Opportunities and Benefits

1. Certain problems are common to all fields — ingest data, manage large amounts of data, organize and reorganize it, analyze it, visualize it, report on it, preserve it

2. Digital is the best way to communicate knowledge, hence, the best way to create knowledge

3. A knowledge Ecosystem

4. Standards metadata → Data (Discovery|Association|Dissemination) →New Science

5. Build a pre-competitive commons for evolving a generative model of diseases

6. Data-driven networks can combat the wants our minds have for story telling

7. Monitor traits at the population level

8. The crowd + the cloud = our future

9. Translating publicly-available molecular data into biomarkers

Opportunities and Benefits

10. Use drug meant for one disease to treat another disease

11. Science can learn data sharing from the worldwide web

12. Explore the use of LOD in disciplines other than genomics and astronomy

13. Focus on the long tail of science, those fields where the immediate benefits of information technology are not immediately apparent

14. Policy issues: quality, location, format, access, and support

15. Serendipitous innovation

16. Government policies to share data (America Competes Act)

Range of Options

1. Jim Gray's 7 Calls to Action

2. Optimize science for the community

3. A knowledge ecosystem: rich authoring, sem storage

4. Build a pre-competitive commons for evolving a generative model of diseases

5. We need comprehensive monitoring of many traits at the population level

6. Break the siloed PI mentality of science

7. Use the concept of code versioning for data

8. Adaptive tools for adaptive modeling

9. Lightweight integration instead of fullscale ontology

10. Incentives for those who collect data

Range of Options

11. Scientific systems with hooks to interface with decision-support tools

12. Simple metadata and lightweight semantics

13. Make viz a first-class citizen of science

14. Quick and easy viz, not necessarily hi-def ("VizTube?")

15. Simple metadata, searchable and localizable

16. Change culture by changing practices

17. Incentive to produce results vs. mandate to share data

18. ~~Four Three~~ Four licensing options — (none, all rights reserved); PD/CC0; orderly set of well-recognized licenses (CC family); custom licenses