SCIENCE AND TECHNOLOGY EDUCATION IN POSTINDUSTRIAL SOCIETY

Culturological approach

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OUTLINE

- Introduction
- Culture. The space of culture
- Spiritual, Social, and Technological cultures
- Culture of Information Society. Trends
  - Personal Identity Online
  - Social Media
  - Data intensive Science
- Science as a value
- Education 2.0
- Personal vs. Social in Postindustrial Education
- Conclusions

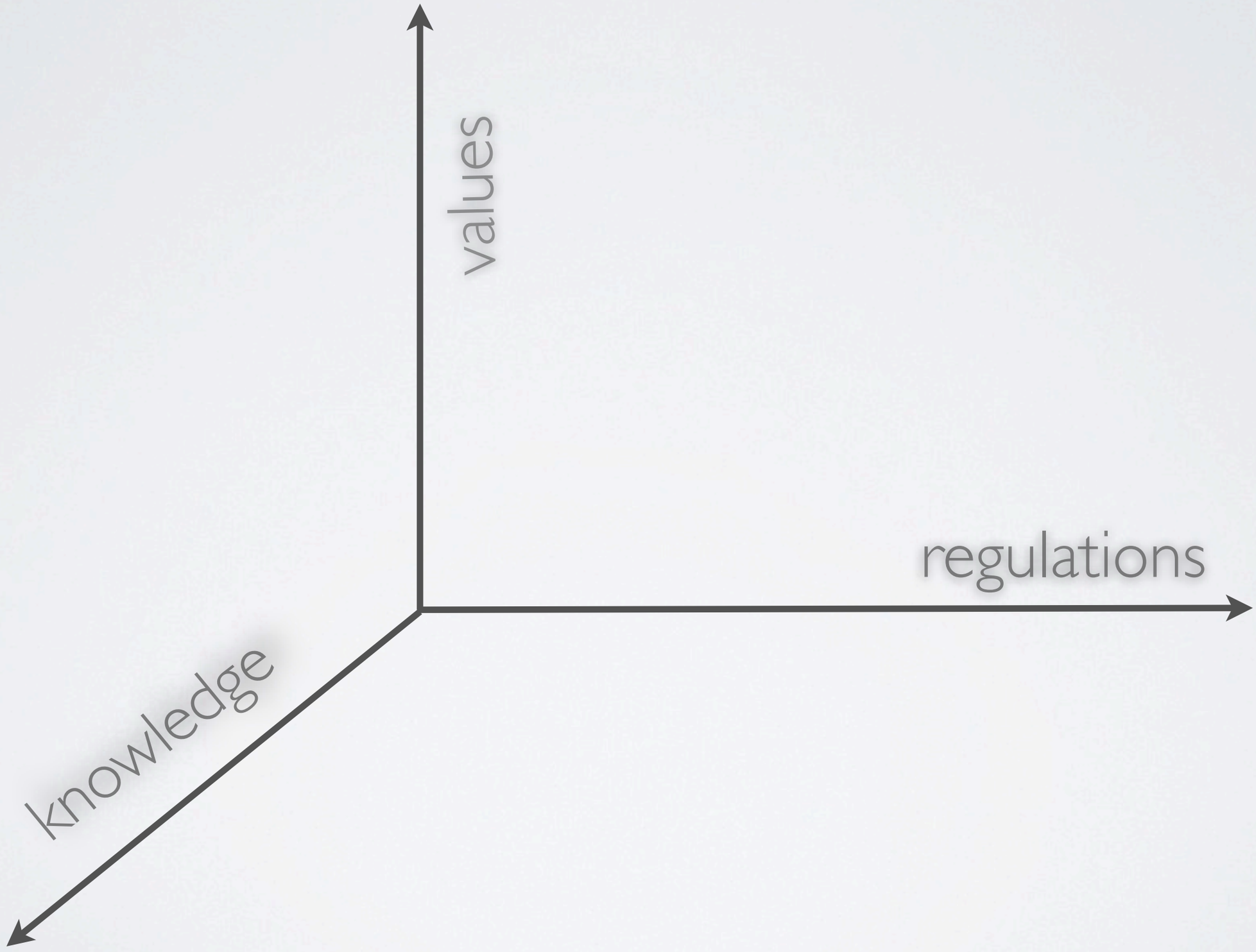
SPACE OF CULTURE

Three-dimensional model

PARADIGMS OF CULTURE

- Cognitive paradigm - knowledge
- Values paradigm - ideas
- Regulative paradigm - rules

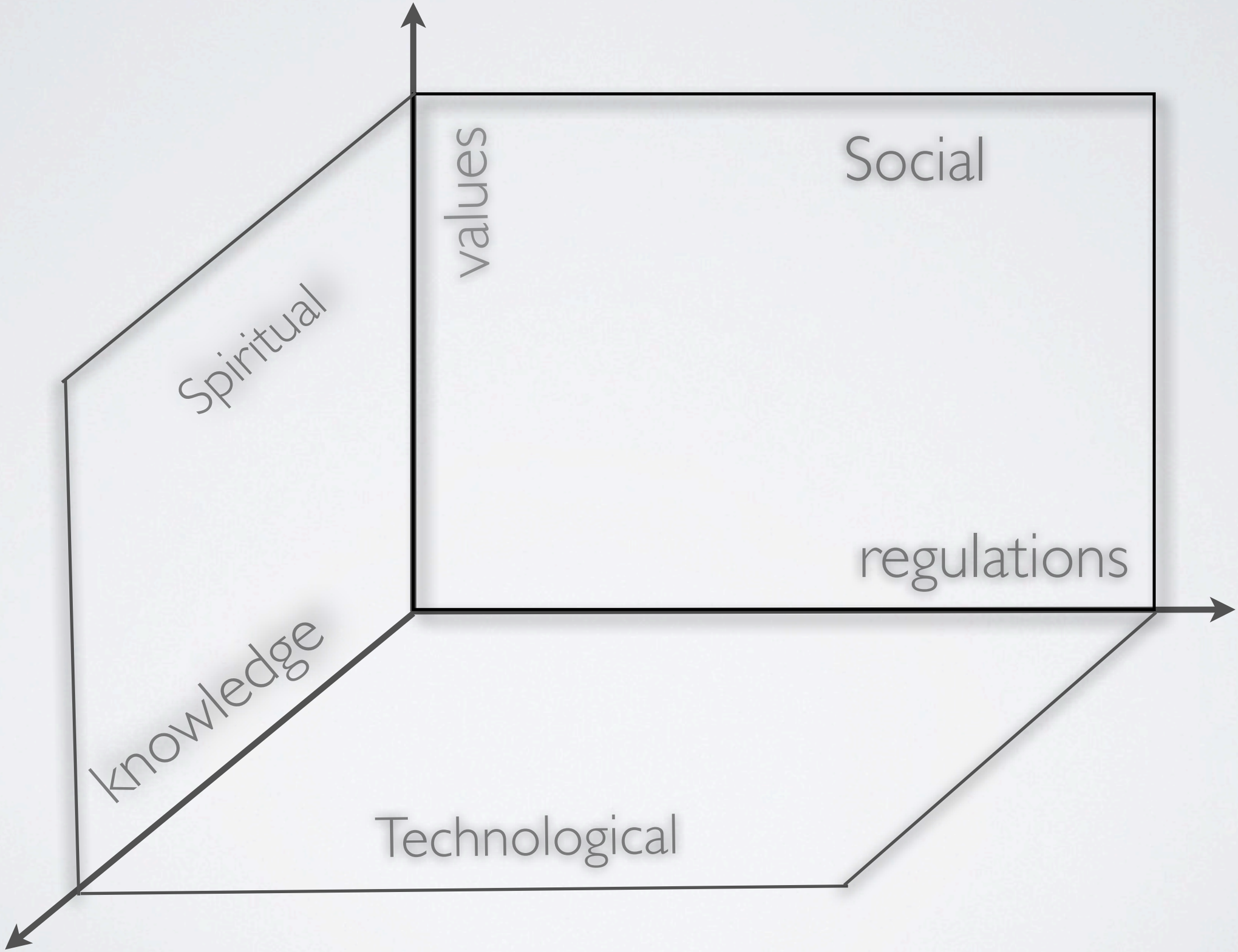
AXIS OF CULTURE



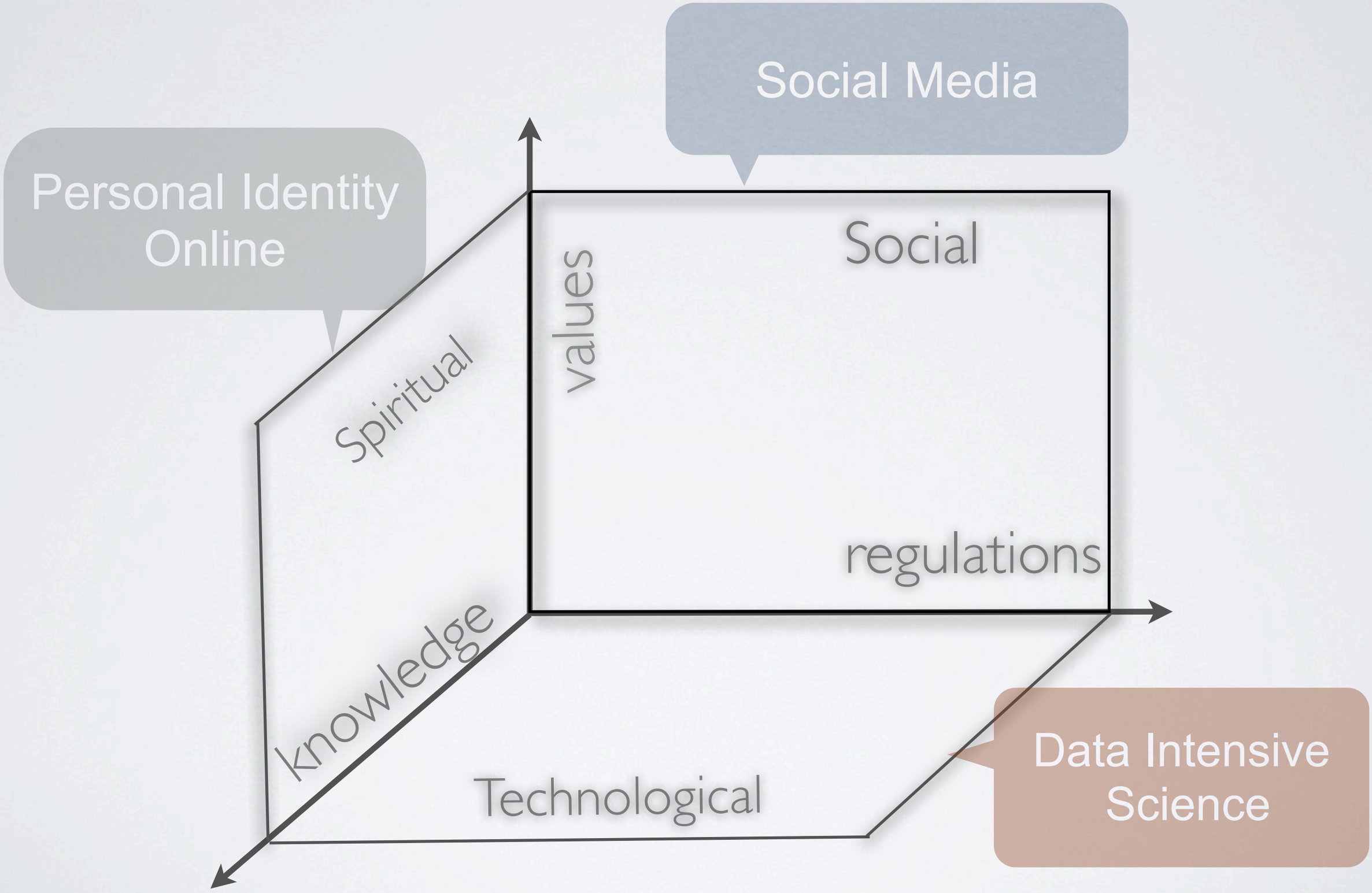
TYPES OF CULTURE

- Spiritual
- Social
- Scientific - Technological

SPACE OF CULTURE



CULTURAL TRENDS OF INFORMATION SOCIETY



DEFINITIONS

	Neutral	Value-laden
Personal Identity Online	Ability of websites to distinguish one individual from another	Personal identity formed in cyberspace
Social Media	Use of Web applications supporting the creation of user-generated content	New way of forming social consciousness
Data-Intensive Science	Data growing faster then technology	Fourth paradigm of science

PERSONAL IDENTITY ONLINE

Spiritual Culture of Postindustrial Society

PERSONAL IDENTITY ONLINE

- Infosphere
- Multipersonality
- Personality in Cyberspace

SOCIAL MEDIA

Social Culture of Postindustrial Society

CARR - SHIRKY WAGER

Does the Internet Make You Smarter?

Nicholas Carr

Clay Shirky

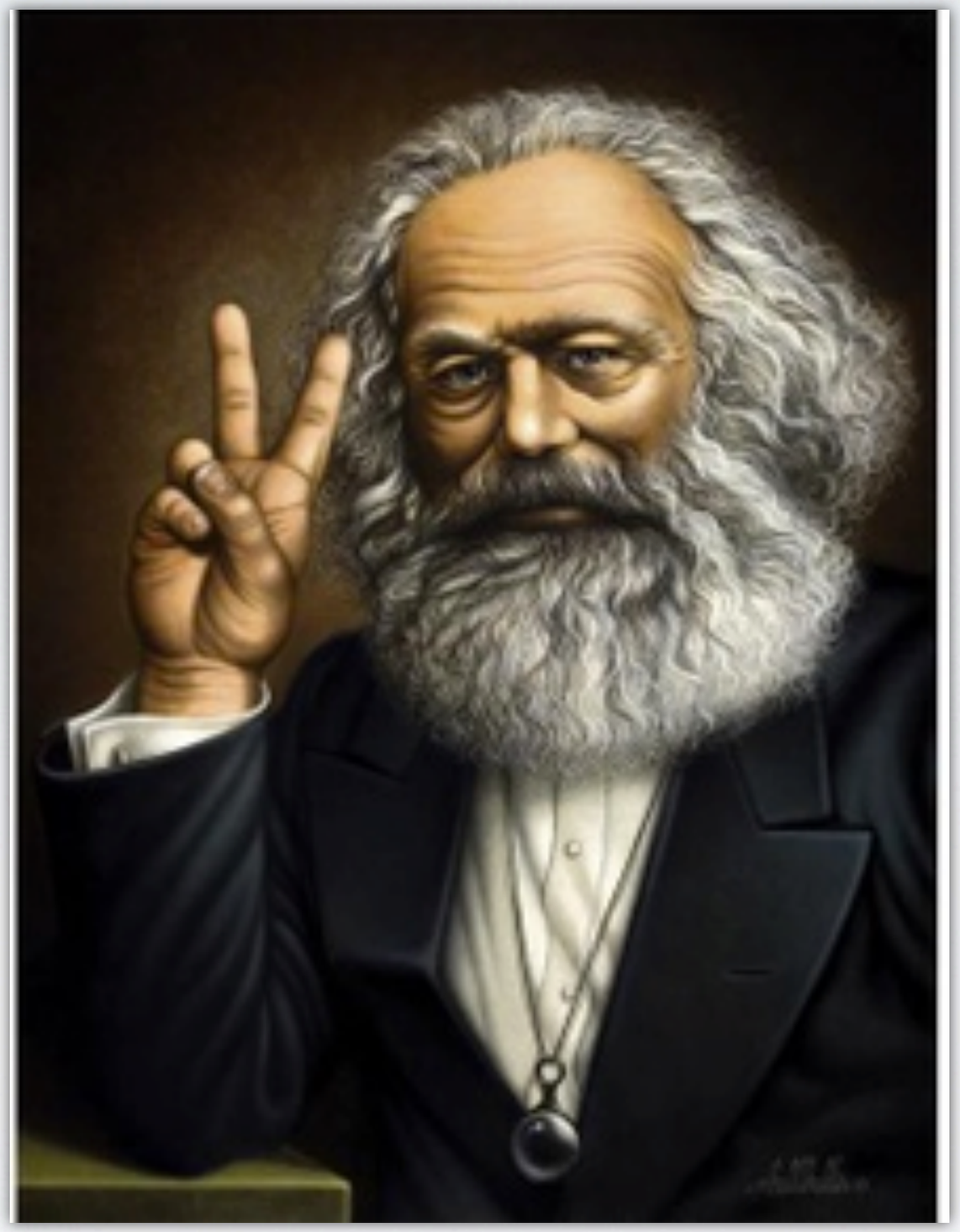
CARR–BENKLER WAGER

Whether the most influential sites on the Internet will be peer-produced or price-incentivized systems?

Nicholas Carr

Yochai Benkler

MARX IS BACK?



DATA-INTENSIVE SCIENCE

The Fourth Paradigm of Science - Technological Culture of Postindustrial Society

HISTORY OF COMPUTING

Communication Era

Consumer Era

1970s- 1980s 1990s Today+

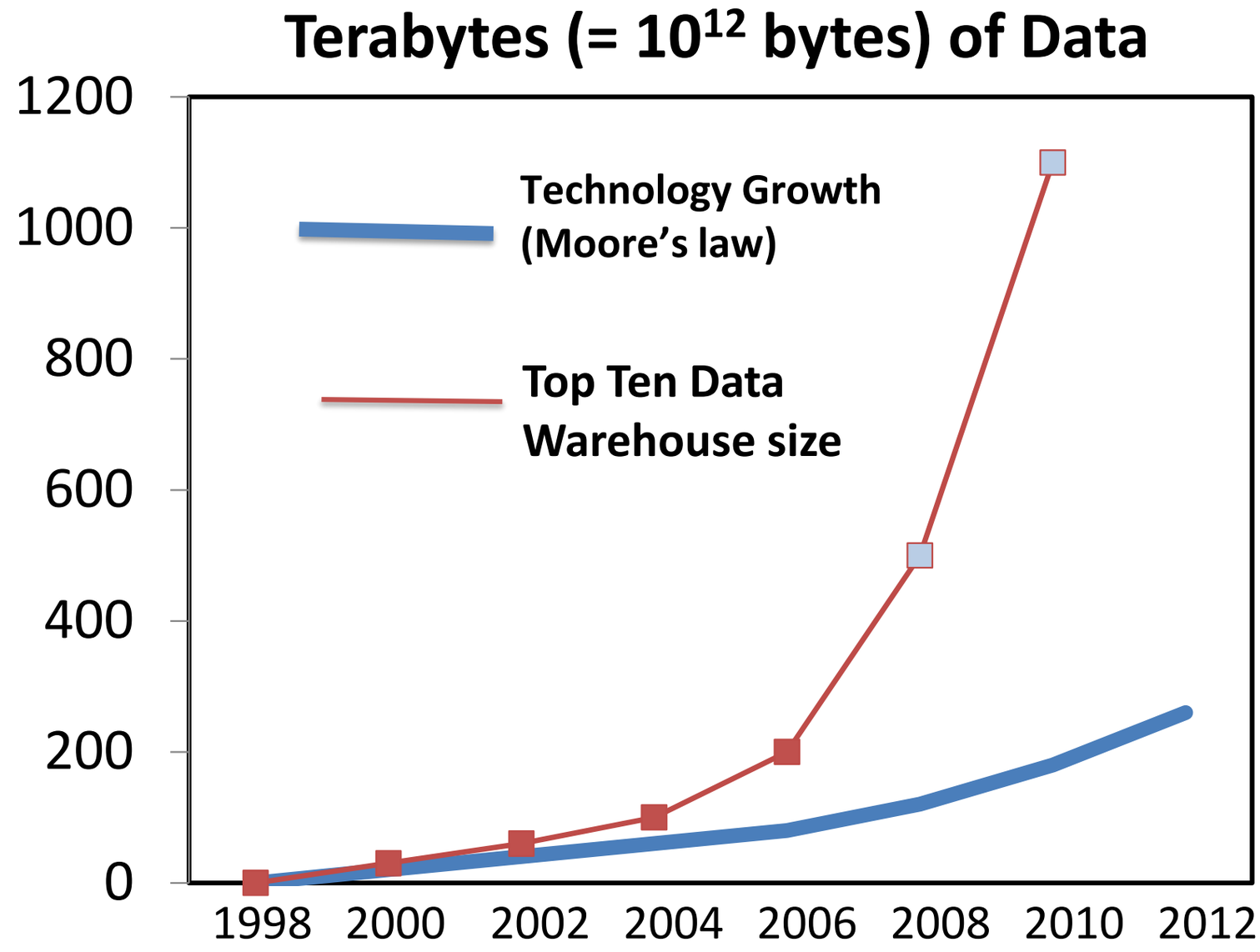
Mainframes

PC Era

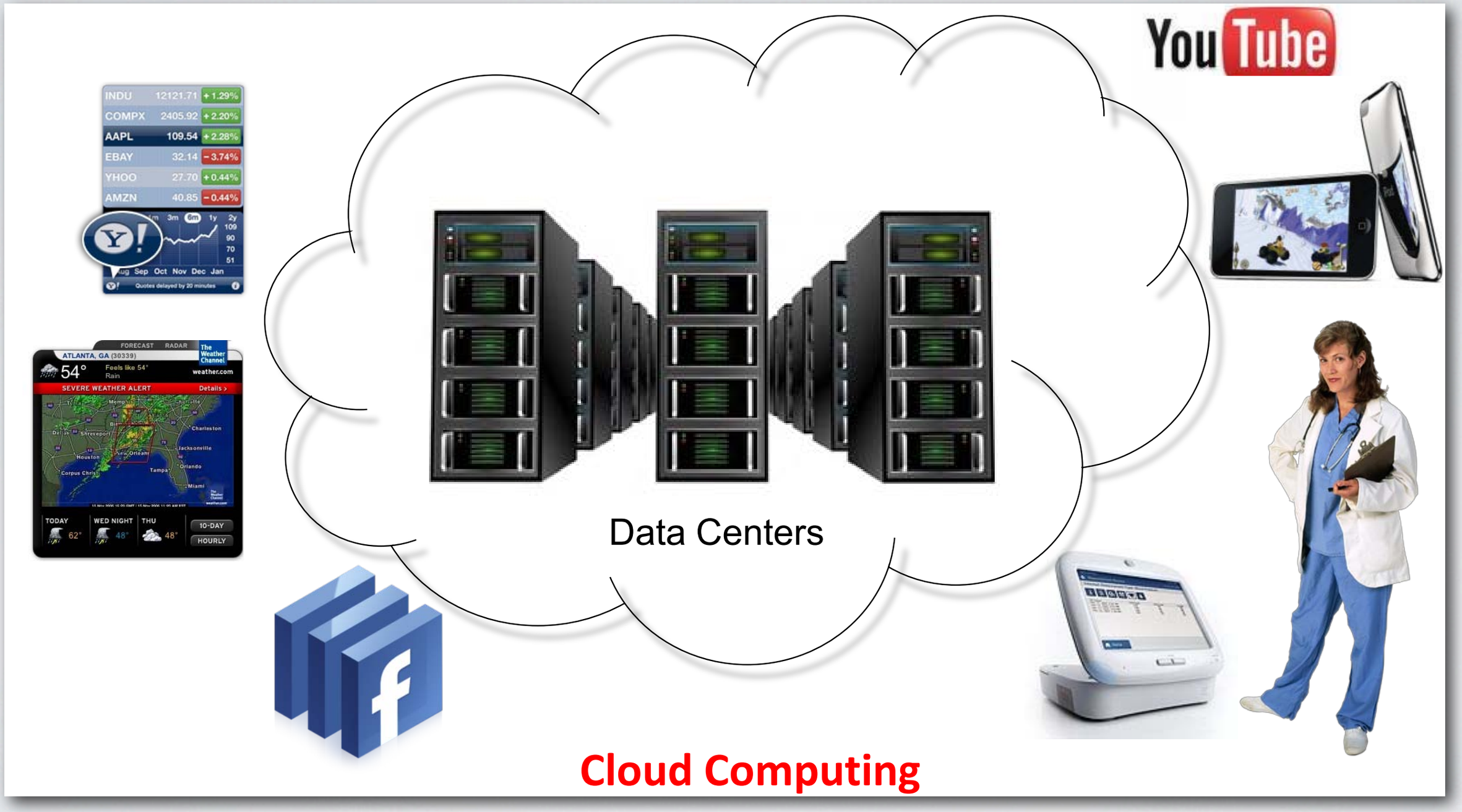
- From computing-centric to data-centric
- Consumer Era: interfacing, connectivity and access

DATA GROWING FASTER THEN TECHNOLOGY

- Commerce entirely data-driven
- Science handling massive data
- Companies spending $$$ to collect/analyze data
- Personalized computing



ALL ABOUT ACCESSING DATA



SCIENCE PARADIGMS

I. Empirical Science

II. Theoretical Science

III. Computer based Science

IV. Data Intensive Science

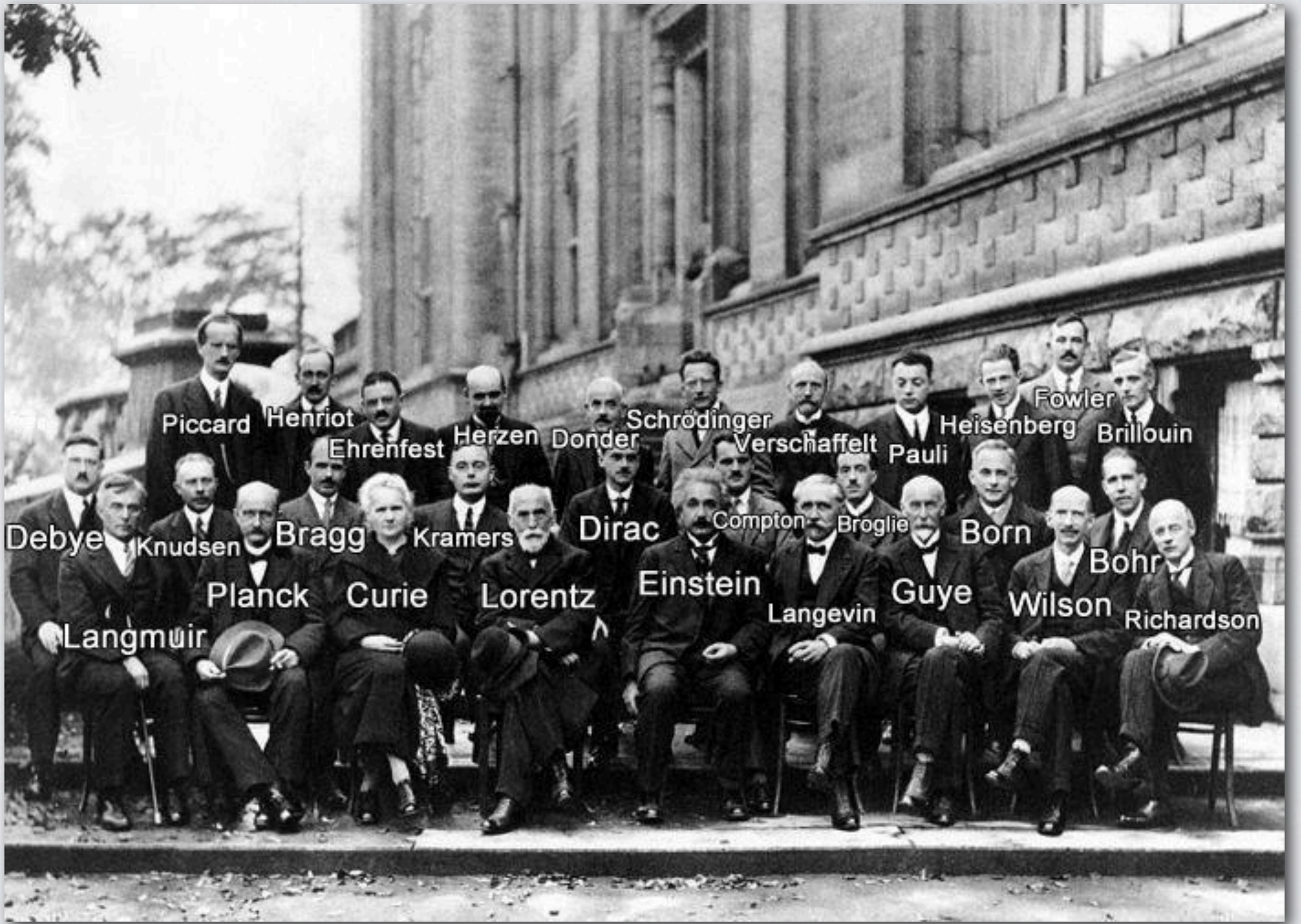
THE FOURTH PARADIGM: DATA-INTENSIVE SCIENTIFIC DISCOVERY

The speed at which any given scientific discipline advances depends on how well its researchers collaborate with one another, and with technologists, in areas of eScience such as databases, workflow management, visualization, and cloud computing technologies.

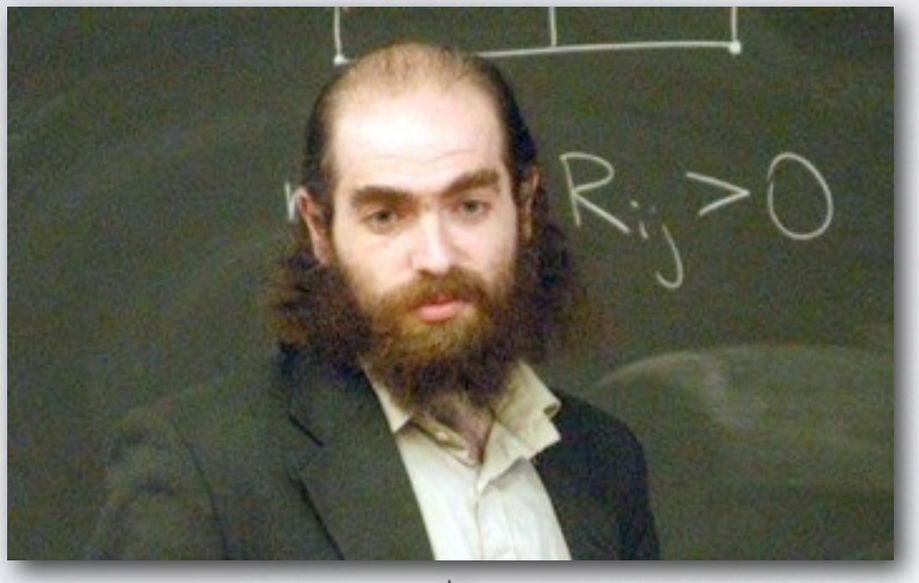
SCIENCE AS THE VALUE

From XX to XXI century

SCIENCE IN XX CENTURY



VALUES DILEMMA



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EDUCATION 2.0

Education of the era of Web 2.0

WEB 2.0

PIO	Social Media	Data Intensive
Interactivity	*Sociality*	*Mash-up*

WEB 2.0

- Interactivity
  - Web is a mediator between users but not an information store
  - Dynamic improvement
- Sociality
  - Creation of communities
  - Crowd-sourcing support
  - Personal status support
  - Self-regulation
- Syndication (Mash-up)
  - Hierarchical integration of services
  - Exponential grow of data

EDUCATION 2.0

PIO	Social Media	Data Intensive
Subjecthood	*Collaboration*	*Redundancy*

EDUCATION 2.0

- Subjecthood
  - Personalized Knowledge vs. Standard Curriculum
  - Structurisation. Decreasing of Entropy
  - Subjectiveness of Content
- Collaboration
  - Teacher as a partner. Leader vs. driver
  - Personal, naturally formed, multidimensional status of a participant
  - New assessment. Monitoring of personal achievements vs. standard grades
- Redundancy
  - Redundant educational environment. Variety of knowledge sources (media, culture artifacts, people of different ages and qualification)
  - Personal way of learning
  - Role of a teacher as an organizer of students activities but not as a provider of the content

WEB VS. EDUCATION 2.0

	PIO	Social Media	Data Intensive
Web 2.0	*Interactivity*	*Sociality*	*Mash-up*
Education 2.0	*Subjecthood*	*Collaboration*	*Redundancy*

HISTORICAL FORMS OF EPISTEMOLOGY

- Direct observation
- Indirect observation. Acceleration
- Indirect observation. Energy transform
- Indirect observation. Information transform
- Social epistemology. Data intensive learning

HISTORICAL FORMS OF EDUCATIONAL PROCESS

- Preindustrial Society. Personal Education
- Industrial Society. Class-Lesson. Socialization
- The end of XX - Computer Micro-worlds. Personalization
- Socialized Educational Environments

CONCLUSIONS

- Both technology and education can be presented in the space of three types of culture - spiritual, social and technological
- There are three contemporary phenomena corresponding to the three types of culture: Personal Identity Online, Social Media and Data Intensive Science
  - Personal Identity is formed in Cyberspace in addition to real identity
  - Social Media forms social consciousness
  - Science becomes data-intensive
- Crisis of the cultural value of Science Education and domination of Data Intensive Science
- Education 2.0 provides a common platform for both personal and social components of educational process