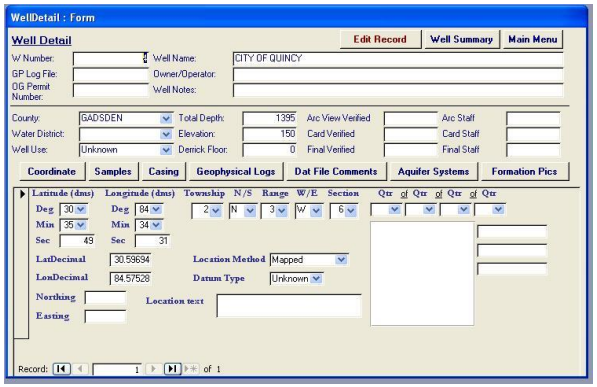
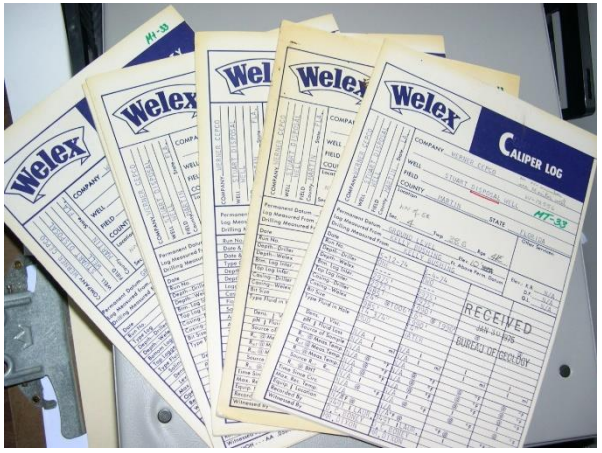
My background









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My background

There is a need for systems that enable scientists to focus their energies on answering ‘grand’ science questions instead of expending valuable time processing and translating data.

http://creativecommons.org/wp-content/uploads/2014/10/oabutton1.png

What is Cyberinfrastructure?

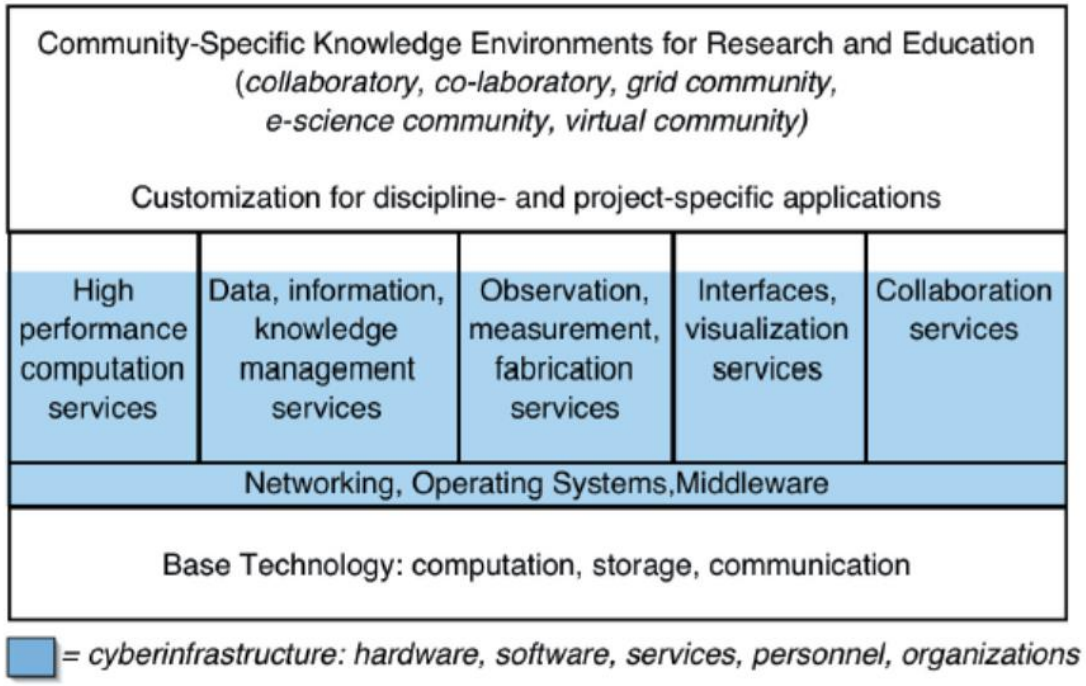

Figure 2.1 Integrated cyberinfrastructure services to enable new knowledge environments for research and education.

Atkins, D. (2003). Revolutionizing science and engineering through cyberinfrastructure: Report of the National Science Foundation blue-ribbon advisory panel on cyberinfrastructure.

What is Cyberinfrastructure?

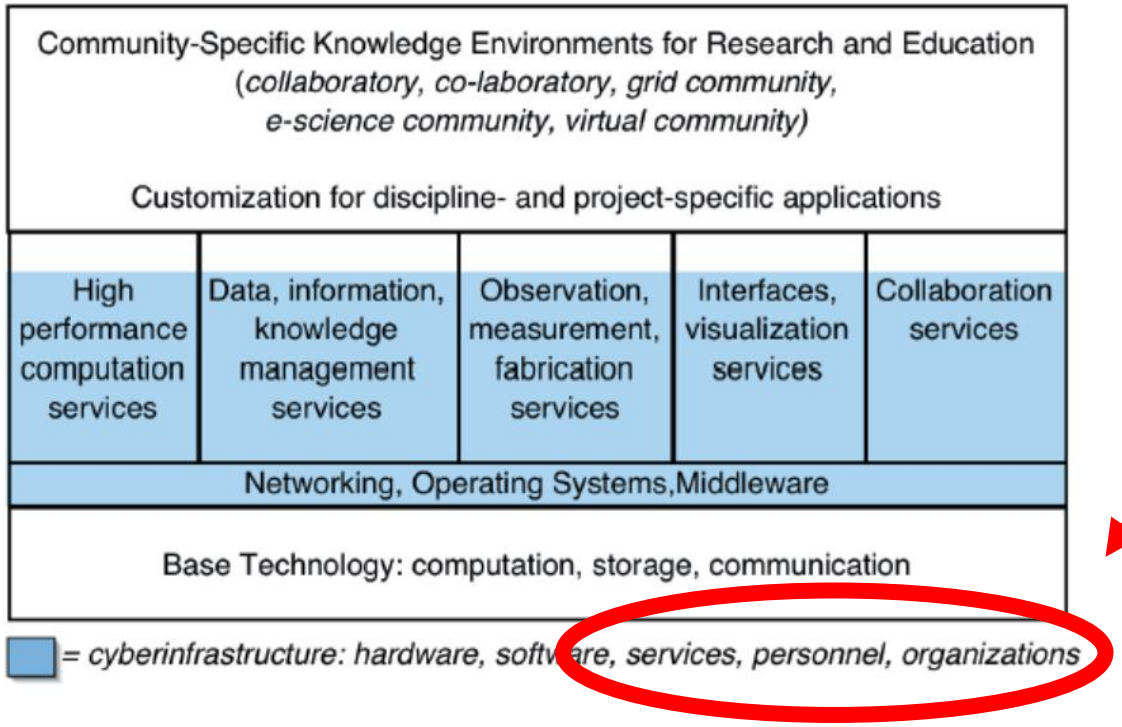

Figure 2.1 Integrated cyberinfrastructure services to enable new knowledge environments for research and education.

Cyberinfrastructure definition – **includes people!**

Stewart, C. A., Simms, S., Plale, B., Link, M., Hancock, D. Y., & Fox, G. C. (2010, October). What is cyberinfrastructure. In *Proceedings of the 38th annual fall conference on SIGUCCS* pp. 37-44). ACM.

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Cyberinfrastructure as standardization

How will these tools become part of the every day practices of the domain user community?

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Steps towards standardization

1. Pre-conceptualization
2. Conceptualization
3. Discussion
4. Writing
5. Implementation

Cargill, C. F. (2011). Why standardization efforts fail. *Journal of Electronic Publishing*, *14*(1).

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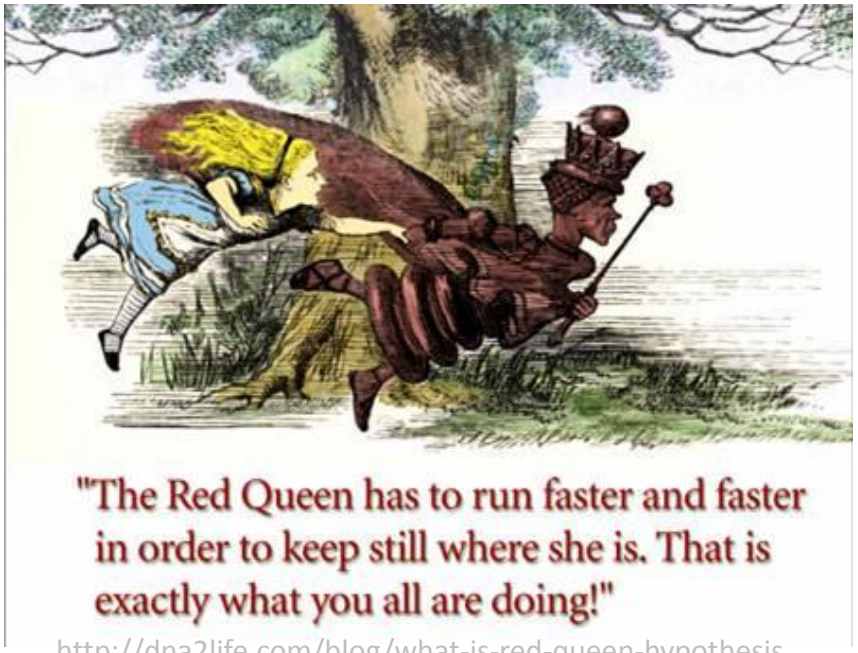
Standards as agents of change



http://dna2life.com/blog/what-is-red-queen-hypothesis

"immovable standards fail to adapt to the friction feedback loop and therefore die and get replaced. In order for a standard to survive in a stable the system, it needs to continue to change."

Cargill, C. F. (2011). Why standardization efforts fail. *Journal of Electronic Publishing*, *14*(1).

Standard failure modes

1. Failure to get started
2. Failure to achieve consensus
3. Failure to finish / focus
4. Failure in the marketplace
5. Failure to ensure compatibility
6. Failure to serve the public good

Cargill, C. F. (2011). Why standardization efforts fail. *Journal of Electronic Publishing*, *14*(1).

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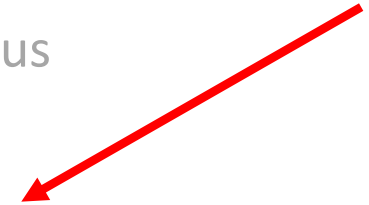

The individuals, the domain scientists, the researcher in a lab or the field – they are the market place.

Cargill, C. F. (2011). Why standardization efforts fail. *Journal of Electronic Publishing*, *14*(1).

Cyberinfrastructure failure modes?

Training and Development

Image courtesy of Jon Stelling

How can we make changes?

- Membership Communities
  - GSA, EarthCube, ESIP, AGU-ESSI, Geo informatics communities…
- As Peer Reviewers
  - Journals
  - Conferences
  - Proposals
- Teachers/Mentors
  - Learning from students as well as allowing them the freedom to try new methods

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My questions to you….

How do you manage *(potential)* failure in your cyberinfrastructure initiatives?

Thank you!

For more information on my dissertation research: https://ramdeen.web.unc.edu/dissertation Password: aasg

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