



Understanding Emerging Technologies in Higher Education Leveraging the Hype Cycle

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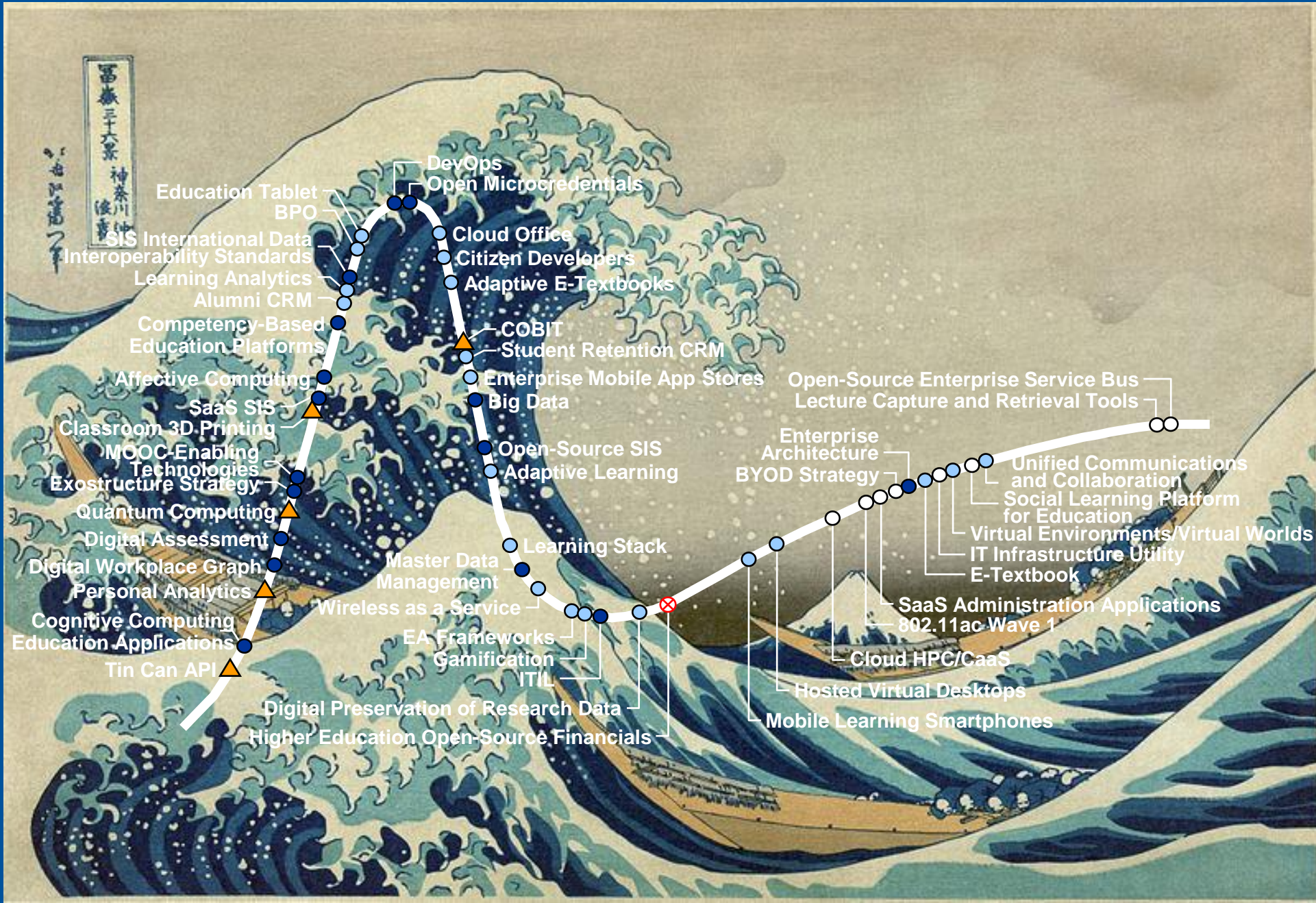
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Please, remember...

“Essentially, all models are wrong,
but some are useful.”

George Box English Statistician, 1919 – 2013

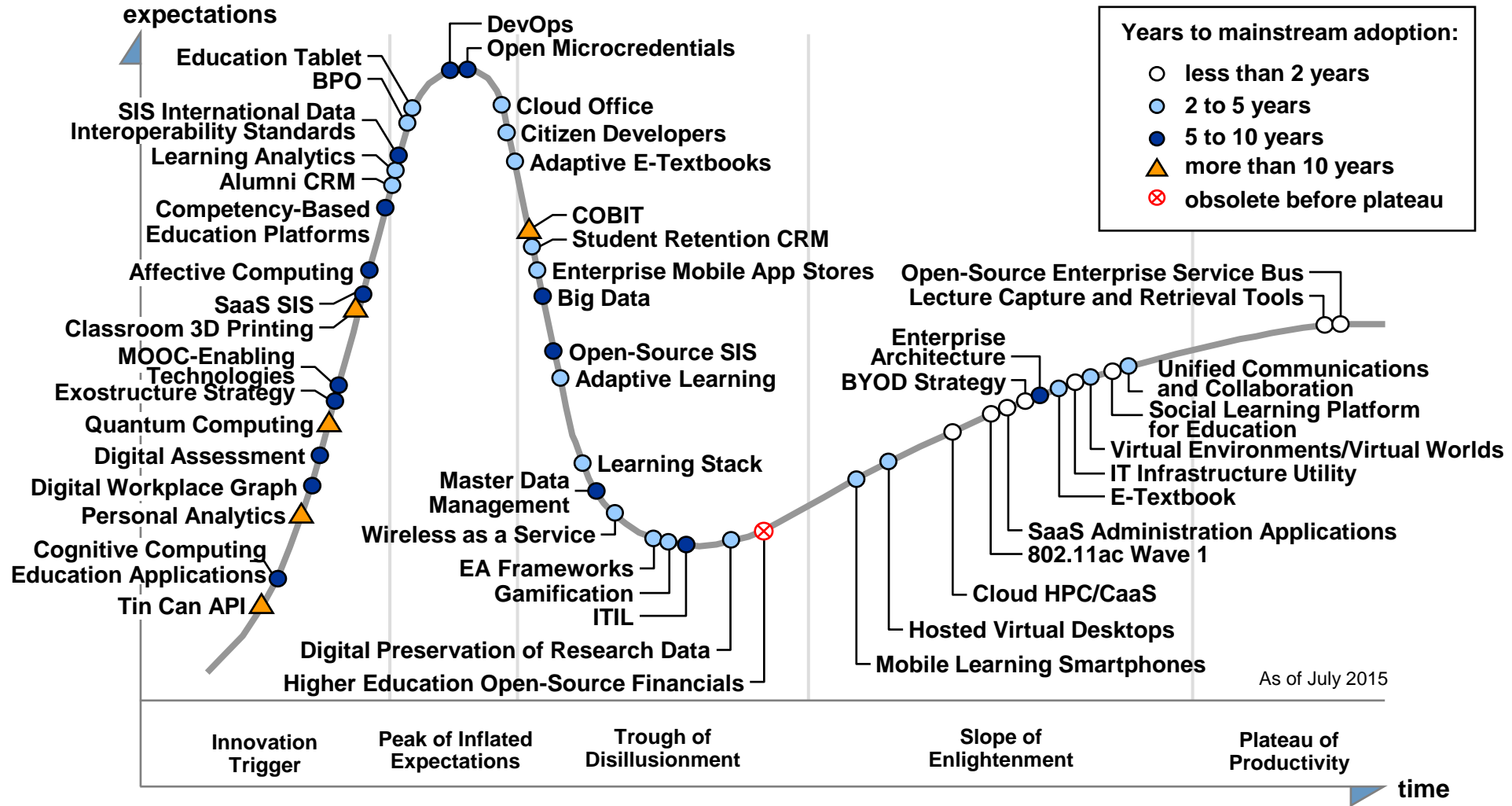
p. 424 Box, G. E. P., and Draper, N. R., (1987), *Empirical Model Building and Response Surfaces*,
John Wiley & Sons, New York, NY.



富嶽三十六景 神奈川 波濤

- Education Tablet
- BPO
- SIS International Data
- Interoperability Standards
- Learning Analytics
- Alumni CRM
- Competency-Based Education Platforms
- Affective Computing
- SaaS SIS
- Classroom 3D Printing
- MOOC-Enabling Technologies
- Exostructure Strategy
- Quantum Computing
- Digital Assessment
- Digital Workplace Graph
- Personal Analytics
- Cognitive Computing
- Education Applications
- Tin Can API
- DevOps
- Open Microcredentials
- Cloud Office
- Citizen Developers
- Adaptive E-Textbooks
- COBIT
- Student Retention CRM
- Enterprise Mobile App Stores
- Big Data
- Open-Source SIS
- Adaptive Learning
- Learning Stack
- Master Data Management
- Wireless as a Service
- EA Frameworks
- Gamification
- ITIL
- Digital Preservation of Research Data
- Higher Education Open-Source Financials
- Open-Source Enterprise Service Bus
- Lecture Capture and Retrieval Tools
- Enterprise Architecture
- BYOD Strategy
- Unified Communications and Collaboration
- Social Learning Platform for Education
- Virtual Environments/Virtual Worlds
- IT Infrastructure Utility
- E-Textbook
- SaaS Administration Applications
- 802.11ac Wave 1
- Cloud HPC/CaaS
- Hosted Virtual Desktops
- Mobile Learning Smartphones

Hype Cycle for Education, 2015 - A CIO Toolbox



Off the Hype Cycle: 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, Open-Source Middleware Suites, MOOC, Mobile-Learning Low-Range/Midrange Handsets (10 total)

New: Tin Can API, Cognitive Computing Education Applications, Personal Analytics, Digital Workplace Graph, Digital Assessment, Classroom 3D Printing, MOOC-Enabling Technologies, Competency-Based Education Platforms, Learning Analytics, DevOps, Master Data Management, Open-Source Enterprise Service Bus (12 total)

Explaining the Education Digitization-Digitalization Dimension

First-order Effects

ERP SaaS Administration Applications BPO Open Microcredentials Watson Advisor

E-book Readers

E-textbook

Adaptive E-textbooks

Mashware

Digitization

Digitalization

MOOC — Weekly assignments

MOOC — Scale

MOOC — Social Learning

MOOC — Peer Grading

MOOC — Machine Learning Essay Grading

Second-/Third-order Effects

CD

Napster

iTunes

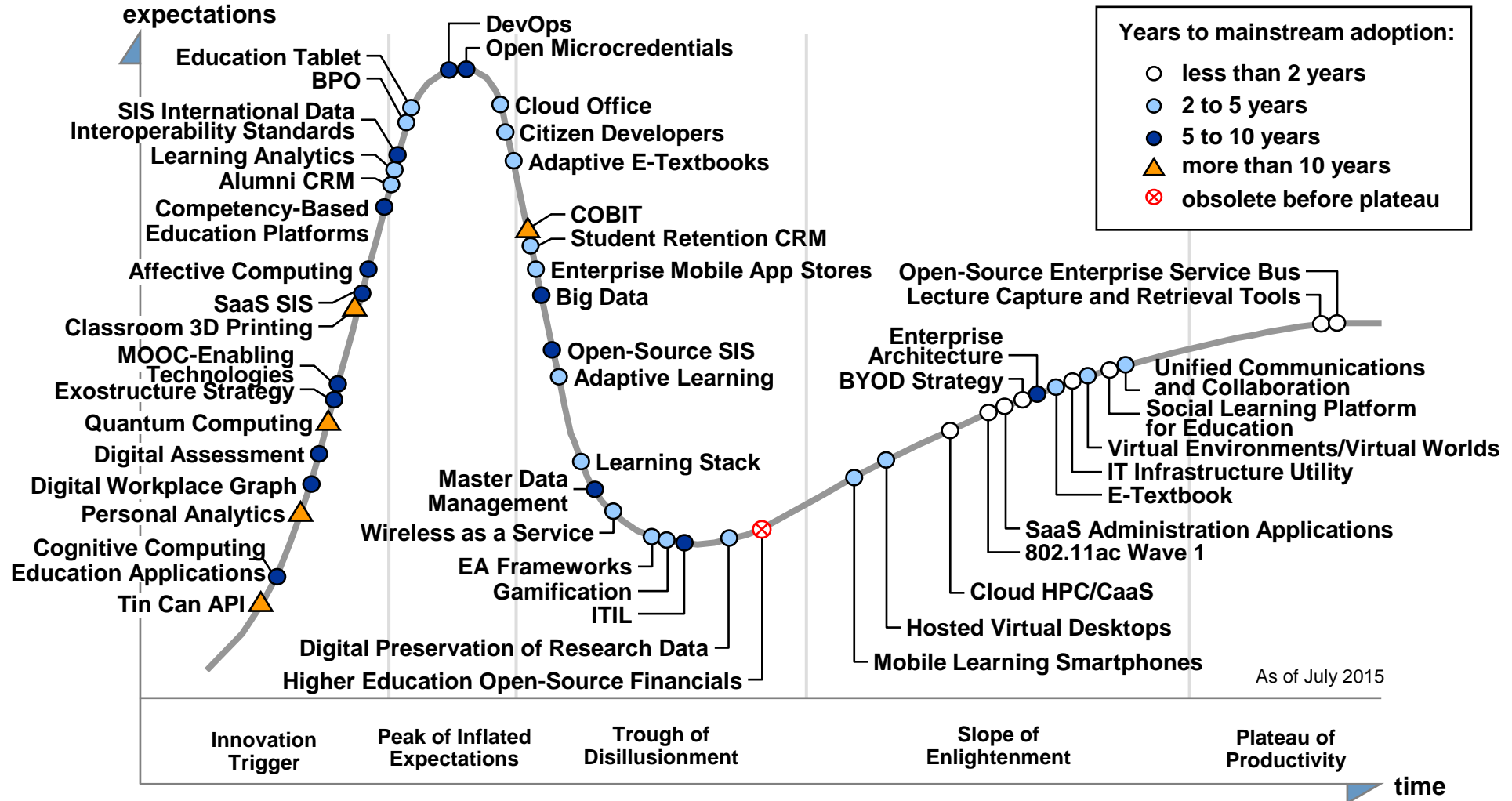
Spotify/Pandora

Gartner

A
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LP

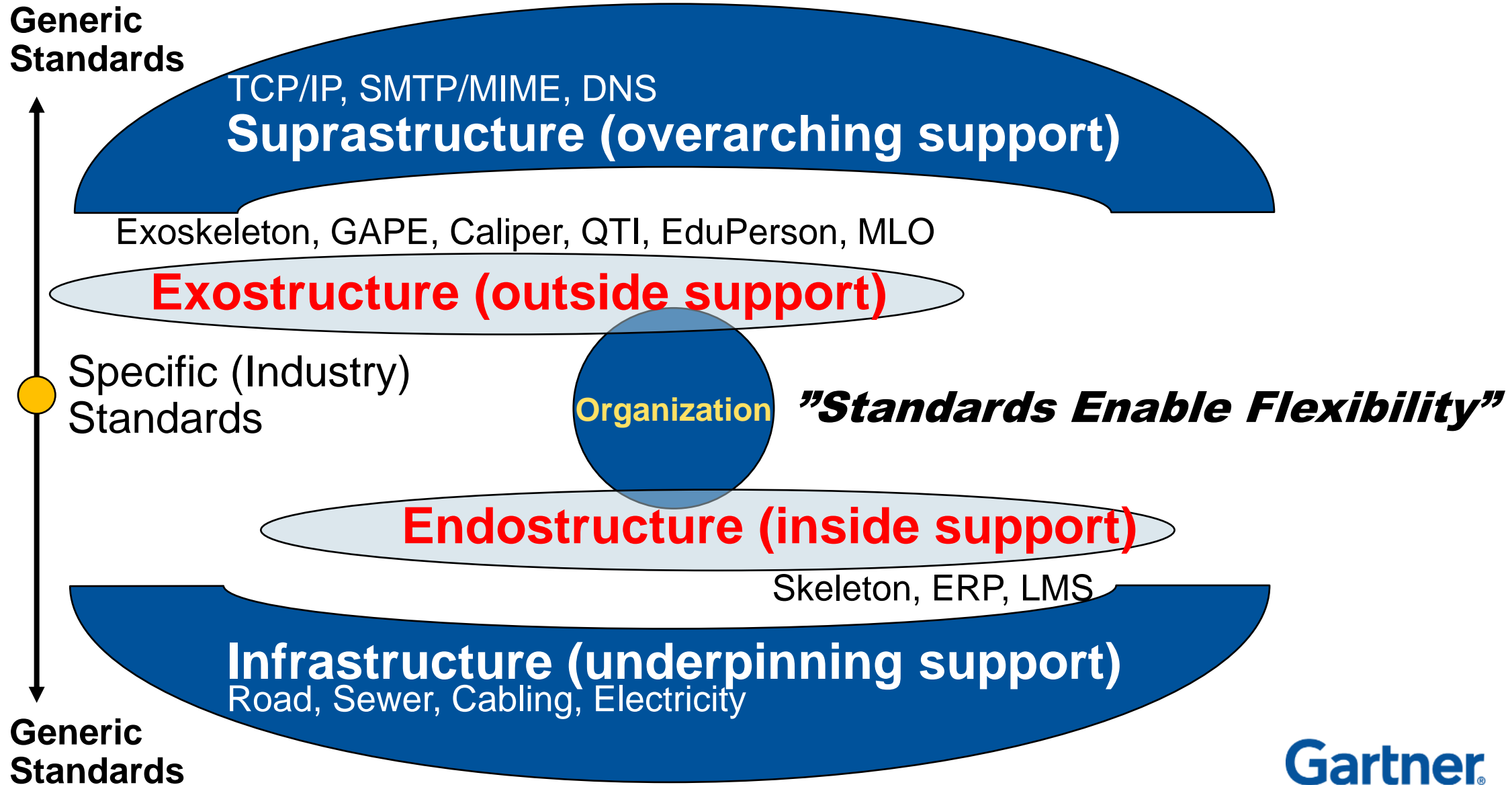
Hype Cycle for Education, 2015 - Digitalization



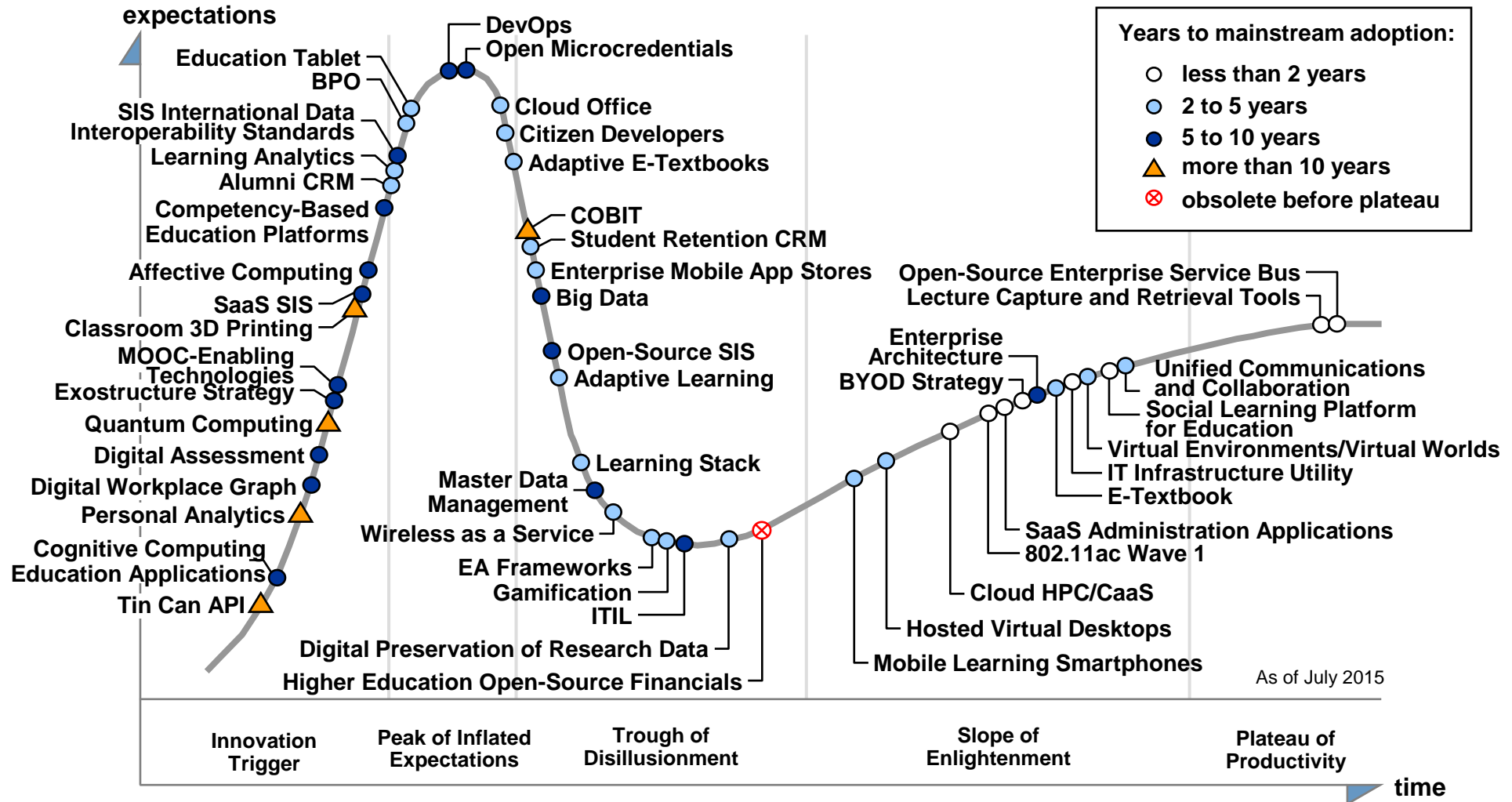
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Evolving 'Infrastructure' — Next: Focus on Exostructure!



Hype Cycle for Education, 2015 - Exostructure



Off the Hype Cycle: 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, 802.11n, Cloud Email for Staff and Faculty, Emergency/Mass Notification Services and Open-Source Learning Repositories, Open-Source Middleware Suites, MOOC, Mobile-Learning Low-Range/Midrange Handsets (10 total)

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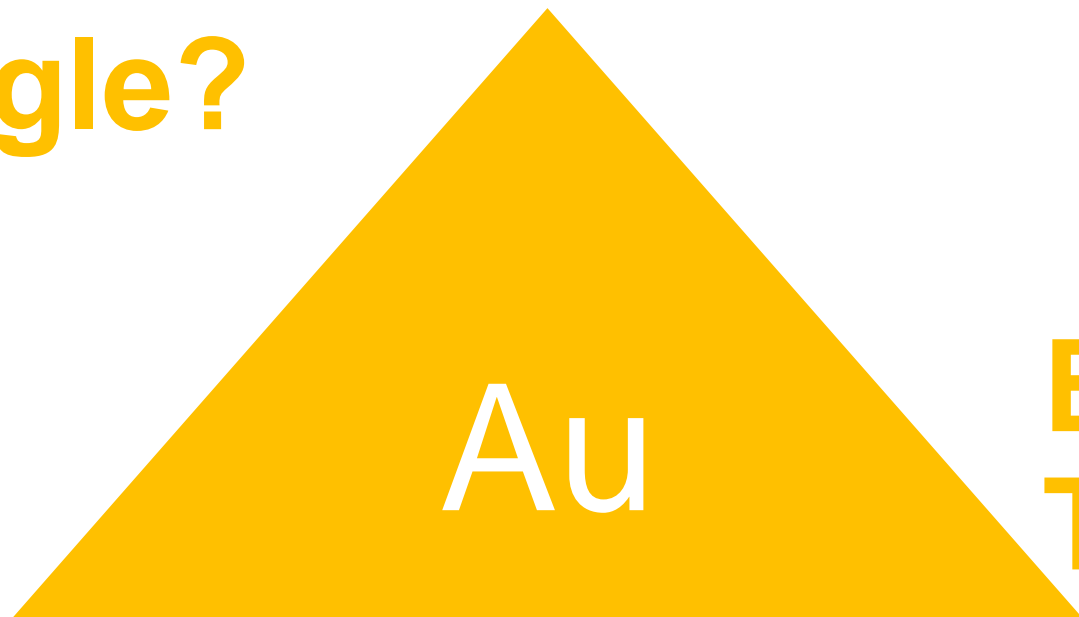
Big Picture

Global Key Issue:

How to get scalable, affordable quality education so that every citizen of the world can reach its full potential?

A Golden Triangle?

Scalability



Affordability

Quality

Enabled by Technology?

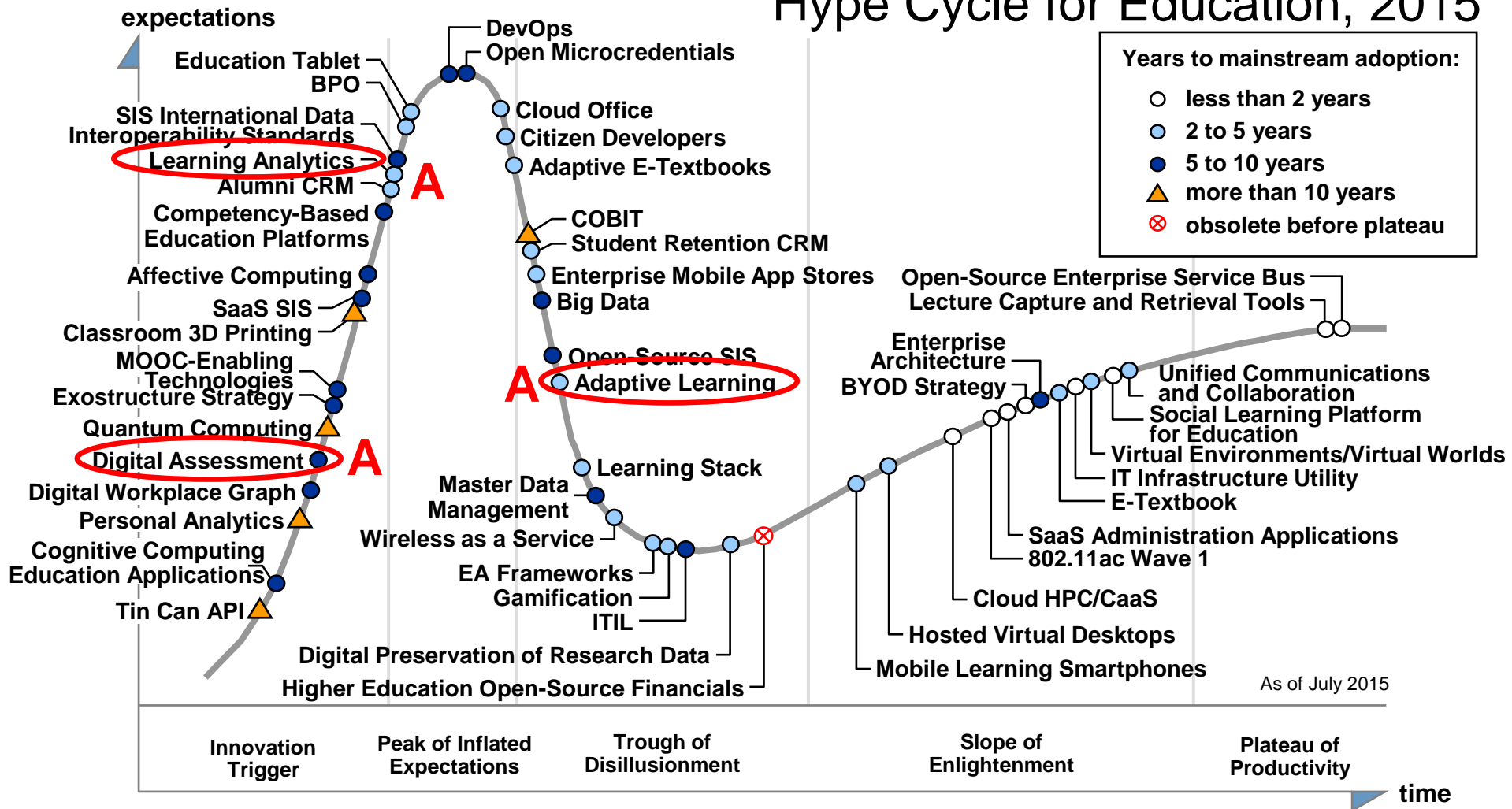
Local Key Issue:

What investments in information technology will be strategic in positioning the institution for long-term success in fulfilling its mission?

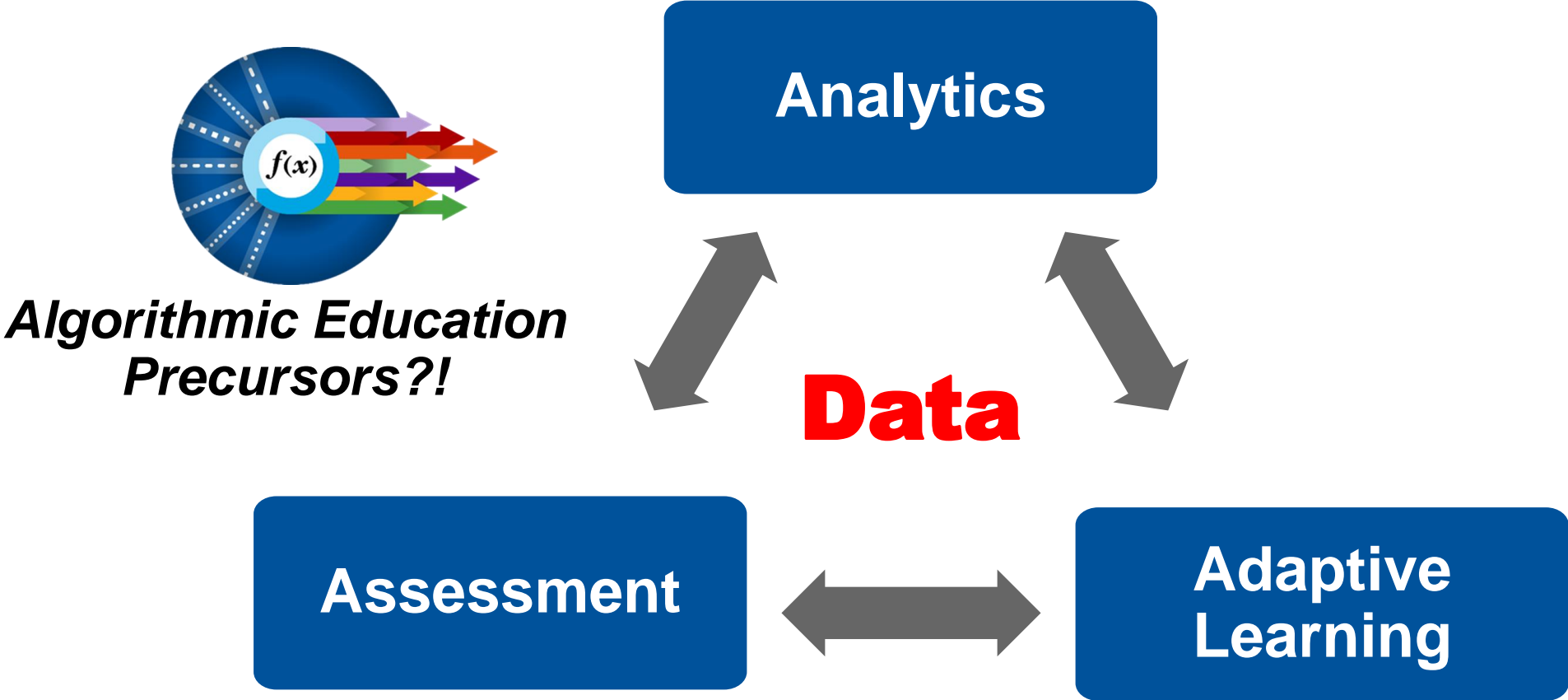
CIOs Picture

Can Three **A**s Solve The Problem?

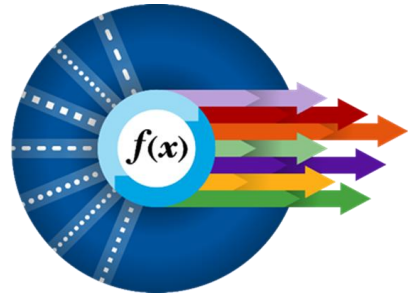
Hype Cycle for Education, 2015



Analytics, Assessment and Adaptive Learning



The Next Step? Building on the Three As...



Algorithmic Education?!

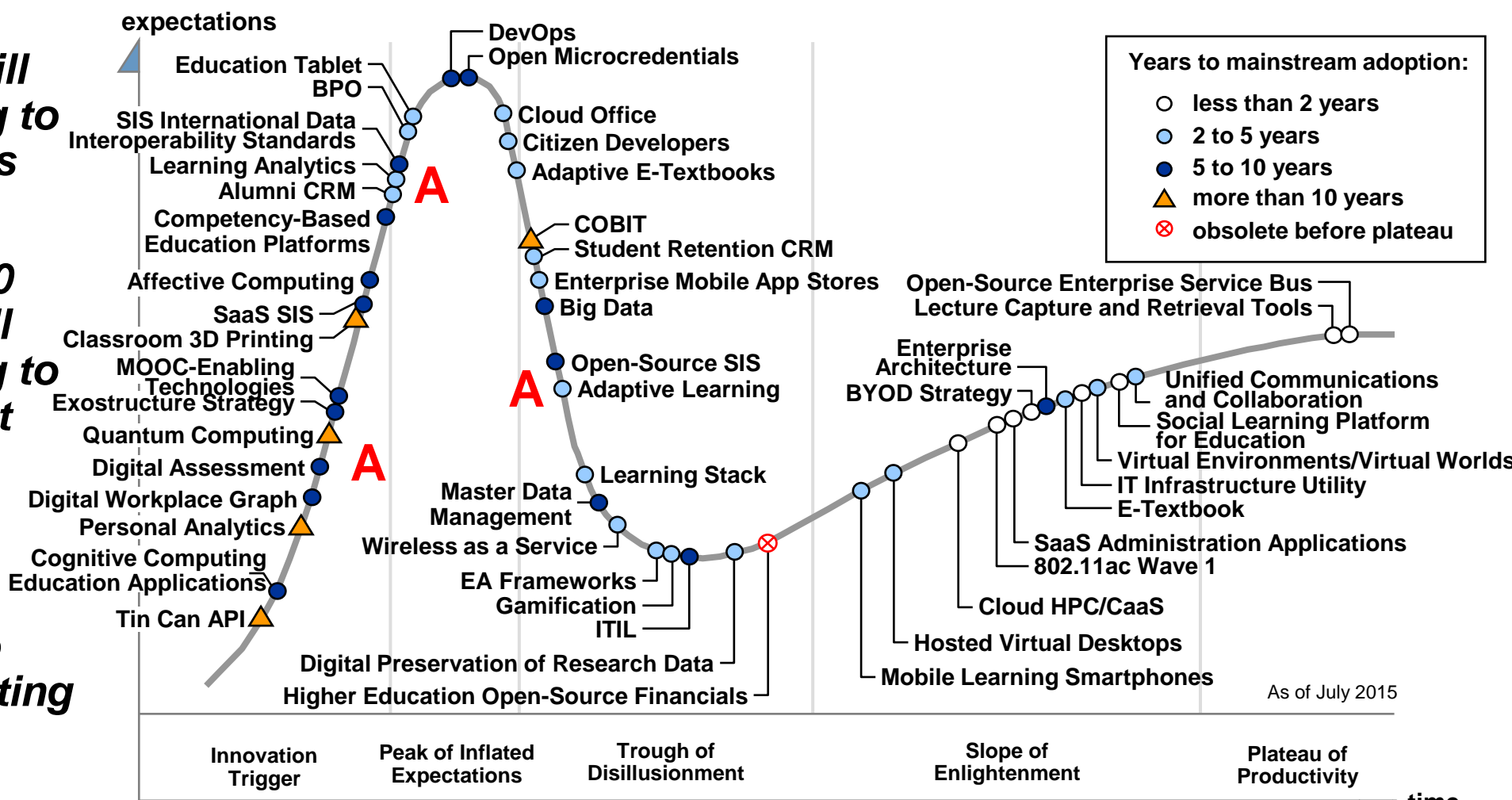
Alchemy.cs.washington.edu
www.tensorflow.org

DRAFT Predicts!

By 2020 10% of higher education institutions will use cognitive computing to improve student success

By 2020 10 of the top 100 research universities will use cognitive computing to increase research output and win more grants

By 2020 50% of SMART machines will fail due to lack off affective computing capabilities (skills)

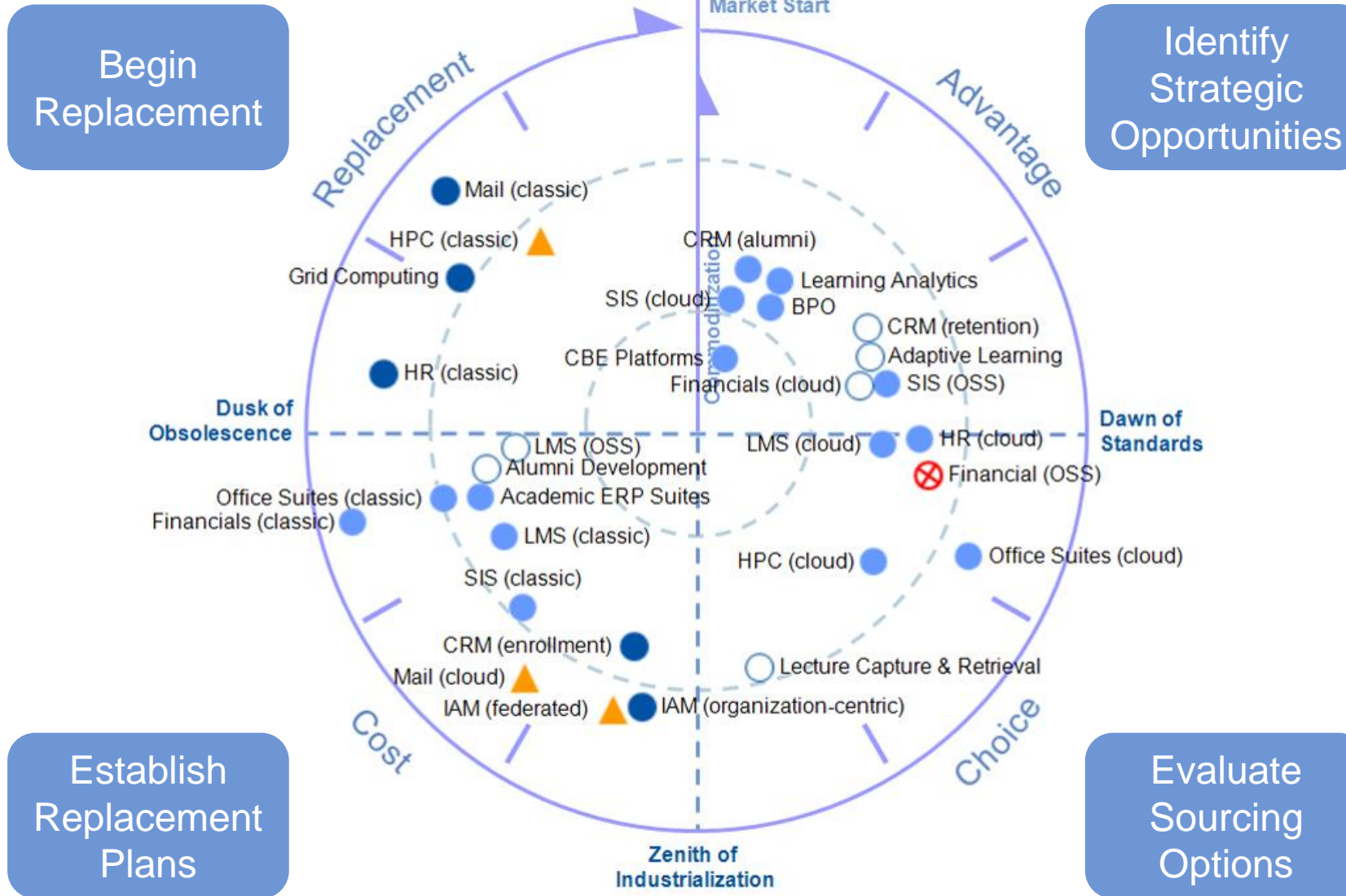


"Hype Cycle for Education, 2015" (G00277499)

The End

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Higher Education Market Clock 2015



Time to Next Market Phase
 ○ <2 years ● 2 to 5 years ● 5 to 10 years ▲ >10 years ⊗ End of life

Top Ten Business Trends (What We See):

DRAFT!

2016

1. Student Success
2. Competency-based Education
3. Reinventing Credits
4. Analytics, Analytics, Analytics
5. Broad Branding
6. Breaching Boundaries
7. (Re) Thinking Business Models
8. Emerging Political Innovation
9. Innovative Learning Spaces
10. E-research
11. Digital (in) Strategy
(bonus in toolkit)
12. Ed-Tech boom
(bonus in toolkit)

2015

1. Student Success
2. Reinventing Credits
3. Glocal Competition for Students
4. (Re) Thinking Business Models
5. Retreating Political Responsibility
6. Competency-based Education
7. Learning Analytics
8. Data-driven Decisions
9. Consumerized Expectations
10. E-research
11. Race Against the Machine
(bonus in toolkit)
12. An Aging Workforce
(bonus in toolkit)

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Top Ten Strategic Technologies (What We Think You Should Do):

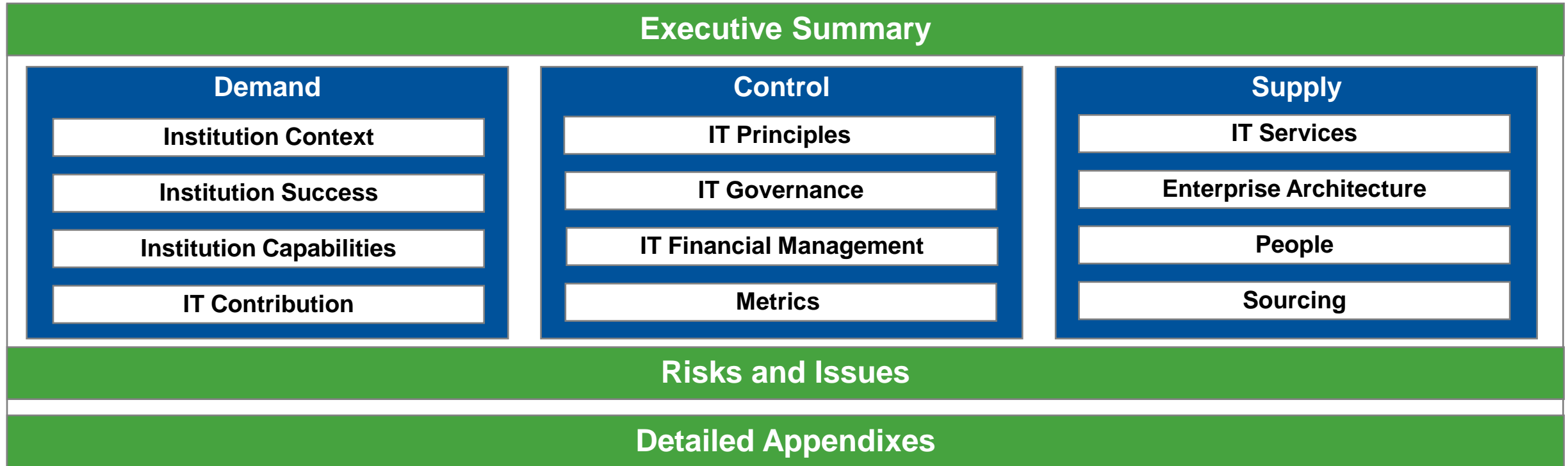
DRAFT!

1. Adaptive Learning
2. Predictive Analytics
3. CRM (Enroll., Ret., Alumni)
4. Exostructure
5. Open Microcredentials
6. Digital Assessment
7. Cognitive Computing
8. OER-Ecosystem
(Content collaboration and self-publishing)
9. Listening and Sensing Tech
10. Collaboration Tech
11. MOOC-Enabling Technologies
(bonus in toolkit)
12. Physical Virtual Presence

1. Adaptive Learning
2. (Adaptive) E-textbooks
3. CRM (Enroll., Ret., Alumni)
4. Big Data
5. Sourcing Strategies (Cloud)
6. Exostructure
7. Open Microcredentials
8. Digital Assessment
9. Mobile
10. Social Learning
11. MOOCish Technologies (bonus in toolkit) – name change
12. Cognitive Computing (bonus from toolkit)

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"Traditional" IT Strategy Template



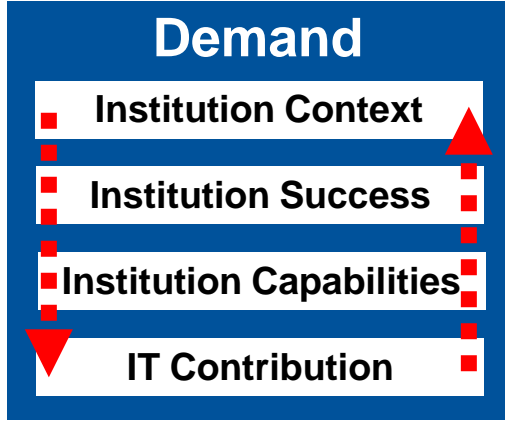
"Plans are useless, but planning is indispensable."
— *Dwight D. Eisenhower*

"IT Strategy: A CIO Success Kit" (G00166022)

"IT Strategy Template" (G00167280)

Team Sport Tools to Strategize and Prioritize — the Agile Strategic Planning Process

Doing the right thing

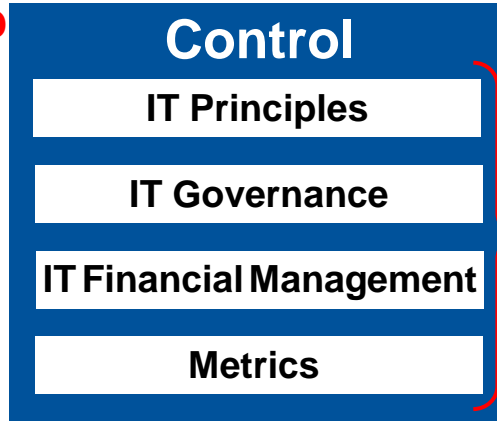
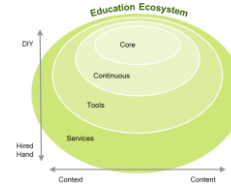
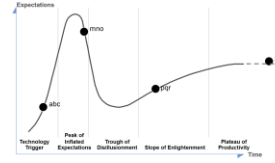


EDU Bus Hype Education
Top 10 Cycle Ecosystem

HEBusModScen

StratCapMap
DigEduMom
StratTecMap
Tech Top 10

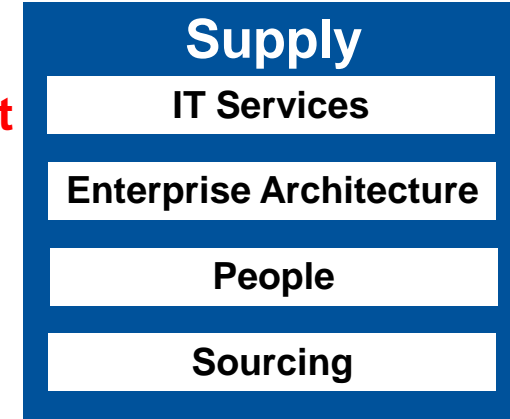
1. Student Success
2. Reinventing Credits
3. Global Competition for Students
4. (Re) Thinking Business Model(s)
5. Retreating Political Responsibility
6. Competency-Based Education
7. Learning Analytics
8. Data Driven Decisions
9. Consumerized Expectations
10. E-research



ProjPort

ServPort

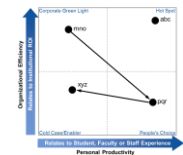
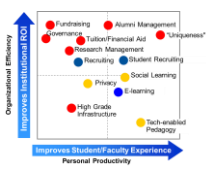
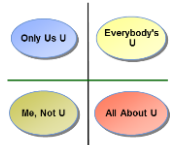
SimServSourcMap
IT-Market Clock



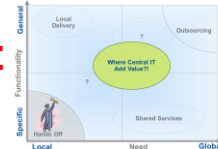
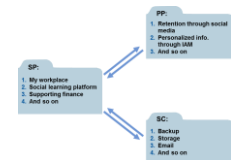
ServPort

ServCat

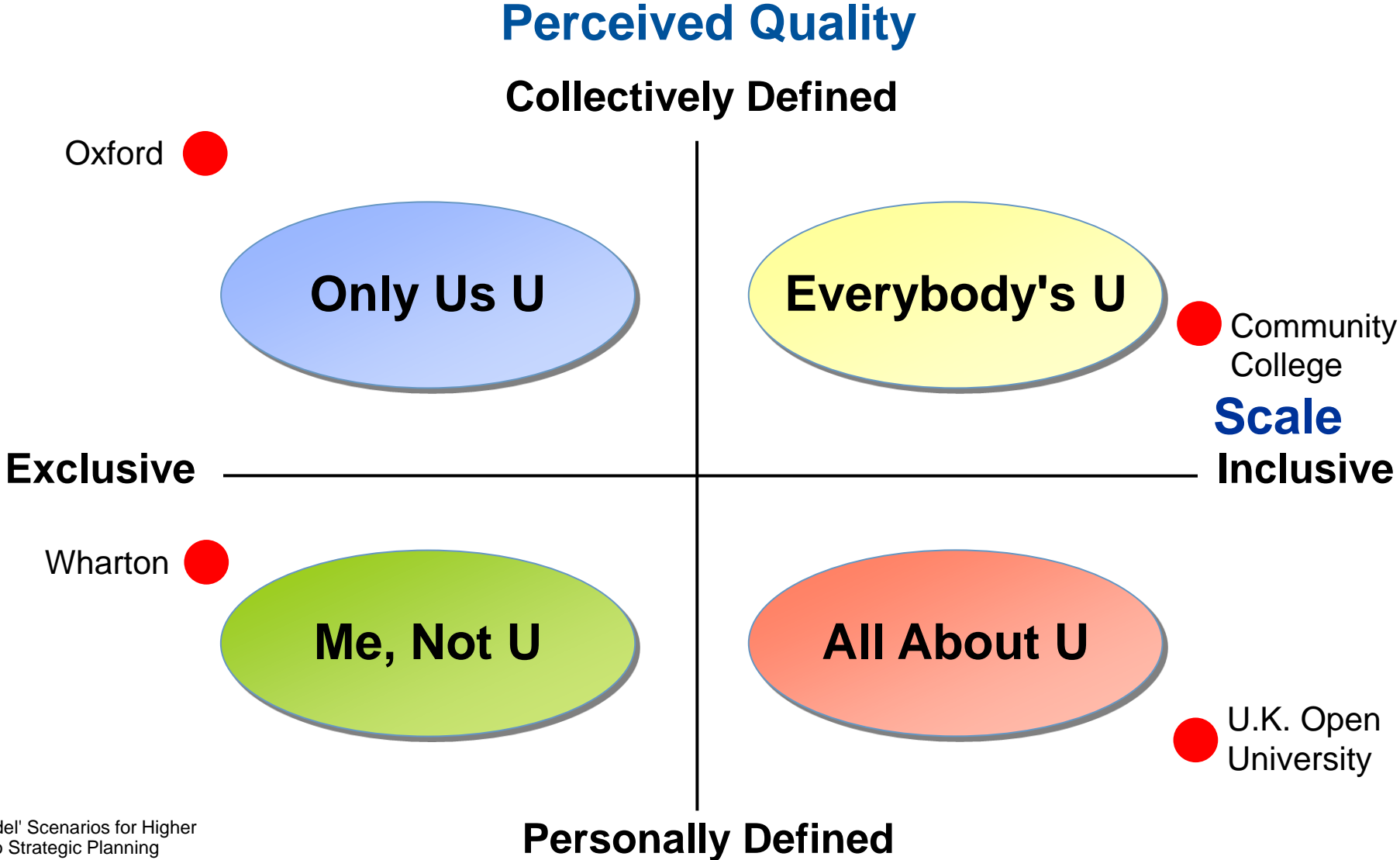
Doing things right



1. Adaptive Learning
2. (Adaptive) E-Textbooks
3. CRM
4. Big Data
5. Sourcing Strategies
6. Exostructure
7. Open Microcredentials
8. Digital Assessment
9. Mobile
10. Social Learning



Higher Education "Business Model" Scenarios — Technological Decisions by Storytelling

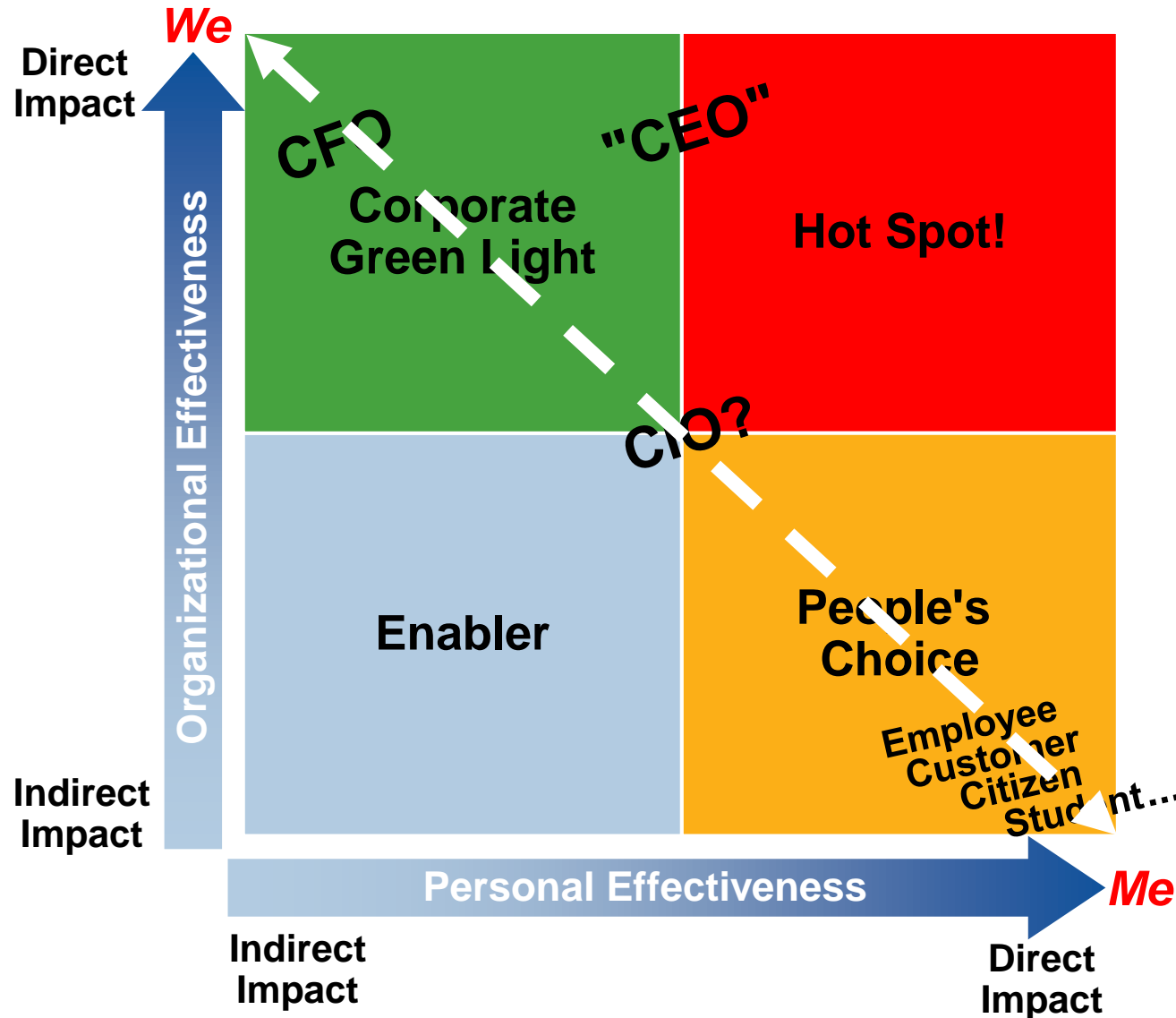


Source: "Four 'Business Model' Scenarios for Higher Education: An Introduction to Strategic Planning Through Storytelling" (G00167364)

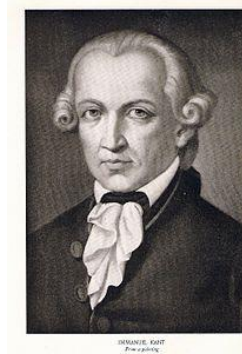


Cui Bono?

Explaining the "Benefit Map" — Cui Bono!

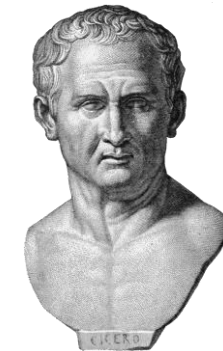


"Unsocial Sociability" Immanuel Kant (1724-1804)



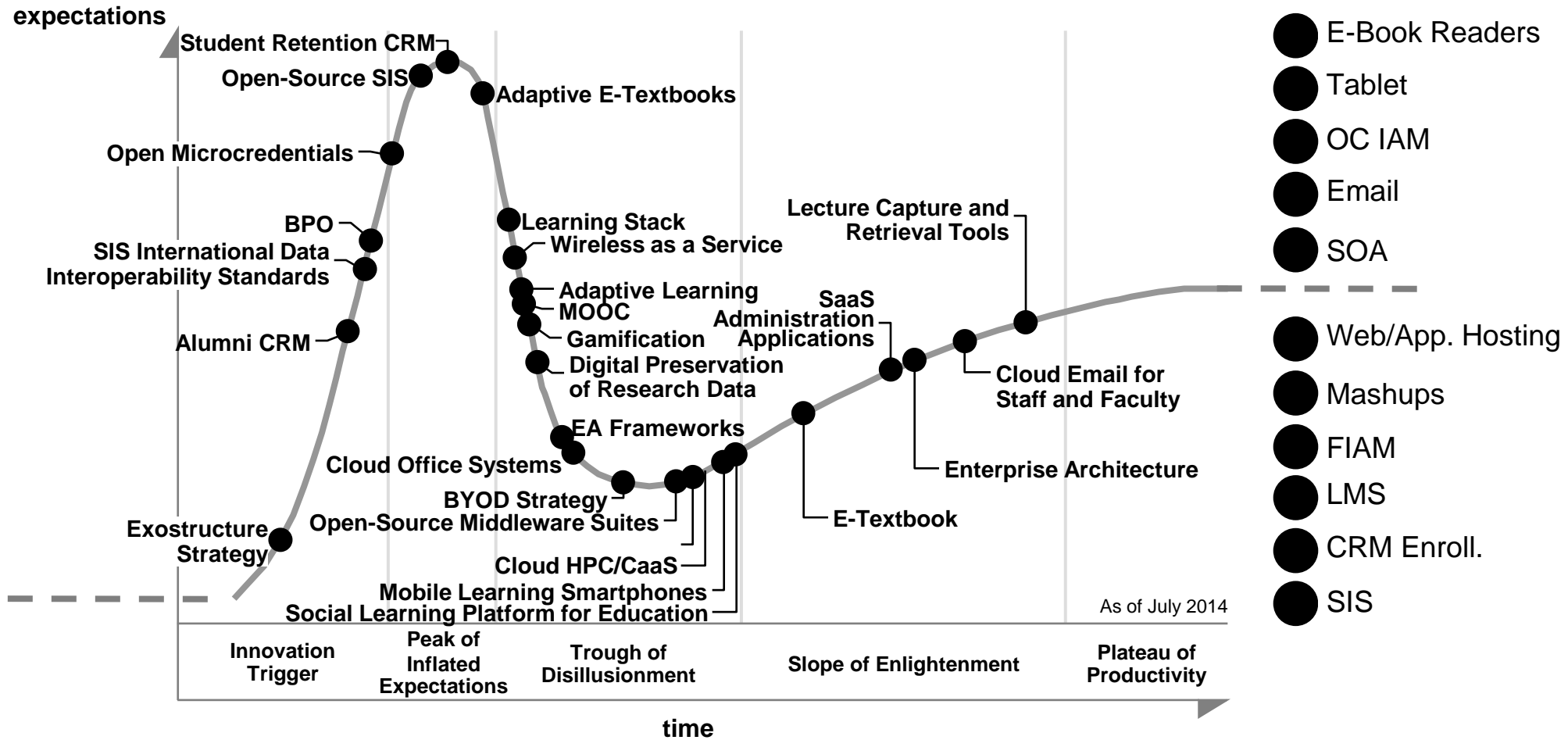
Representing the tension between the lower-right corner and the upper-left corner.

The fundamental question is "cui bono" (who benefits?):
The organization or I
— We or Me?



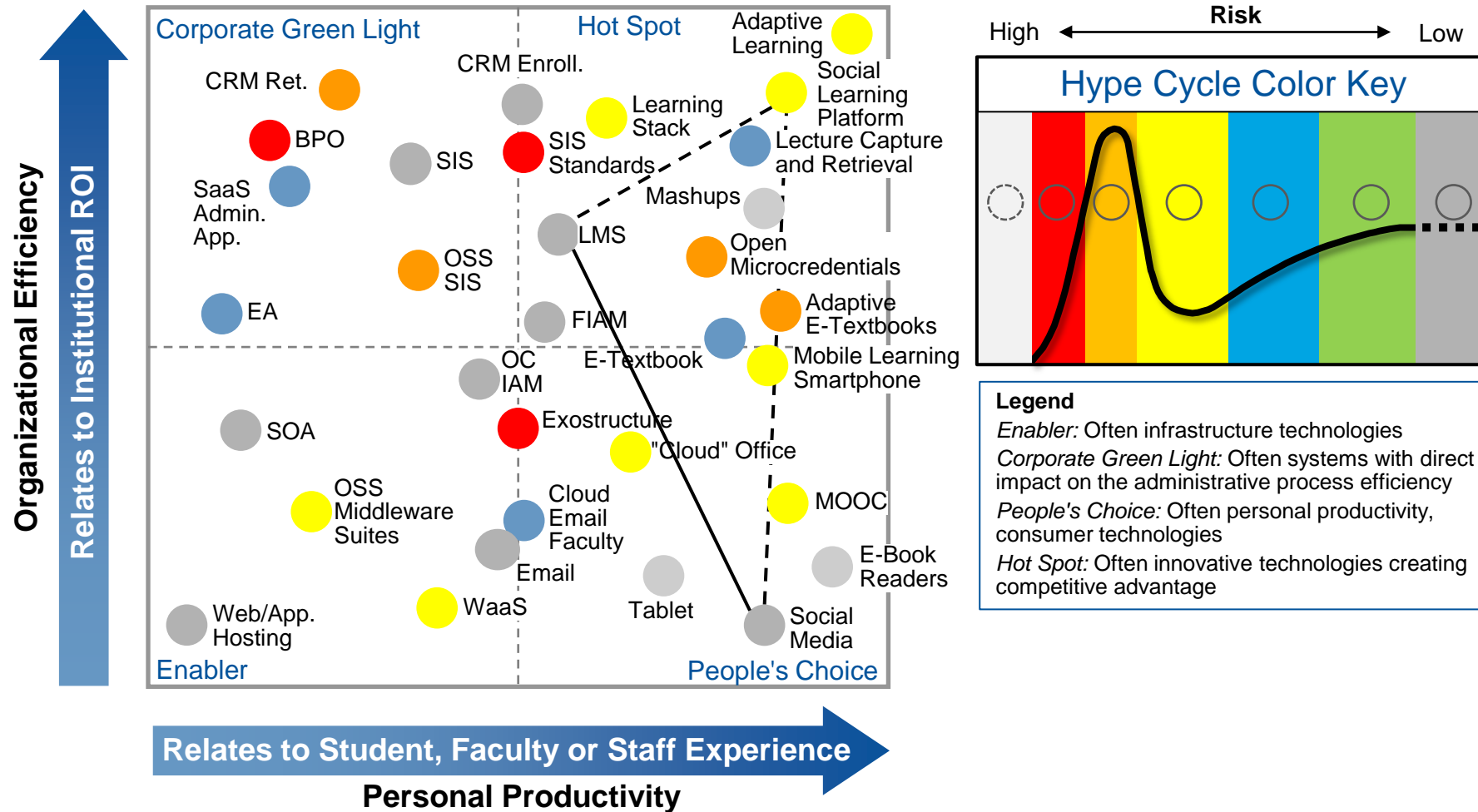
Marcus Tullius Cicero
(106-43 BCE)

Education Example: Shortlist



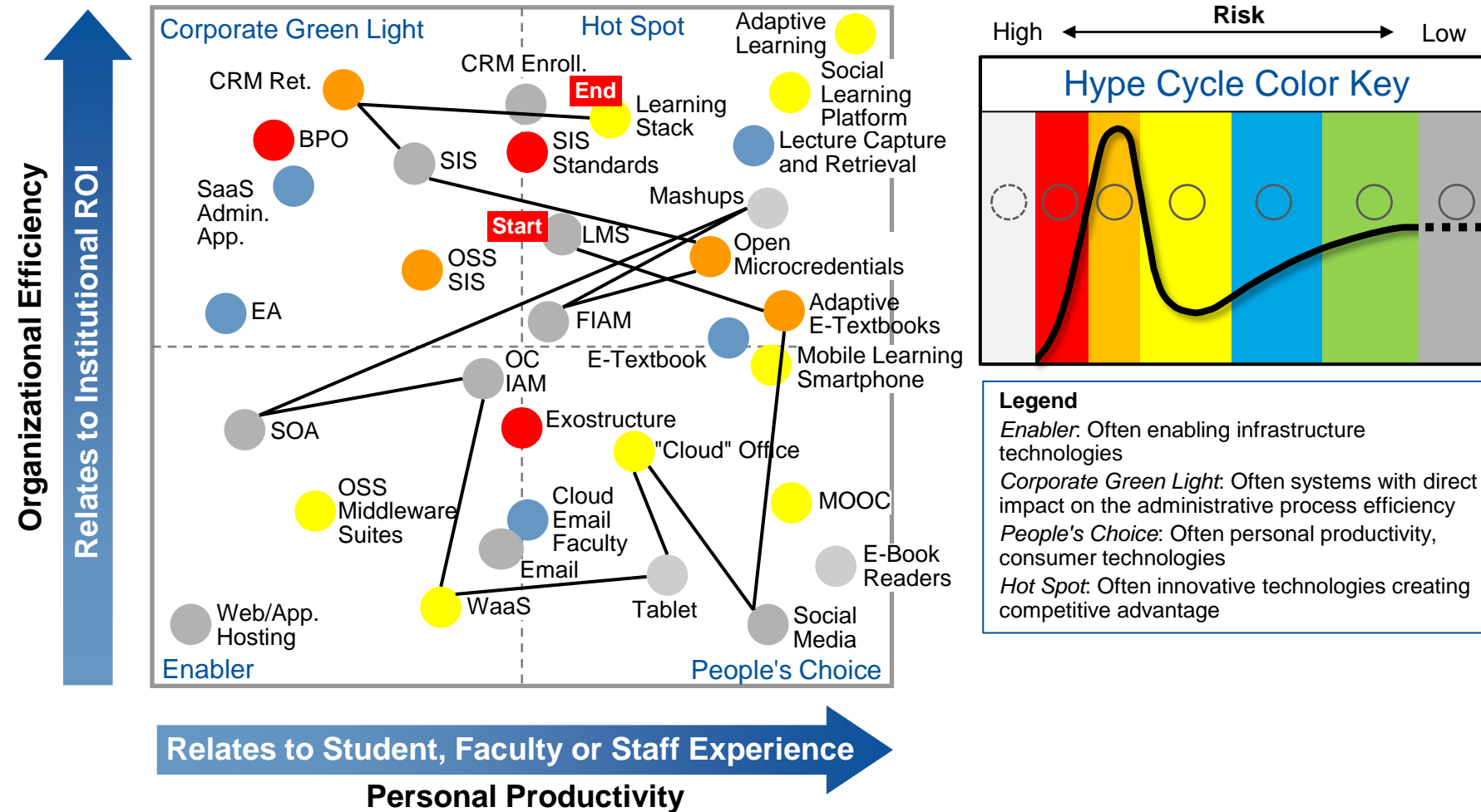
"Connect the Dots to Engage Faculty in Technology Strategy: The Learning Stack Example," G00273243

Connecting the Dots: Simple Example



"Connect the Dots to Engage Faculty in Technology Strategy: The Learning Stack Example," G00273243

Connecting the Dots: The Learning Stack Story



"Connect the Dots to Engage Faculty in Technology Strategy: The Learning Stack Example," G00273243

- This was to inform you that we have the speaking slot on Dec 2nd at 11.55 am to 12. 35 pm. It will be a 30 min slot followed by 10 mins of Q&A.
- The topic for the presentation would be “Understanding Emerging Technologies in Higher Education leveraging Hype Cycle”. We would be submitting your unfinished version of presentation to Dr Anil in last week of November.

Synopsis

- Tsunami
- Digitalization
- Exostructure (add)
- Exemplify with AAA...
- End with Algorithmic education...
- Bonus Material
 - Be prepared to show HEBMS
 - Benefit Map?
 - Digital Moment
 - Show the D/S ToC?