COMPUTING VISIONS 2025 ROUNDTABLE DISCUSSIONS

WHY VISION 2025?

There is a sense in many different parts of the community that we are on the cusp of transformational changes that make looking out a decade from now very different than such exercises in the past

- Not just technological change, but societal change and individual change
- Need to get beyond our disciplinary and sub-disciplinary silos to grasp it fully

Genesis Vision 2025

- Nov. 2012: AD Farnam Jahanian engaged CISE Advisory Council in a brainstorming around CISE 10-15 years out

- Feb 2013 CISE AC Vision 2025 WG
  - Culler, Landay (chairs), Fran Berman, Jaime Carbonell, Teresa Dahlberg, José Fortes, Juan Gilbert, Peter Lee, Stefan Savage, Bobby Schnabel
  - 3 meetings in preparation for a May 2013 breakout
    - Brainstorming, Major Thrusts, NSF implications

- May 2013 Breakout Session and Discussion
  - Compelling experience led to a desire to engage the community more broadly

  => Joint CCC/AC committee to produce an integrated suite of workshops offering different perspectives on common question.
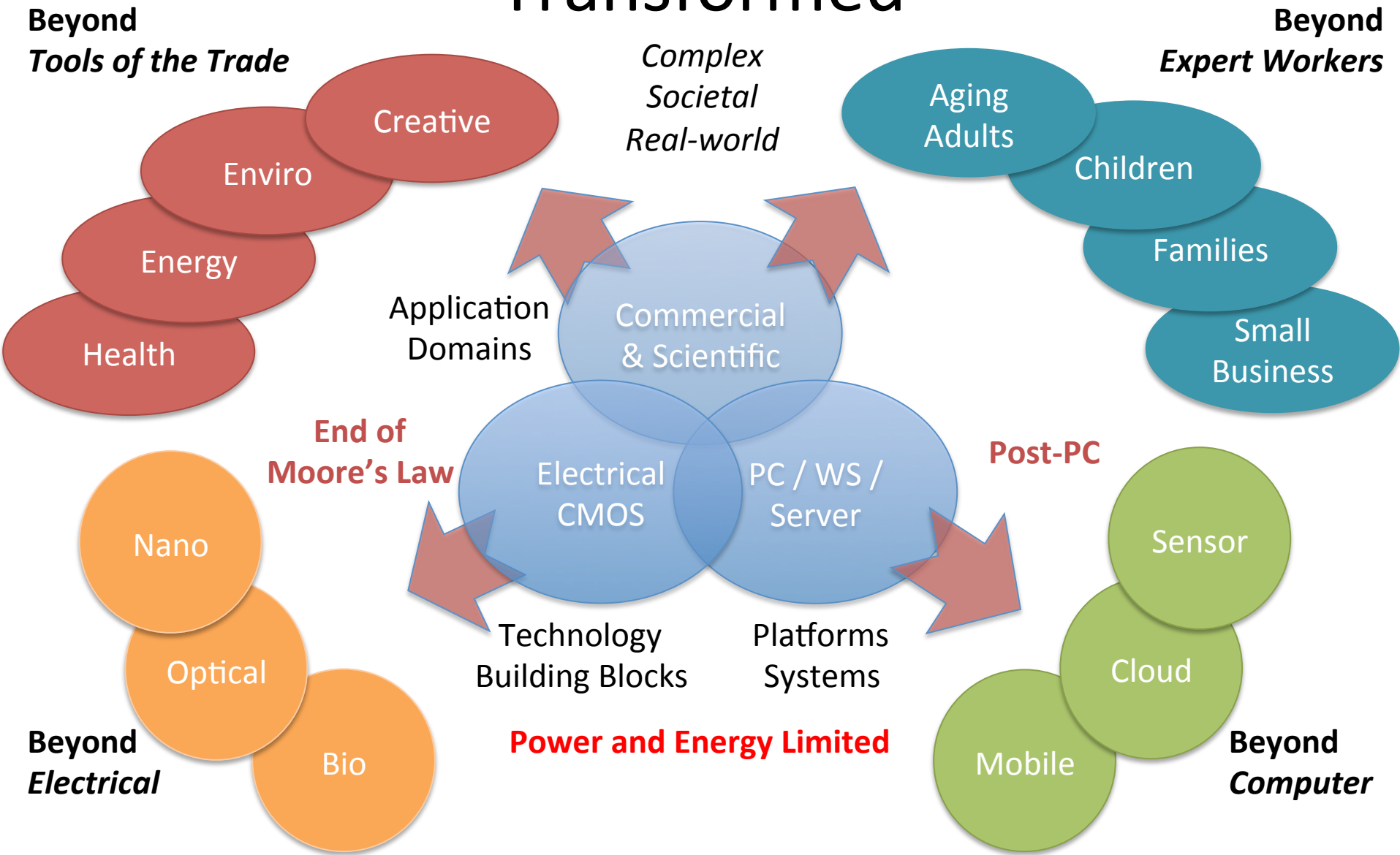
The Charge

Where is the field going over the next 10-15 years and what should NSF CISE
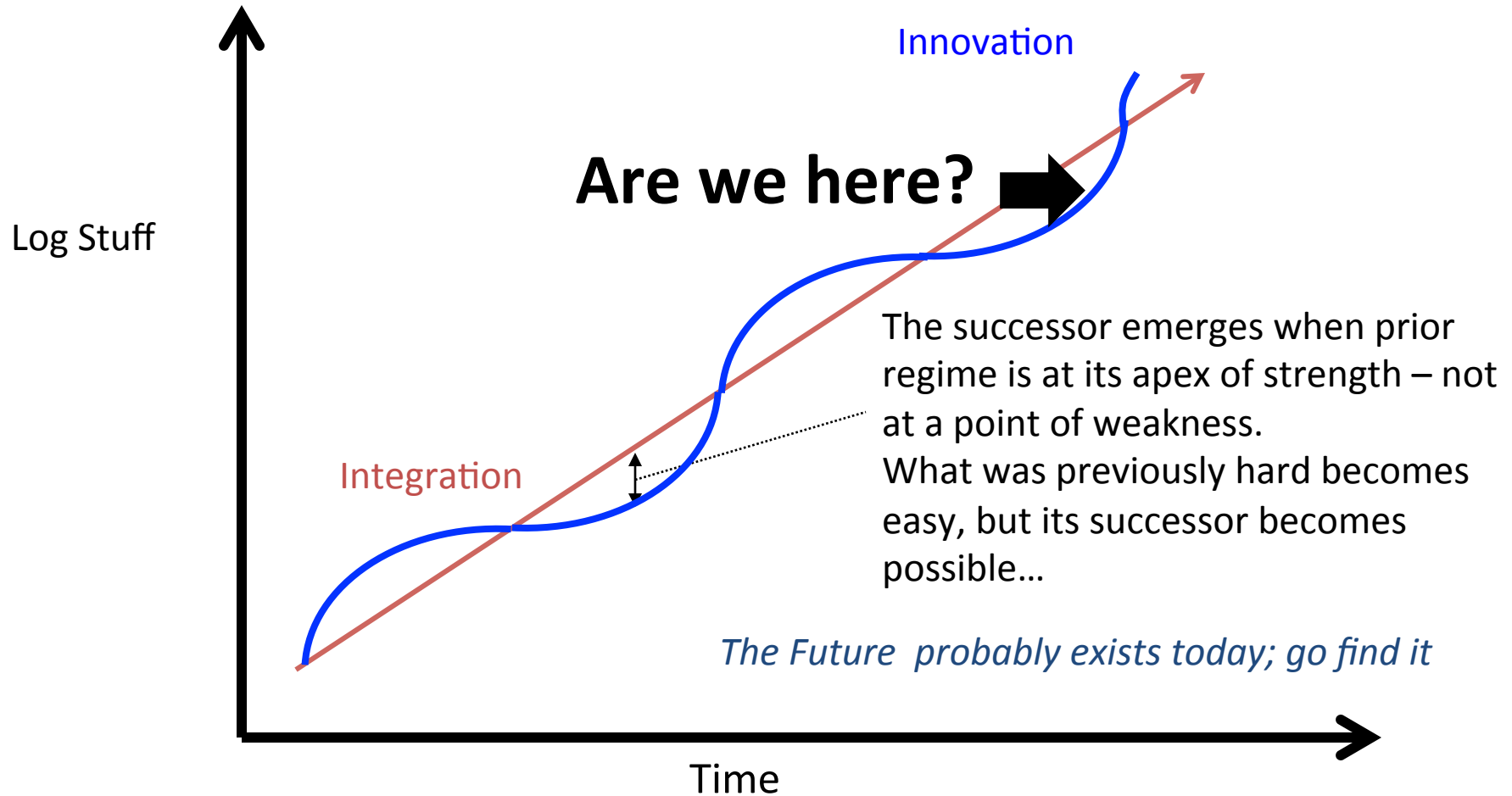do in response?

The Charge

Where is the field going over the next 10-15 years and what should NSF CISE
(and the computing community)
do in response?

The Three Legs of CISE "sweetspot" Transformed

Beyond
Tools of the Trade

Creative

Enviro

Energy

Health

*Complex
Societal
Real-world*

Aging
Adults

Children

Families

Small
Business

Beyond
Expert Workers

Application
Domains

Commercial
& Scientific

**End of
Moore's Law**

Electrical
CMOS

PC / WS /
Server

Post-PC

Nano

Optical

Bio

Technology
Building Blocks

Platforms
Systems

Sensor

Cloud

Mobile

Beyond
Electrical

Power and Energy Limited

Beyond
Computer

Tides of Innovation

Innovation

Are we here? ➡

Log Stuff

The successor emerges when prior regime is at its apex of strength – not at a point of weakness.
What was previously hard becomes easy, but its successor becomes possible…

Integration
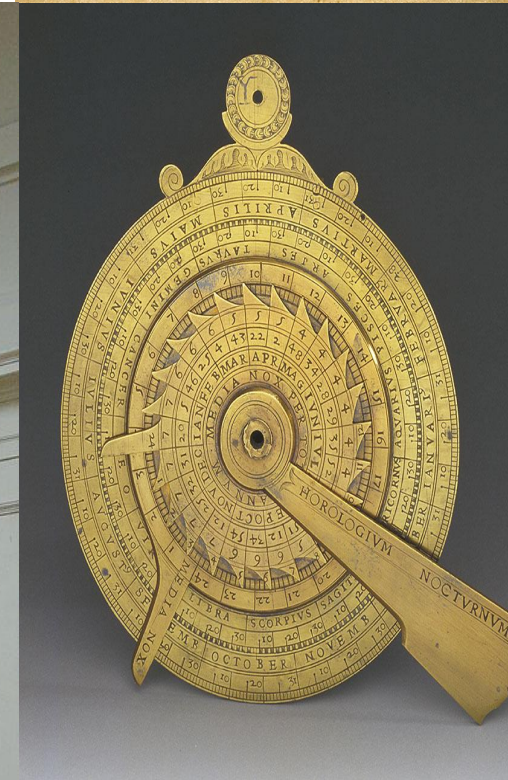
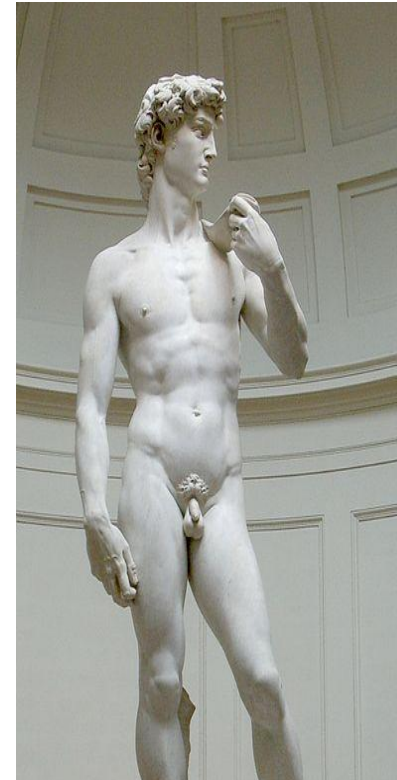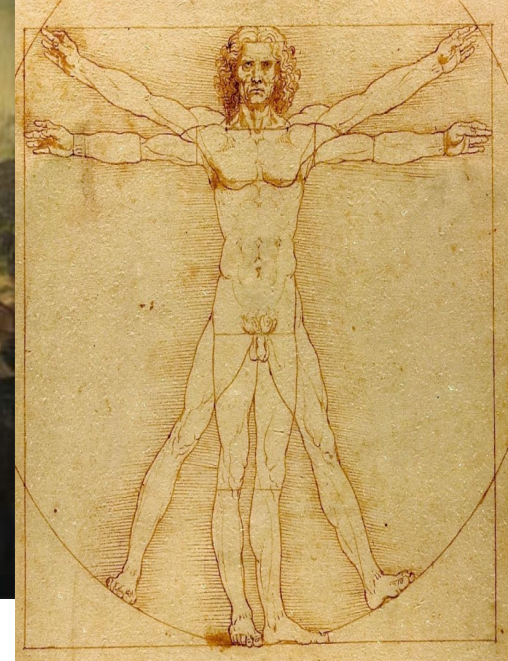*The Future probably exists today; go find it*

Time

RENAISSANCE

Cultural movement sandwiched between the dark ages and the industrial revolution giving rise to modern science, art & culture

Enabled by the invention of movable type - sped the dissemination of ideas...

ART

+

SCIENCE

+

CULTURE

A New **Renaissance**

- The Information Age has transformed the world as we know it. (is transforming?)

- Now that digital technologies are fundamentally integrated in virtually every aspect of modern life, what does the "new" Renaissance circa 2025 promise?

Renaissance 2025: Accelerators

- *Technical innovation*: Integration of revolutionary new technologies and evolutionary old technologies

- *Broader Intellectual property approach*: Ownership, rights, use, re-use

- *Evolved Social controls*: Policy, privacy, regulation, governance, access

- *Responsible Resourcing*: Sustainable environmental support, sustainable financial support, adequate infrastructure support, adequate human support

Plan for the day

- *What visions inspired you?*

- *What visions do we hear in our community?*

- *How do we describe the landscape of these future visions?*

- *How do we prepare and support our community?*