Disrupting Class:
How Disruptive Innovation Will Change the Way the World Learns
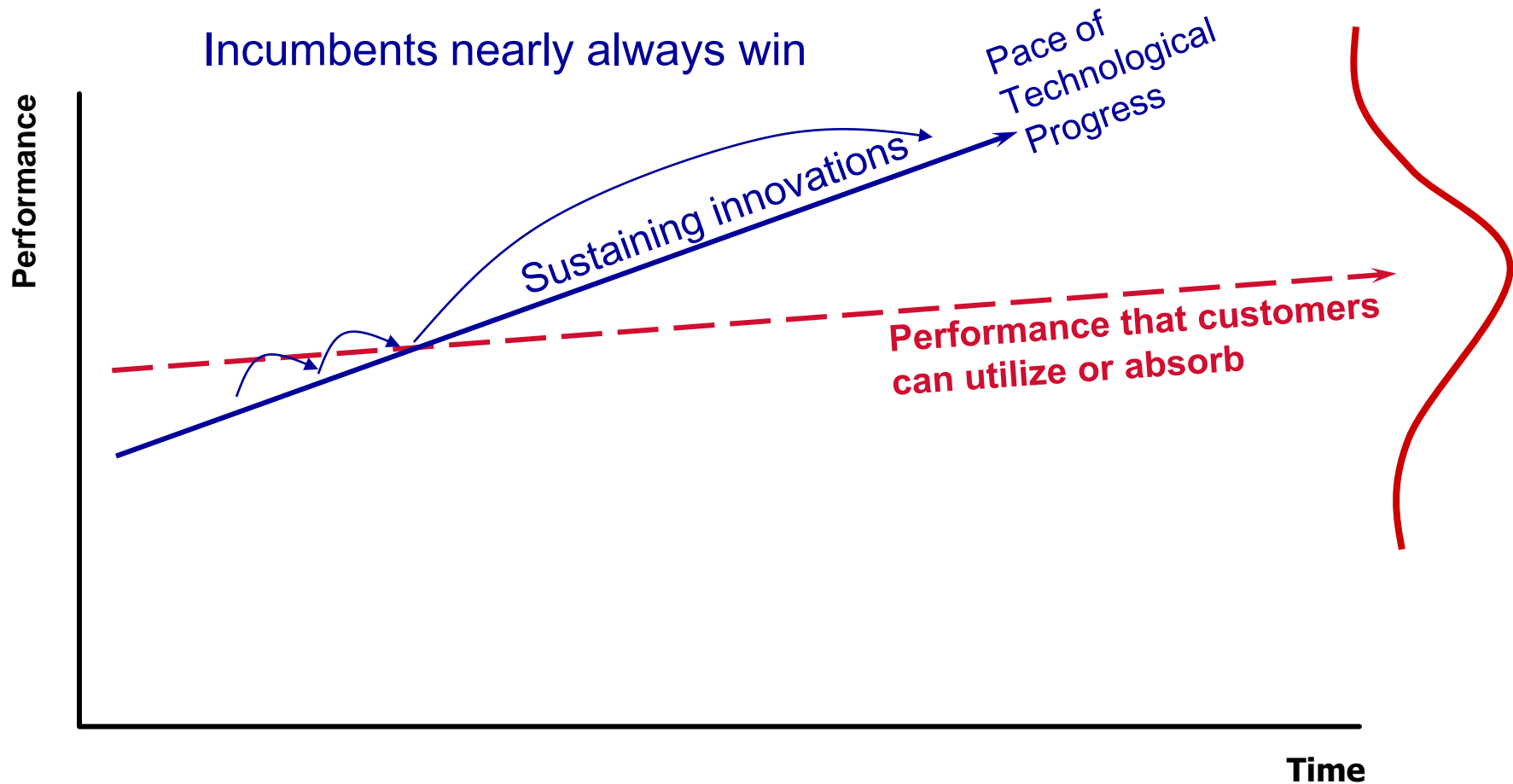

Michael B. Horn
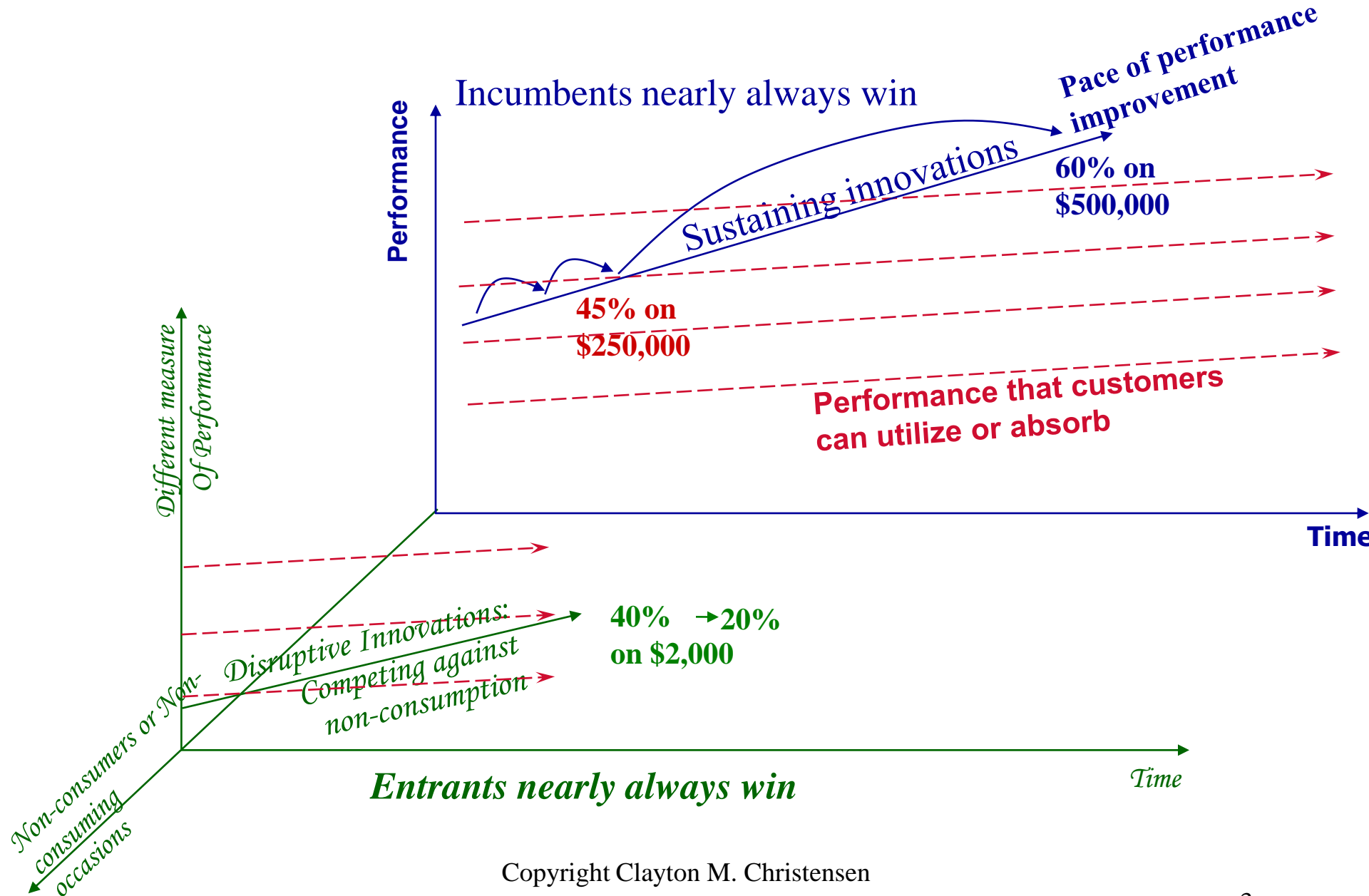
mhorn@innosightinstitute.org

September 17, 2010

Sustaining and Disruptive Innovations

Incumbents nearly always win

Pace of Technological Progress

Sustaining innovations

Performance that customers can utilize or absorb

Performance

Time

Disruptive Innovations create asymmetric competition

Incumbents nearly always win

Pace of performance improvement

Performance

Sustaining innovations

60% on $500,000

45% on $250,000

Performance that customers can utilize or absorb

Time

Different measure Of Performance

Disruptive Innovations: Competing against non-consumption

40% → 20% on $2,000

Non-consumers or Non-consuming occasions

Entrants nearly always win

Time

Disruption in business models has been the dominant historical mechanism for making things more affordable and accessible

Yesterday
- Ford
- Dept. Stores
- Digital Eqpt.
- Delta
- JP Morgan
- Xerox
- IBM
- Cullinet
- AT&T
- State universities
- Sony DiskMan

Today
- Toyota
- Wal-Mart
- Dell
- Southwest Airlines
- Fidelity
- Canon
- Microsoft
- Oracle
- Cingular
- Community colleges
- Apple iPod

Tomorrow
- Chery
- Internet retail
- RIM Blackberry
- Air taxis
- ETFs
- Zink
- Linux
- Salesforce.com
- Skype
- Online universities
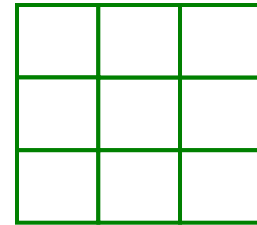- Cell Phones

Different Systems Architectures

Proprietary, interdependent architectures:
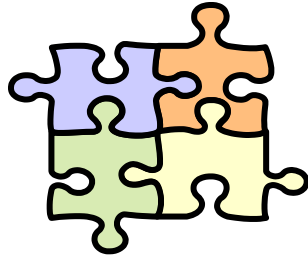
Microsoft Windows; Apple products
Customization is very expensive

Modular, open architectures

Linux; Dell PCs
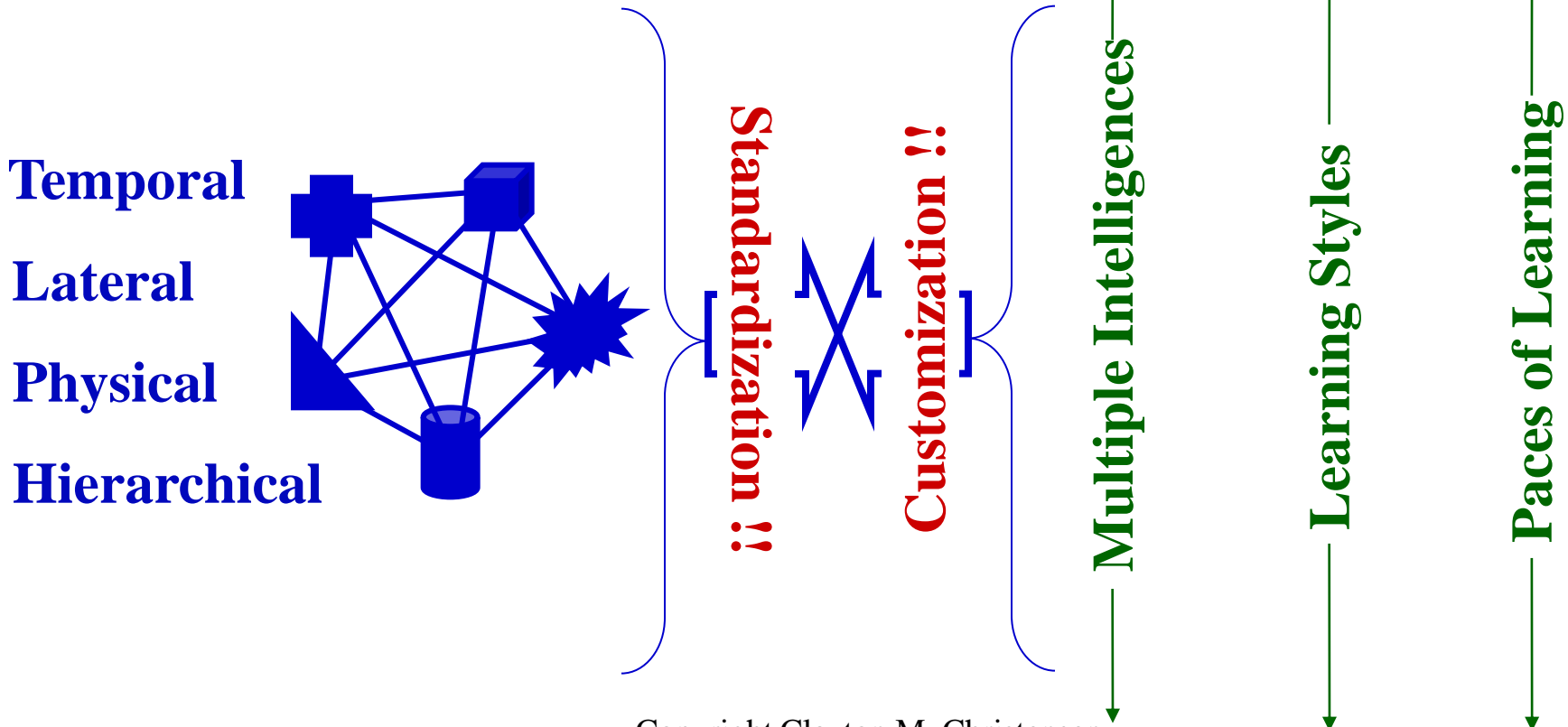
Customization is straightforward

We have different learning needs at different times

- Multiple intelligences
  - Linguistic, Mathematical, Kinesthetic
- Motivations/interests
- Learning Styles
  - Visual, aural, playful, deliberate
- Depends on subject/domain
- Research in practice
  - Scientific Learning
  - CAST/Universal Design for Learning
  - K12, Inc.
  - All Kinds of Minds
  - Renzulli Learning

- Talents
  - "Giftedness" is fluid
- Aptitudes
- Different paces
  - Fast, medium, slow
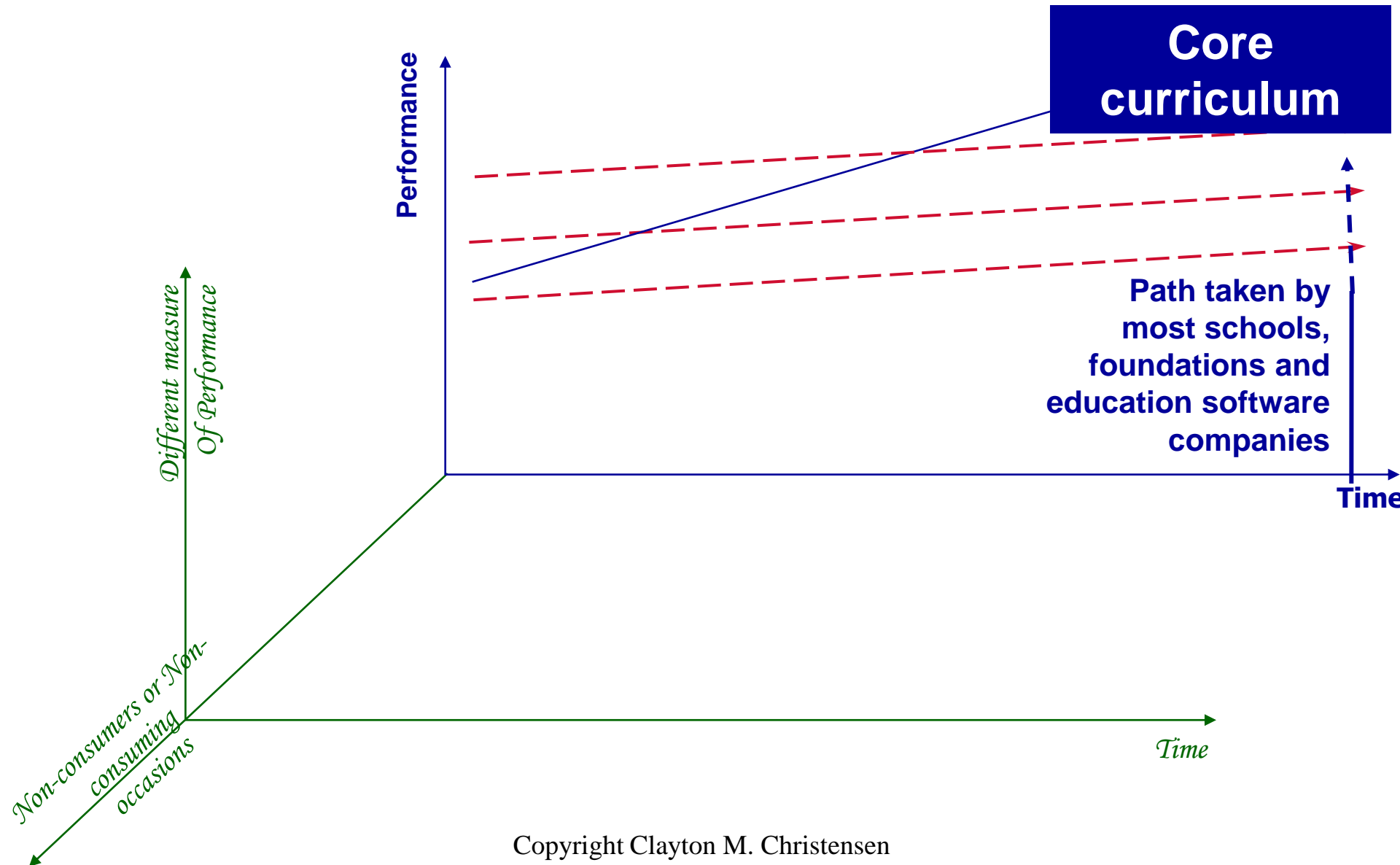- Ongoing neuroscience research
  - fMRI scans

Conflicting mandates in the way we must teach vs.
The way students must learn

Interdependencies in the teaching infrastructure

Need for customization for differences in how we learn

Temporal

Lateral

Physical

Hierarchical

Standardization !!

Customization !!

Multiple Intelligences

Learning Styles

Paces of Learning

Historically, most schools have "crammed" computer-based learning into the blue space

Core curriculum

Performance

Different measure Of Performance

Non-consumers or Non-consuming occasions

**Path taken by most schools, foundations and education software companies**

Time

Time

Prime examples of non-consumption

- Credit recovery
- Drop outs
- AP/advanced courses
- Scheduling conflicts
- Home-schooled and homebound students
- Small, rural, urban schools
- Unit recovery
- Disaster preparedness

- Tutoring
- Professional development
- Pre-K
- After school
- In the home
- Incarcerated youth
- In-school suspension
- School bus commute
- Summer school
- Teacher absenteeism

Looming budget cuts and teacher shortages are an opportunity, not a threat

Online learning gaining adoption
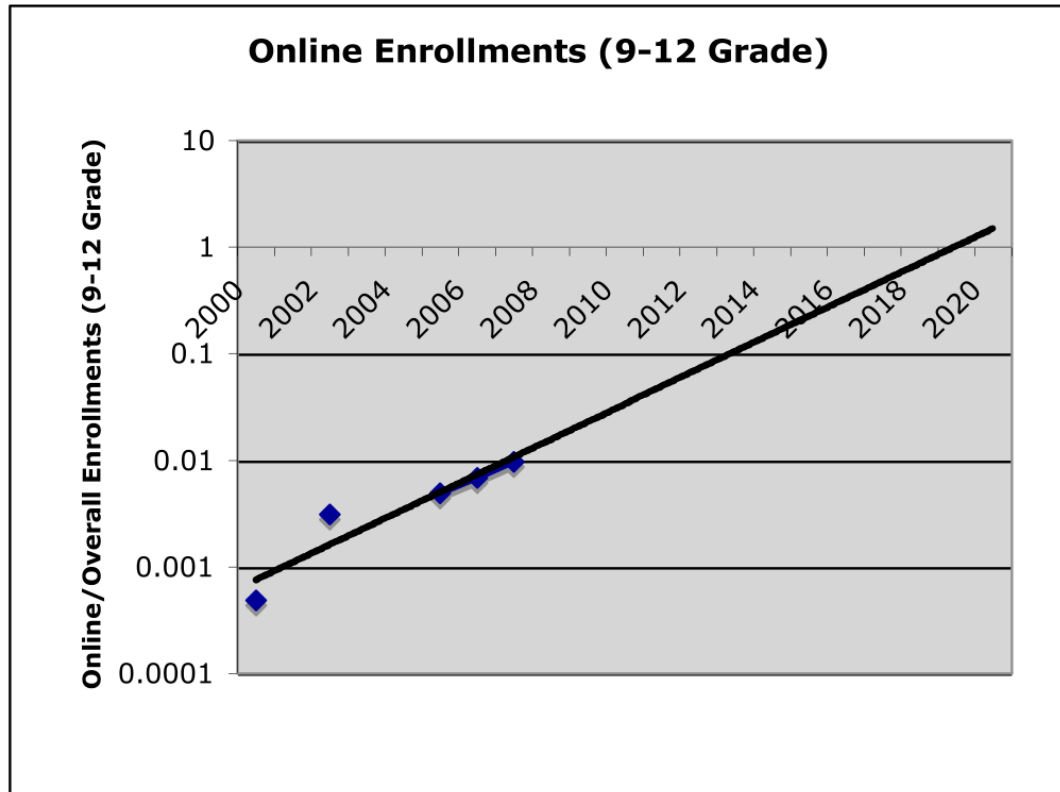
- Enrollments up from 45,000 in 2000 to 1,000,000 in 2007
- 27% of high school students took online course in 2009
- Ambient Insight projects 10.5M students taking online courses by 2014

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Predictably improving

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Practical implications

- Autonomous
- Self-sustaining funding
- Not beholden by the old metrics
  - Seat time ➔ Mastery/Performance-based
  - Student: teacher ratio
  - Teacher certification
- Human resources pipeline and professional development
- Broadband/wireless infrastructure
- Portal/Based on usage and what works
- Treatment and use of data

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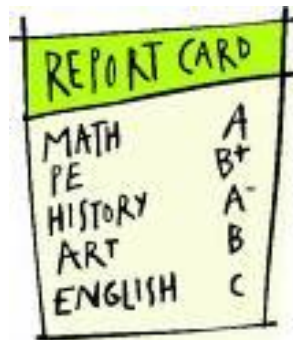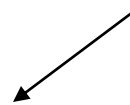
Assessment in today's monolithic system

Deliver content to students

Testing & assessment

Progress to next grade, subject, or body of material

REPORT CARD

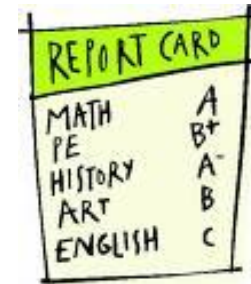|	
MATH	A
PE	B+
HISTORY	A-
ART	B
ENGLISH	C

Receive results

How should assessment work?

Deliver content to students

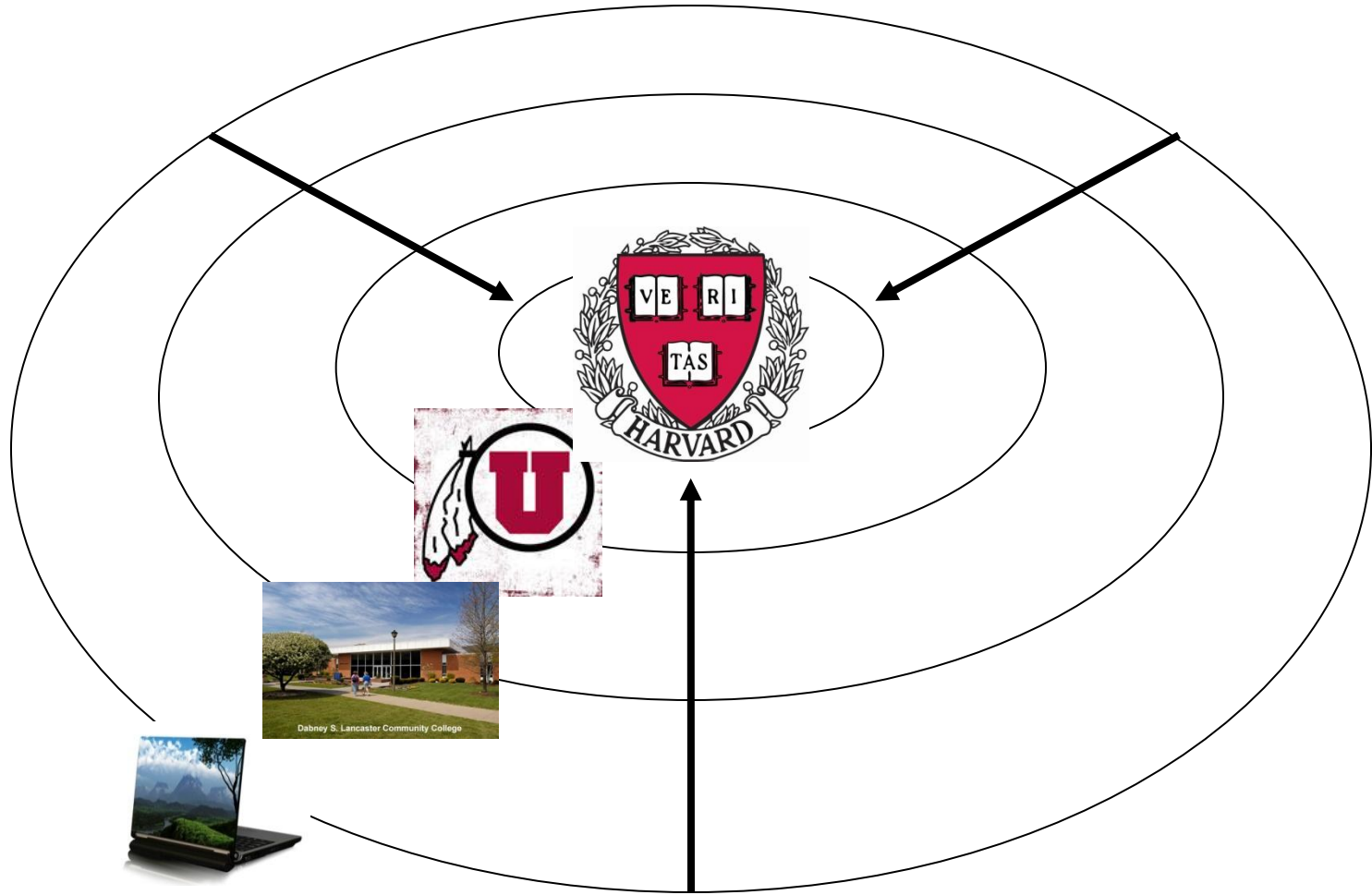Testing & assessment

Receive real-time interactive feedback

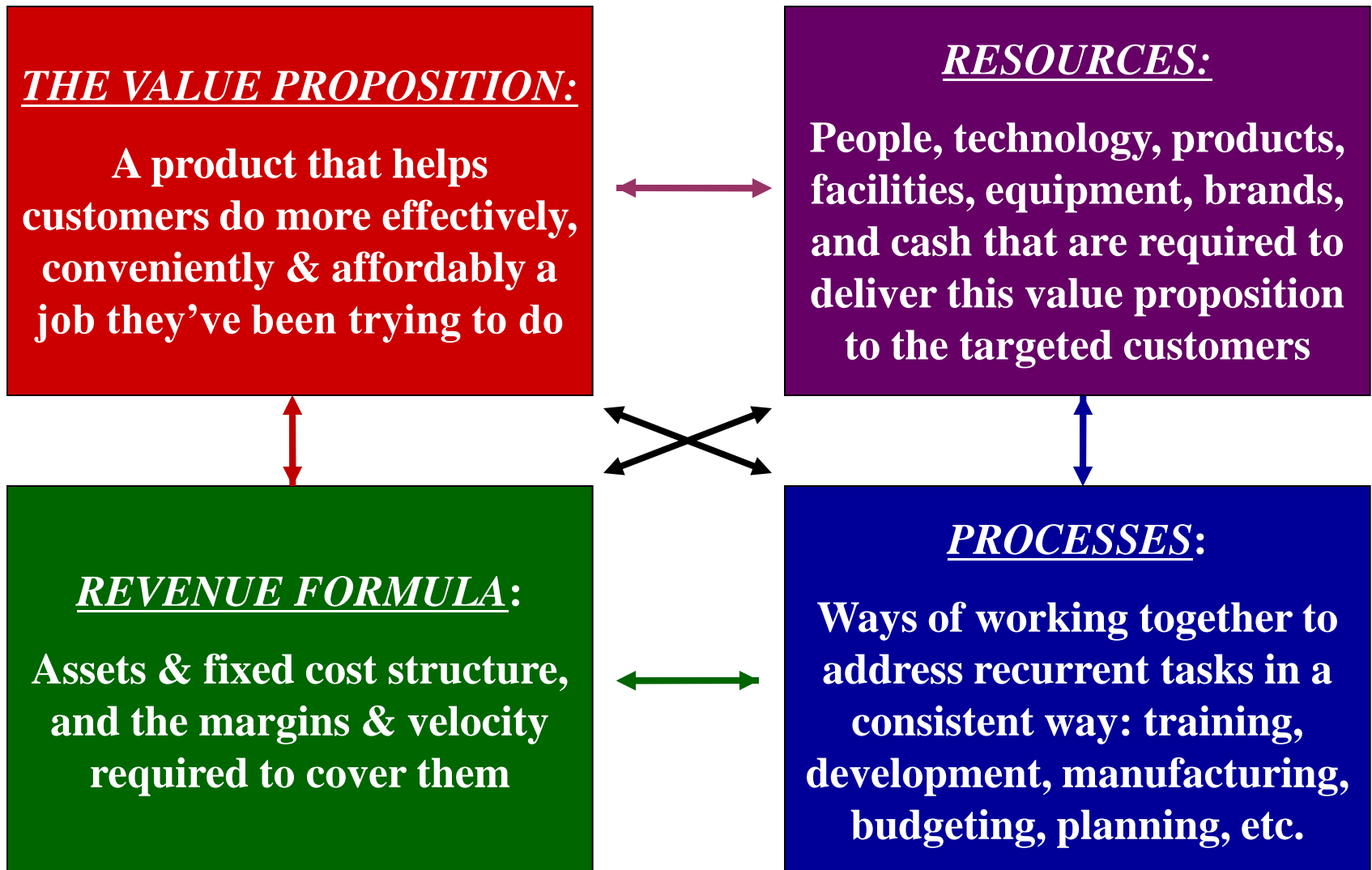Progress to next grade, subject, or body of material

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Centralization followed by decentralization: Computing

7
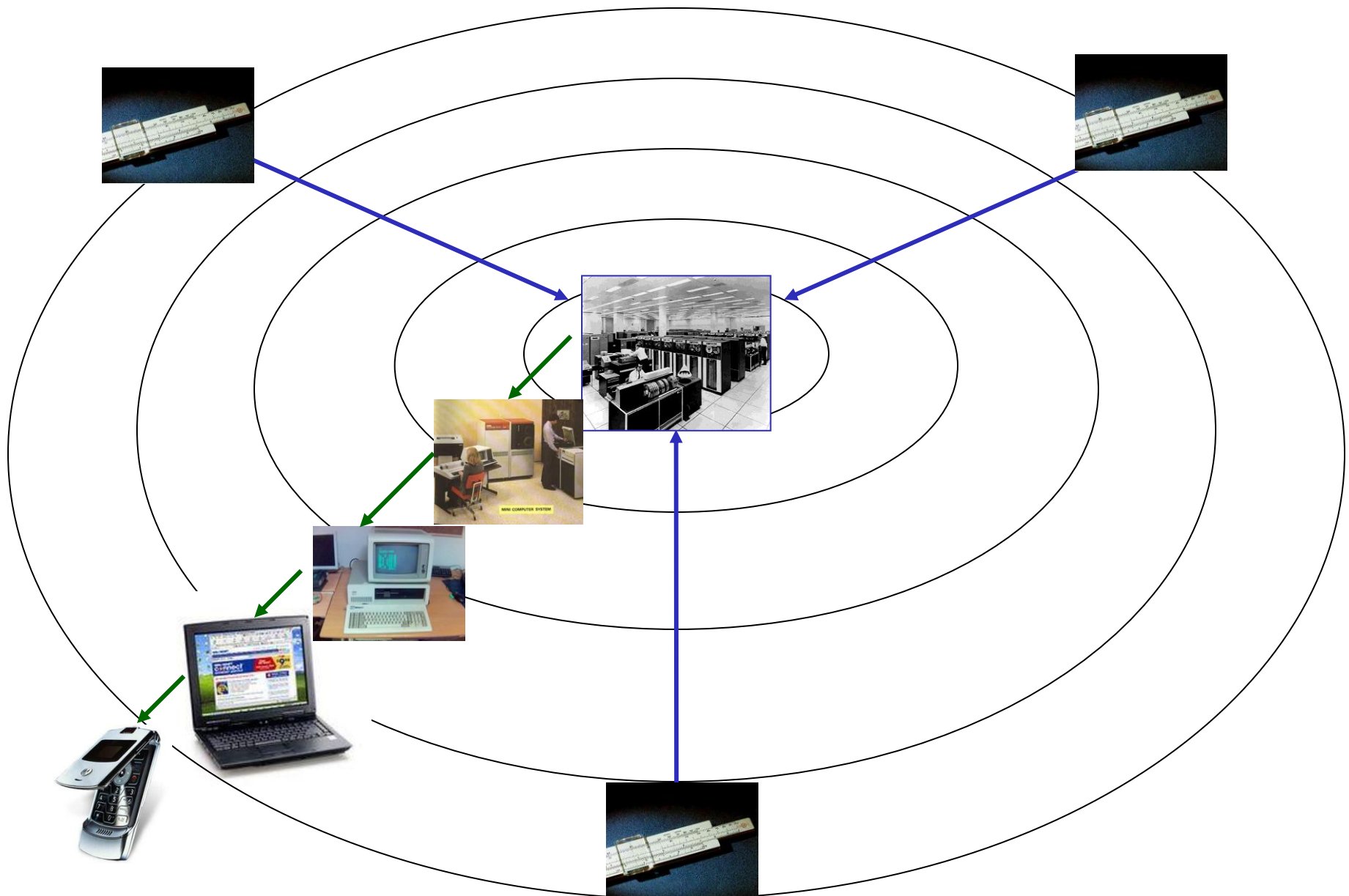
The decentralization that follows centralization is only beginning in education

Why does an organizational model lock us in?

THE VALUE PROPOSITION:

A product that helps customers do more effectively, conveniently & affordably a job they've been trying to do

RESOURCES:

People, technology, products, facilities, equipment, brands, and cash that are required to deliver this value proposition to the targeted customers

REVENUE FORMULA:

Assets & fixed cost structure, and the margins & velocity required to cover them

PROCESSES:

Ways of working together to address recurrent tasks in a consistent way: training, development, manufacturing, budgeting, planning, etc.

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THE VALUE PROPOSITION:

A
custom
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job th

RESOURCES:

People, technology, products,
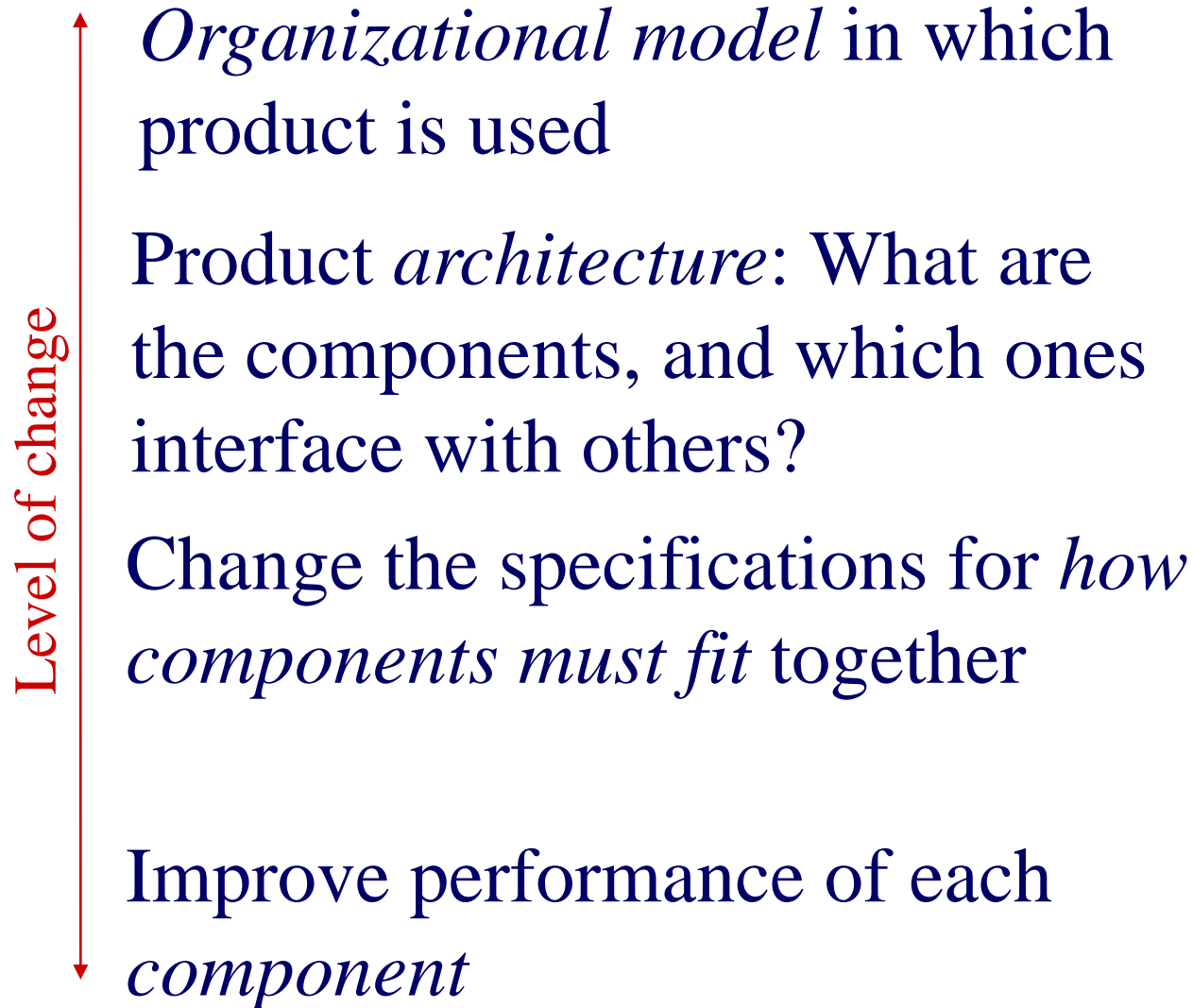rands,
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Business units don't evolve.
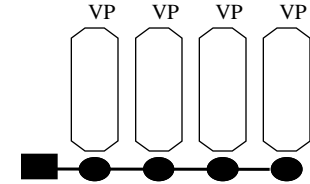
Corporations do.

PR

Assets
and the margins & velocity
required to cover them

her to
s in a
consistent way: training,
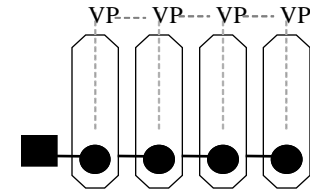development, manufacturing,
budgeting, planning, etc.
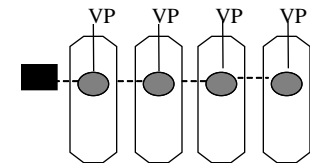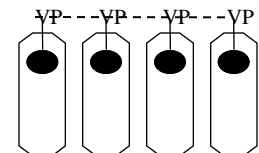
When launching disruptions, autonomy is key

Organizational model in which product is used

Product *architecture*: What are the components, and which ones interface with others?

Change the specifications for *how components must fit* together

Improve performance of each *component*

Level of change

Autonomous

VP VP VP VP

Heavyweight

VP--- VP--- VP--- VP

Lightweight

VP VP VP VP

Functional

VP--- VP--- VP--- VP

Transforming the content model
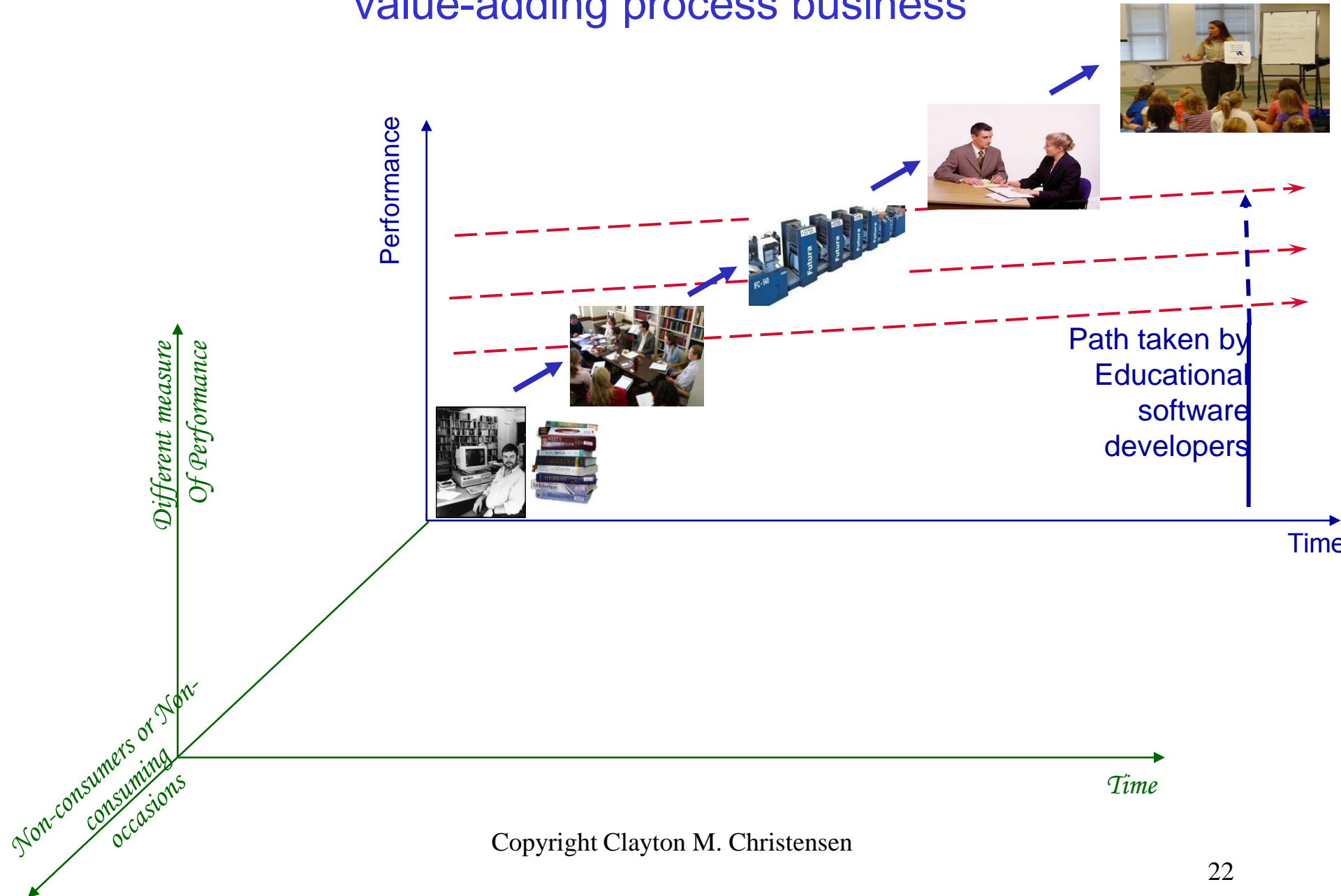
Value-adding process businesses	Facilitated-network businesses

- Manufacturing
- Food services
- Medical procedures
- Instruction
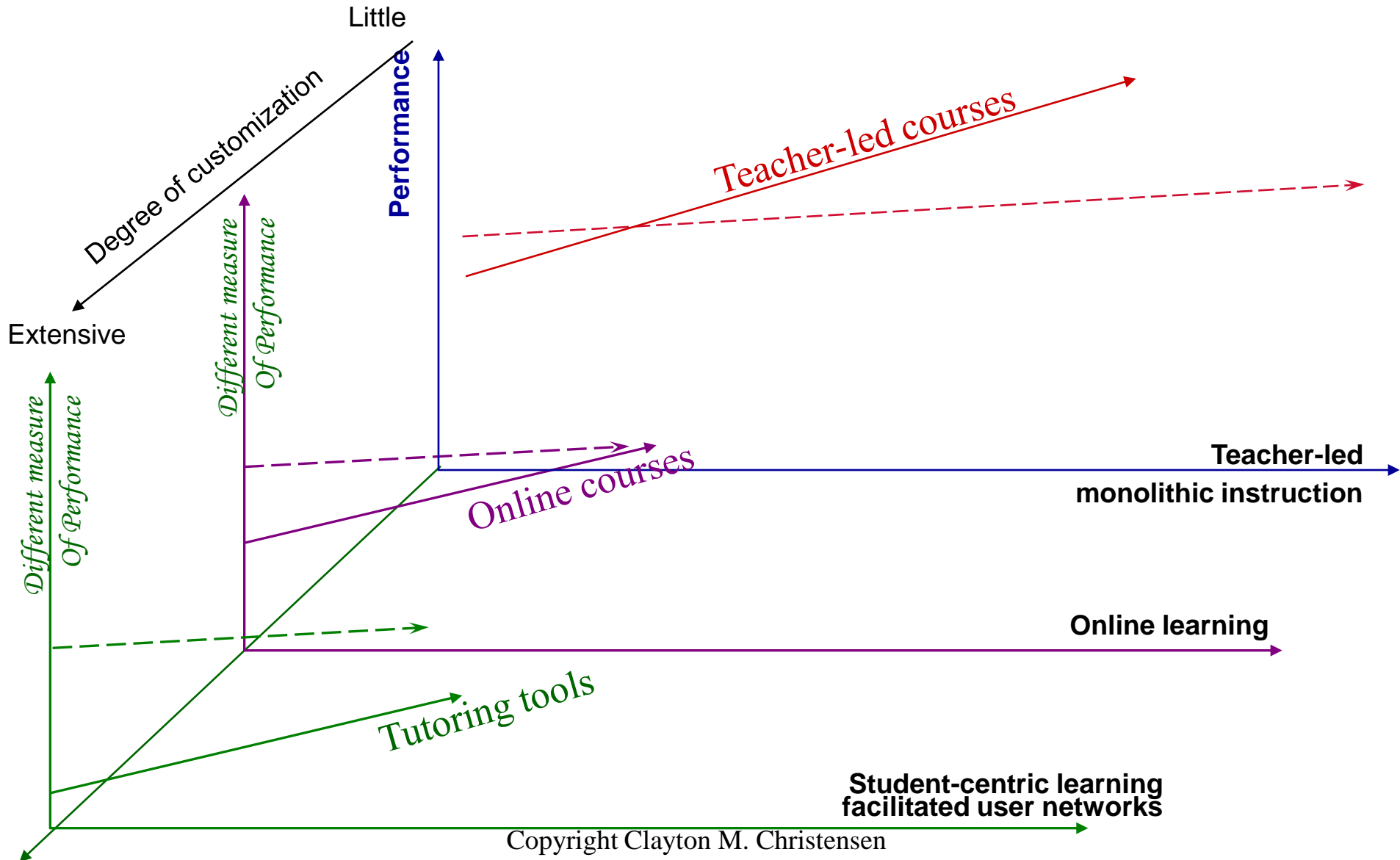- Textbooks; education software today
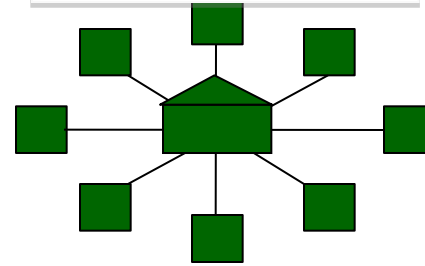
- Telecomm
- Insurance
- EBay
- D-Life
- Education software tomorrow

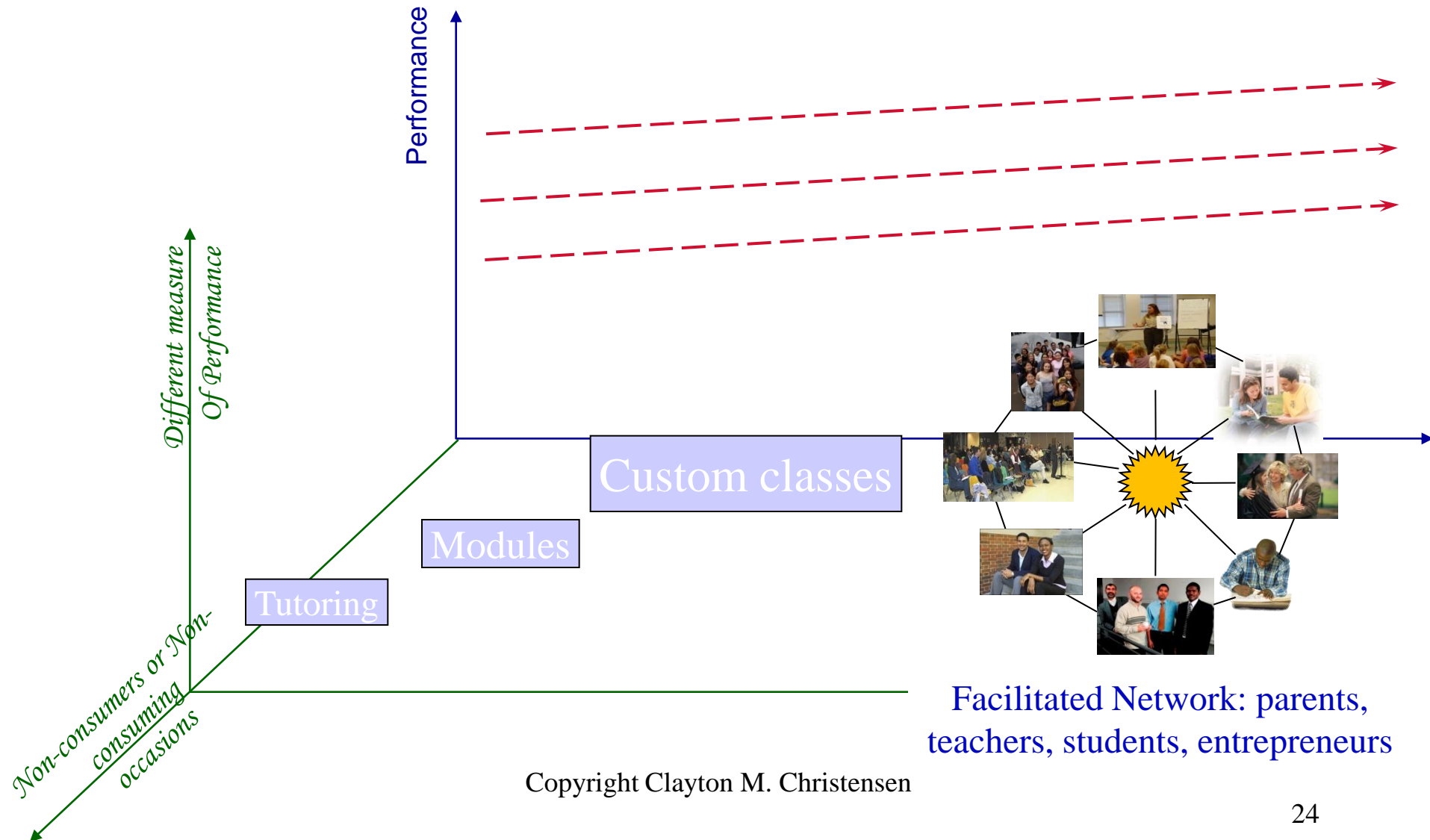# The instructional materials business historically has been a value-adding process business

Performance

Different measure Of Performance

Time

Non-consumers or Non-consuming occasions

Time

Path taken by Educational software developers

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Stages in instructional disruption

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Student-centric software will be a facilitated-network business

Performance

Different measure Of Performance

Non-consumers or Non-consuming occasions

Tutoring

Modules

Custom classes

Facilitated Network: parents, teachers, students, entrepreneurs

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Why do we need to innovate?

When education is not delivered in an intrinsically motivating way, prosperity is an enemy to education

A case study of successful innovation in education: The Florida Virtual School

- Start small

  - Break the mold grant for $200K

- What should it look like?

  - Unconstrained by old assumptions; what can we do with this new medium? What is true in this world?

  - Experiment and learn from failure

- Puzzle: who will want to use this?

Key policies emerge

- Autonomous organization
  - Established in 2000 as independent educational entity
  - New value proposition
  - Freedom to create its rules and procedures and enter into agreements with providers, hold patents, etc. as need be to fulfill its mission

- Funding
  - Initially a line-item allocation
  - In 2003, self-sustaining model established
    - FL funding formula
    - Seat time ➔ Mastery

FLVS growth
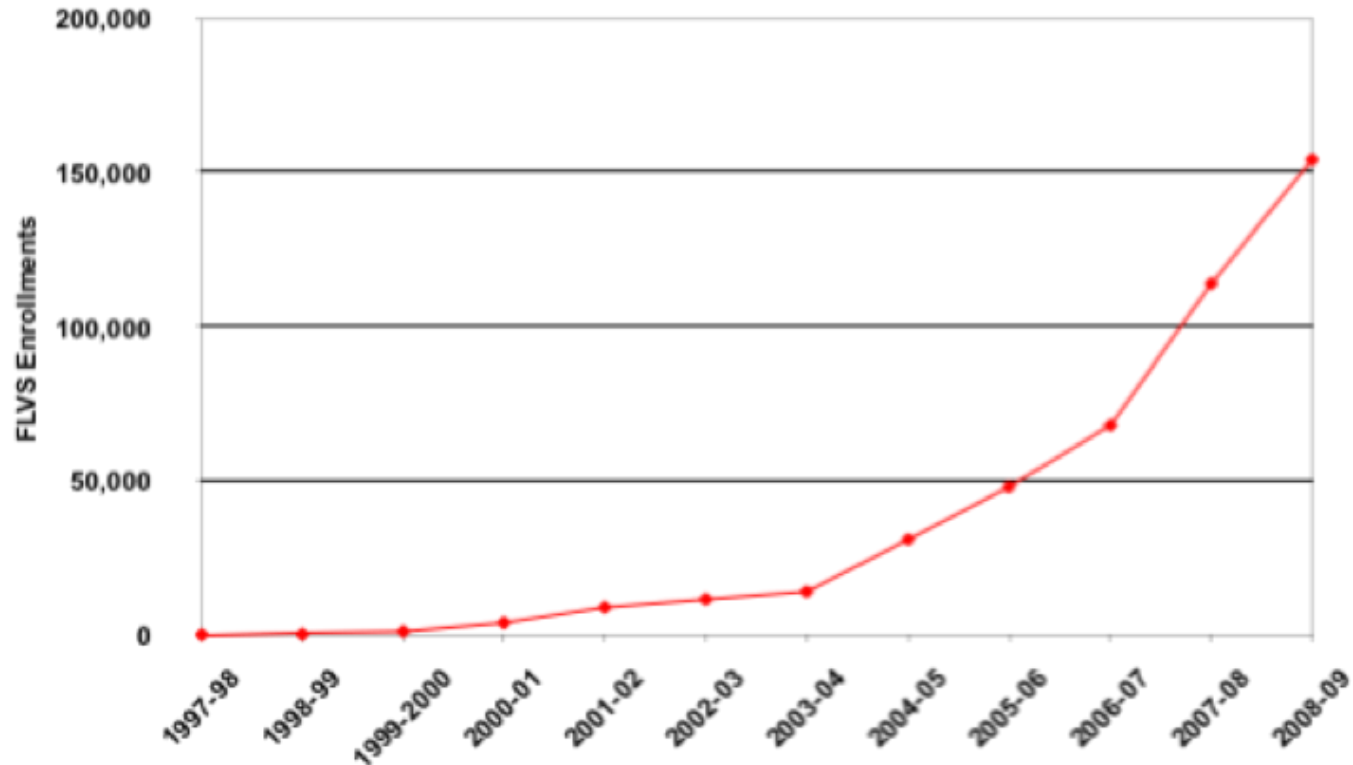
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