

Education Information Systems Technology and Project Management

Patrick Sherrill

U.S. Department of Education



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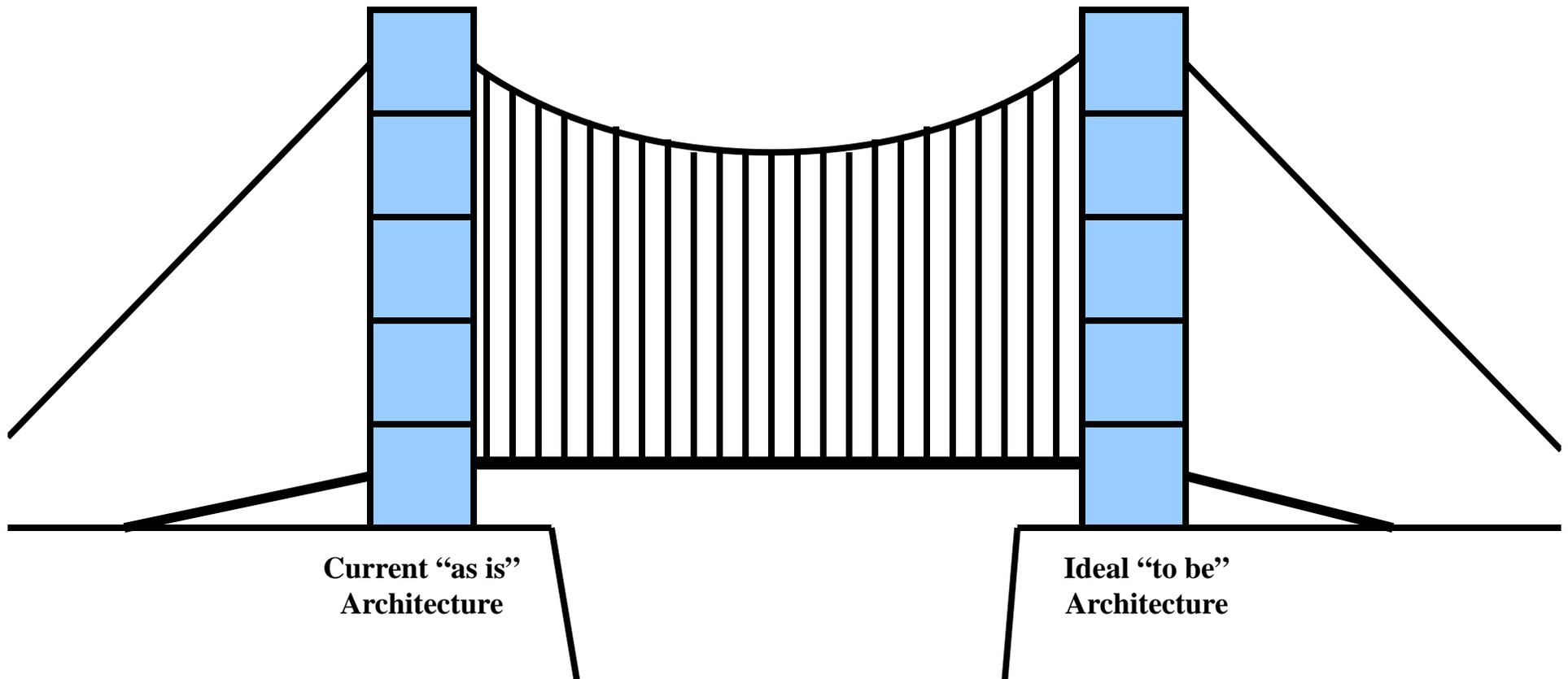
Decisions Begin with Good Data
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Information Systems Planning

Moving from “as is” toward “to be”



Enterprise Architecture

Technology Architecture

What is the current information technology environment?

What are the system constraints?

What opportunities are there with emerging technology?



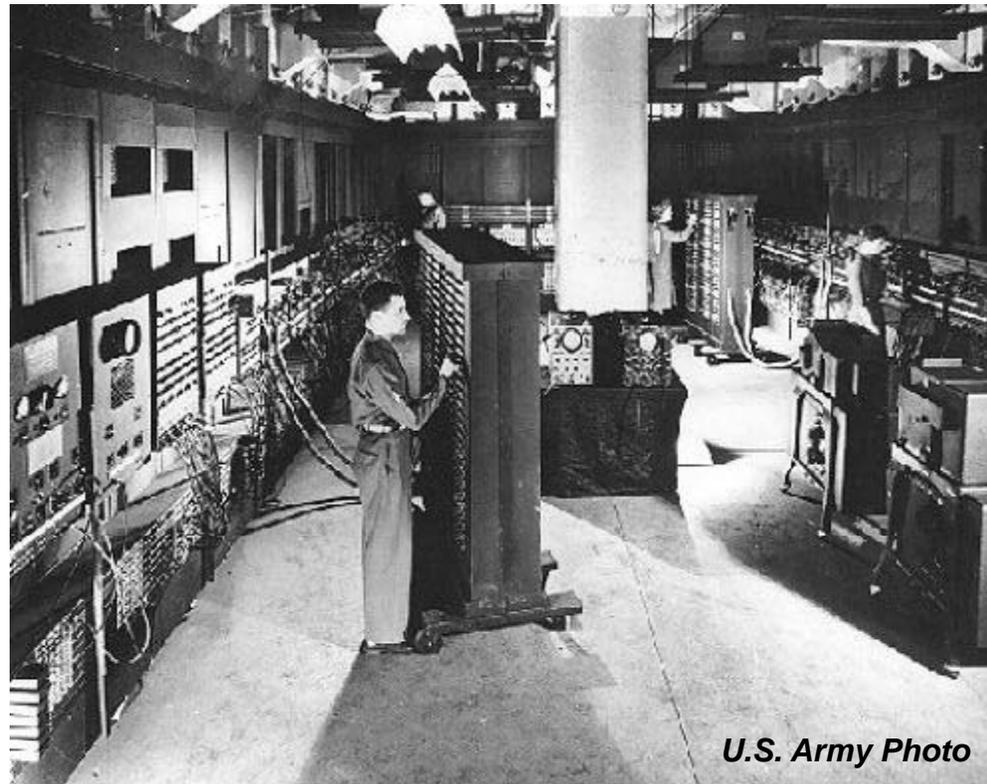
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Information Computing Power



ENIAC -- Electronic Numerical Integrator And Computer

Had 17,468 vacuum tubes
weighed 30 tons
was 8 feet by 3 feet by 100 feet , and
consumed 150 kW of power
100,000 calculations a second



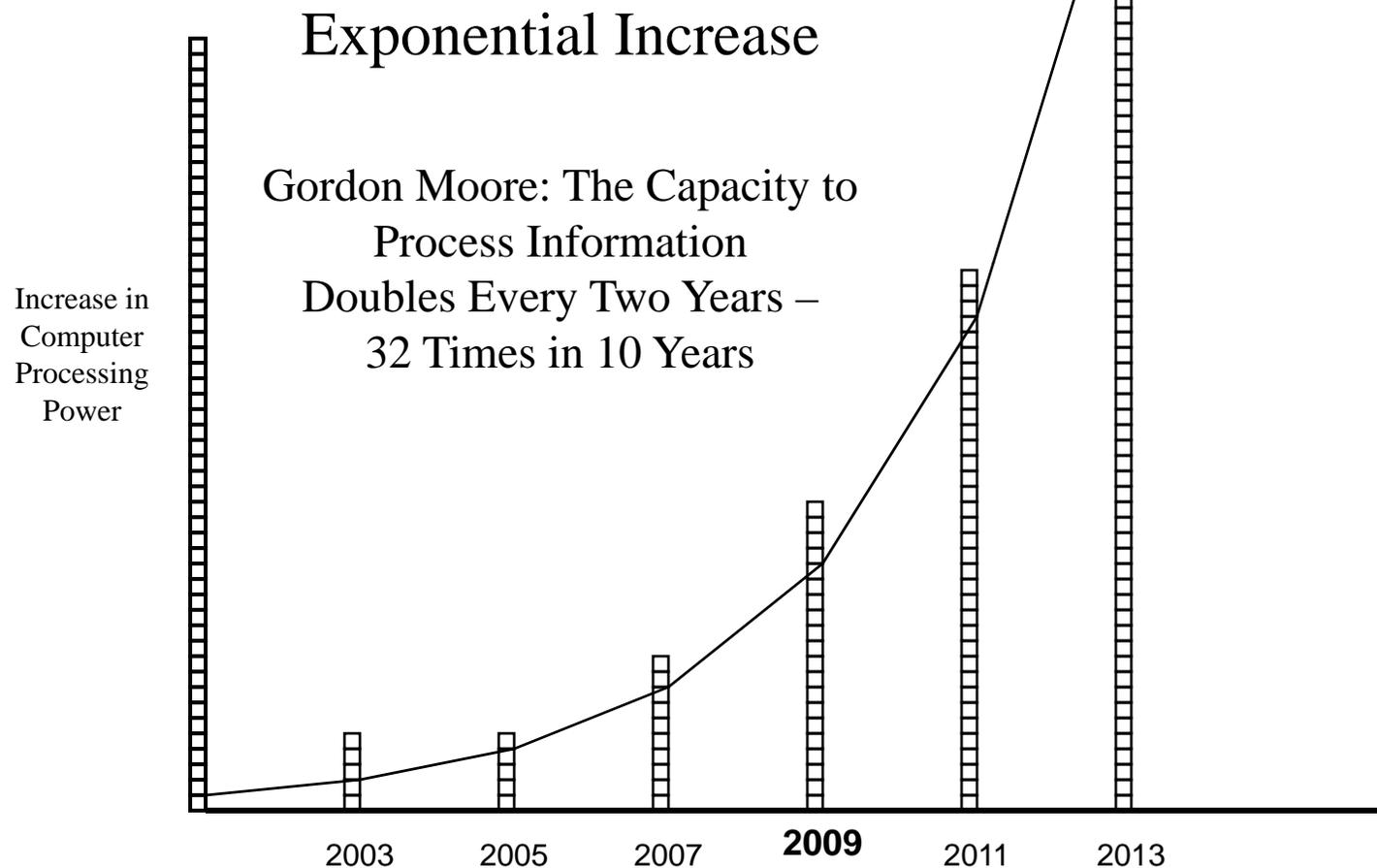
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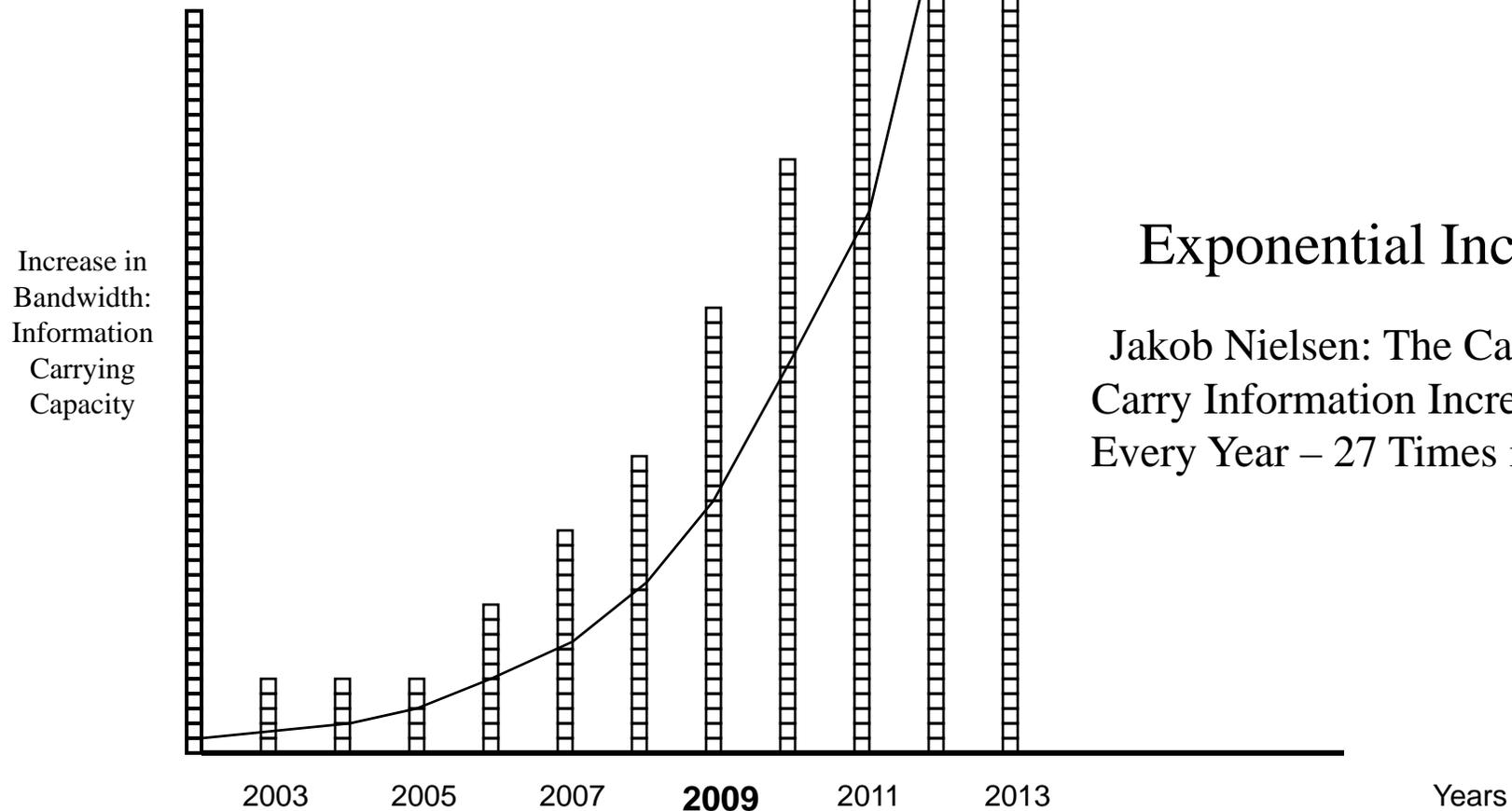


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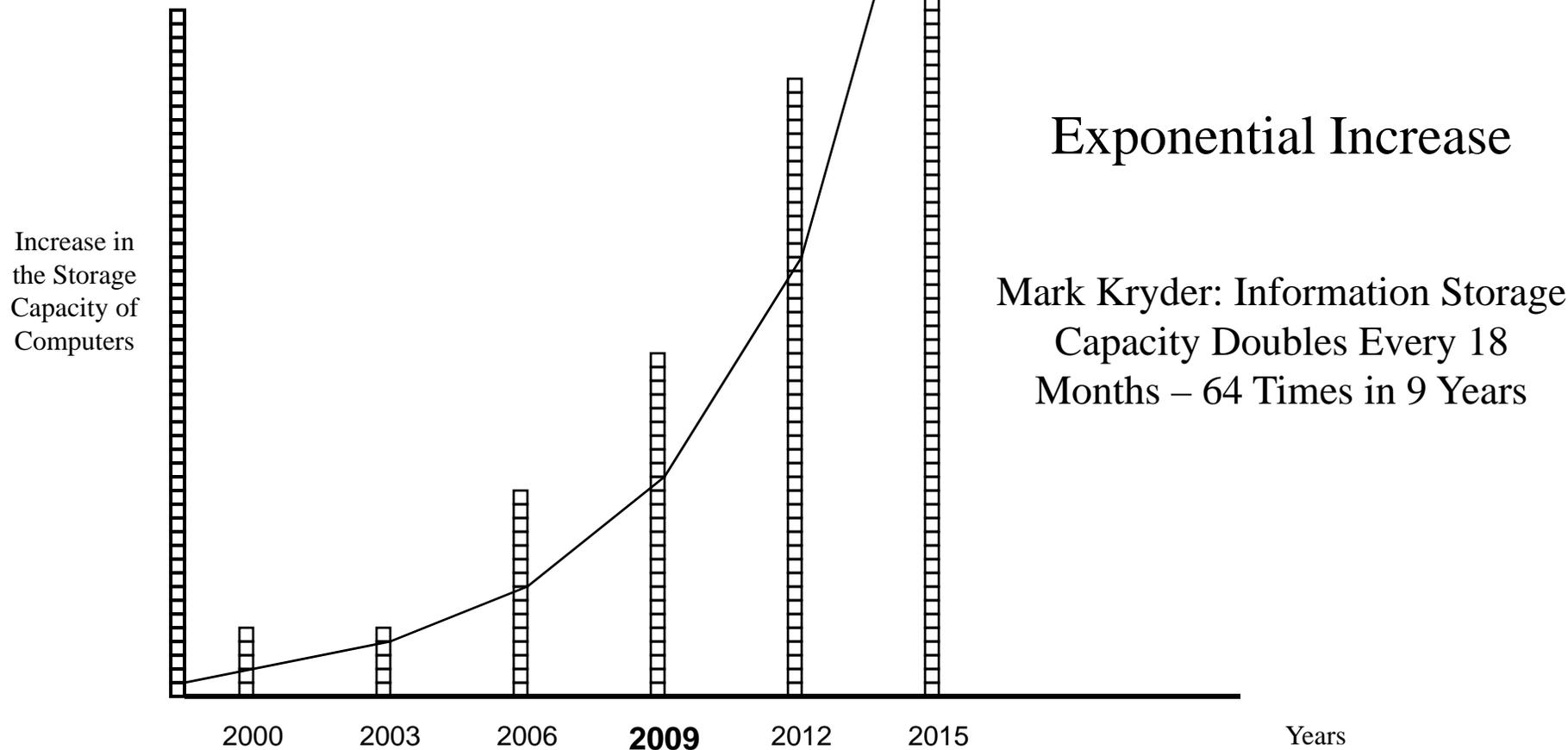
Information Computing Power



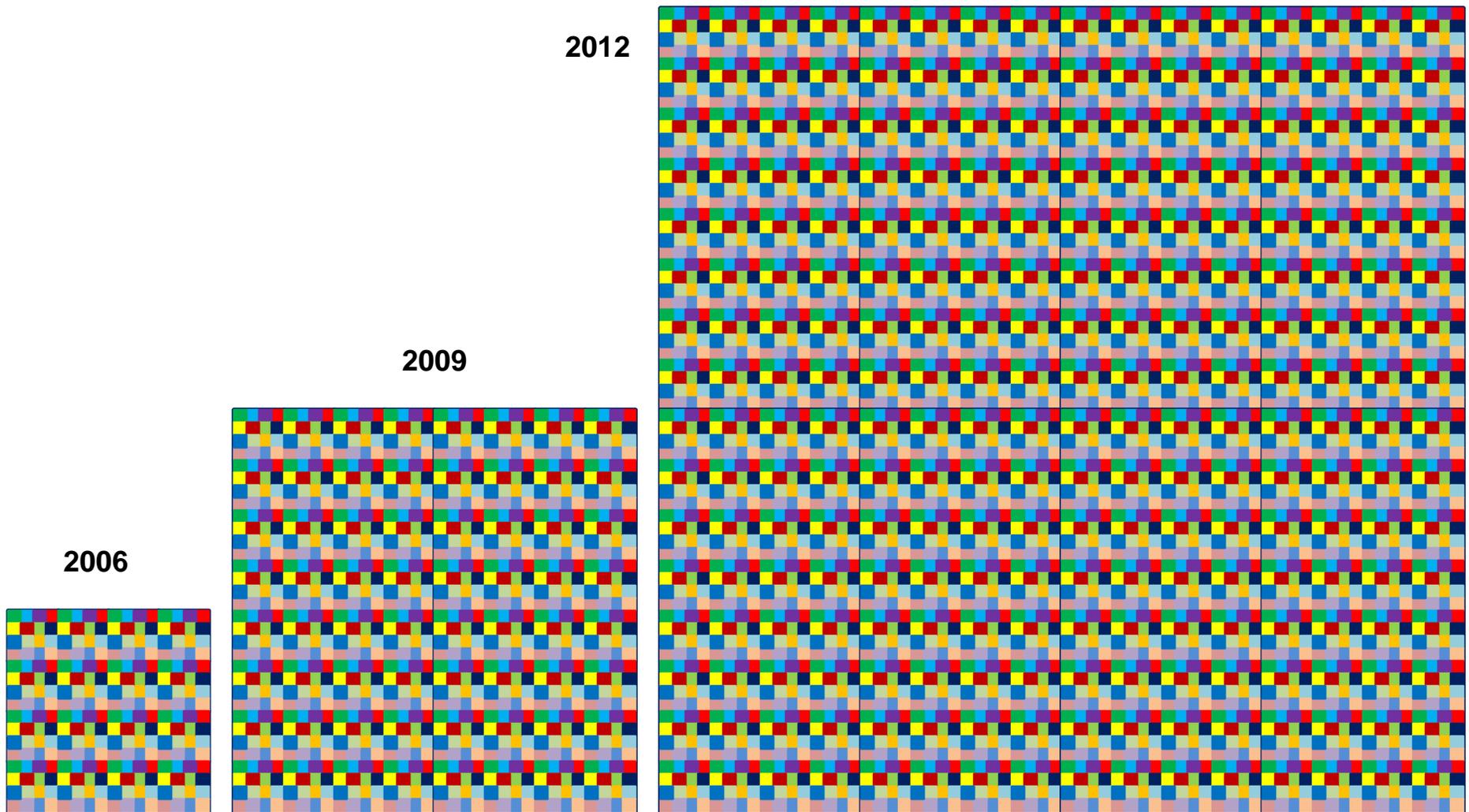
Information Transmission Speed



Information Storage Capacity

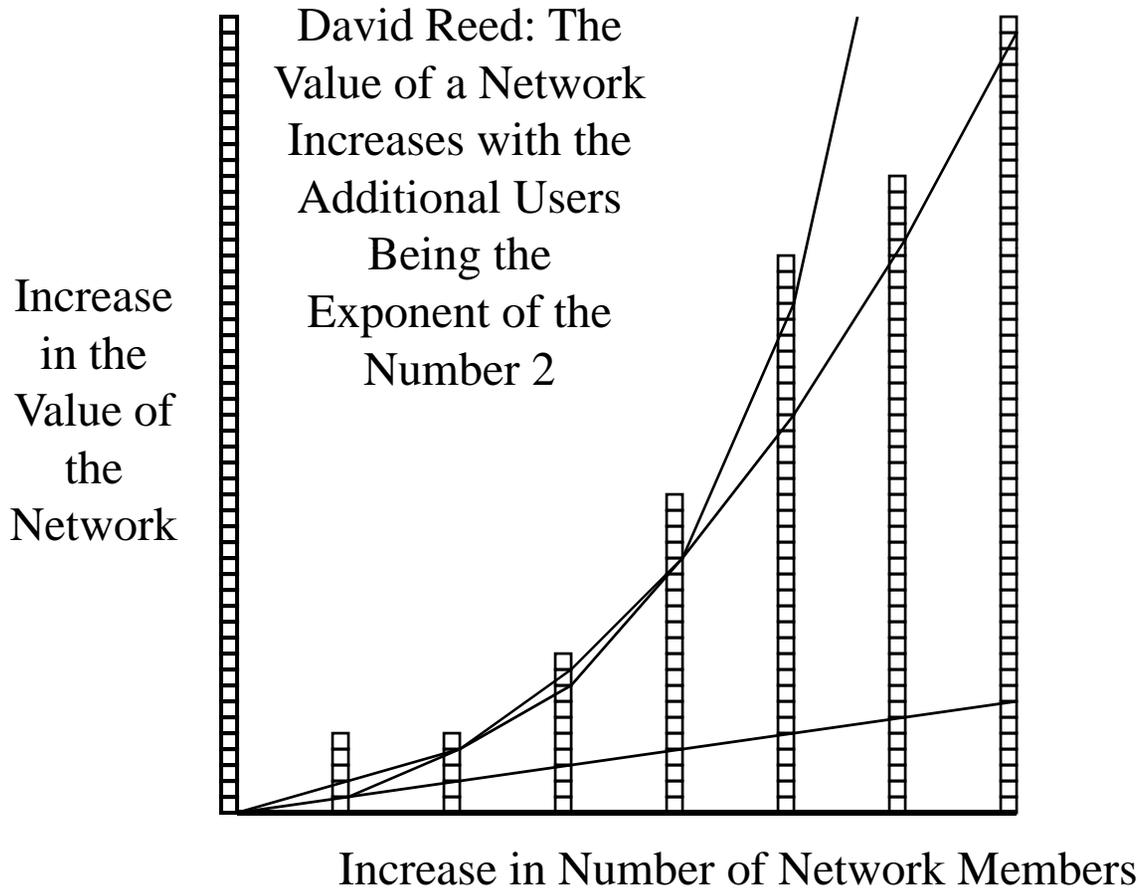


Information Storage Capacity



Information Network Value

“Group Forming” Increase



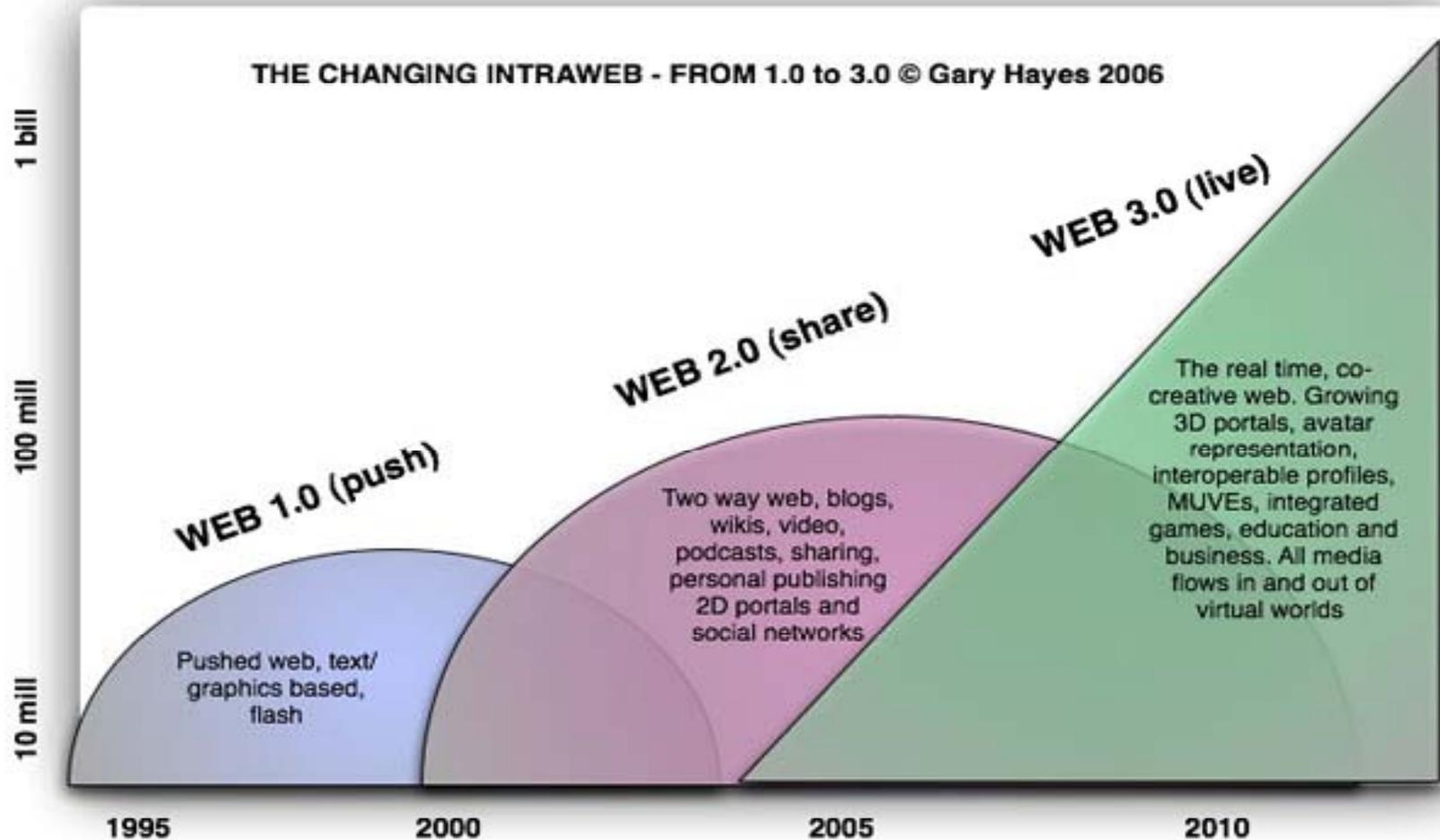
Exponential Increase

Bob Metcalfe: The Value of the Network Increases by the Number of Additional Users Squared

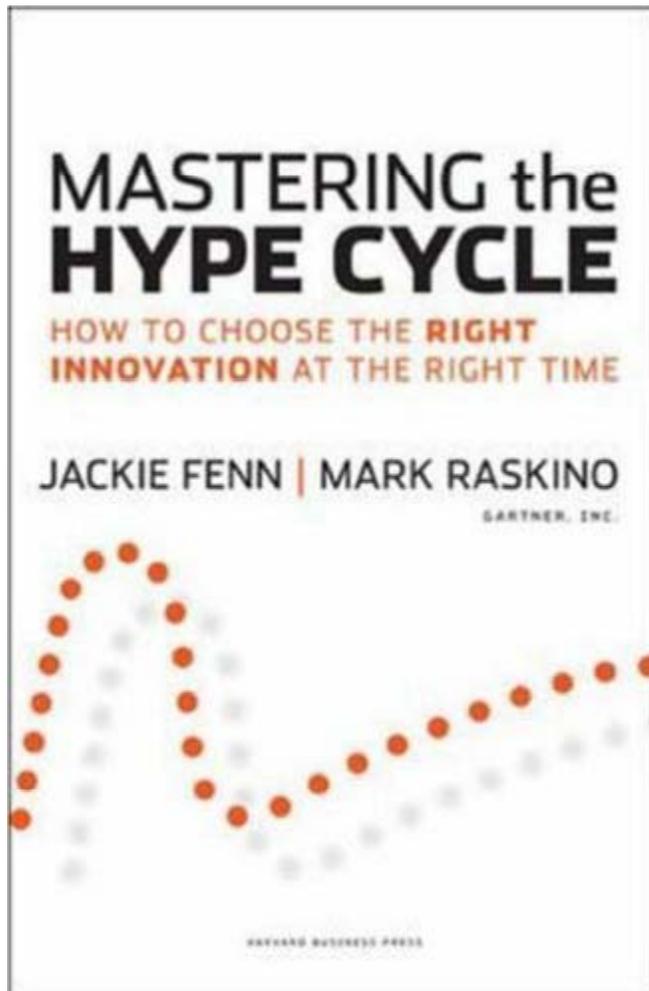
Arithmetic Increase

David Sarnoff: The Value of a Network Increases with Each Additional User

Information Network Value



Gartner Hype Cycle



Jackie Fenn is a vice president and Gartner Fellow in Gartner Research. She focuses on innovation management issues and emerging technology trends.

Mark Raskino is a vice president and Gartner Fellow in Gartner Research, specializing in emerging trends

Harvard Business School Press
October 2008
ISBN-13: 9781422121108



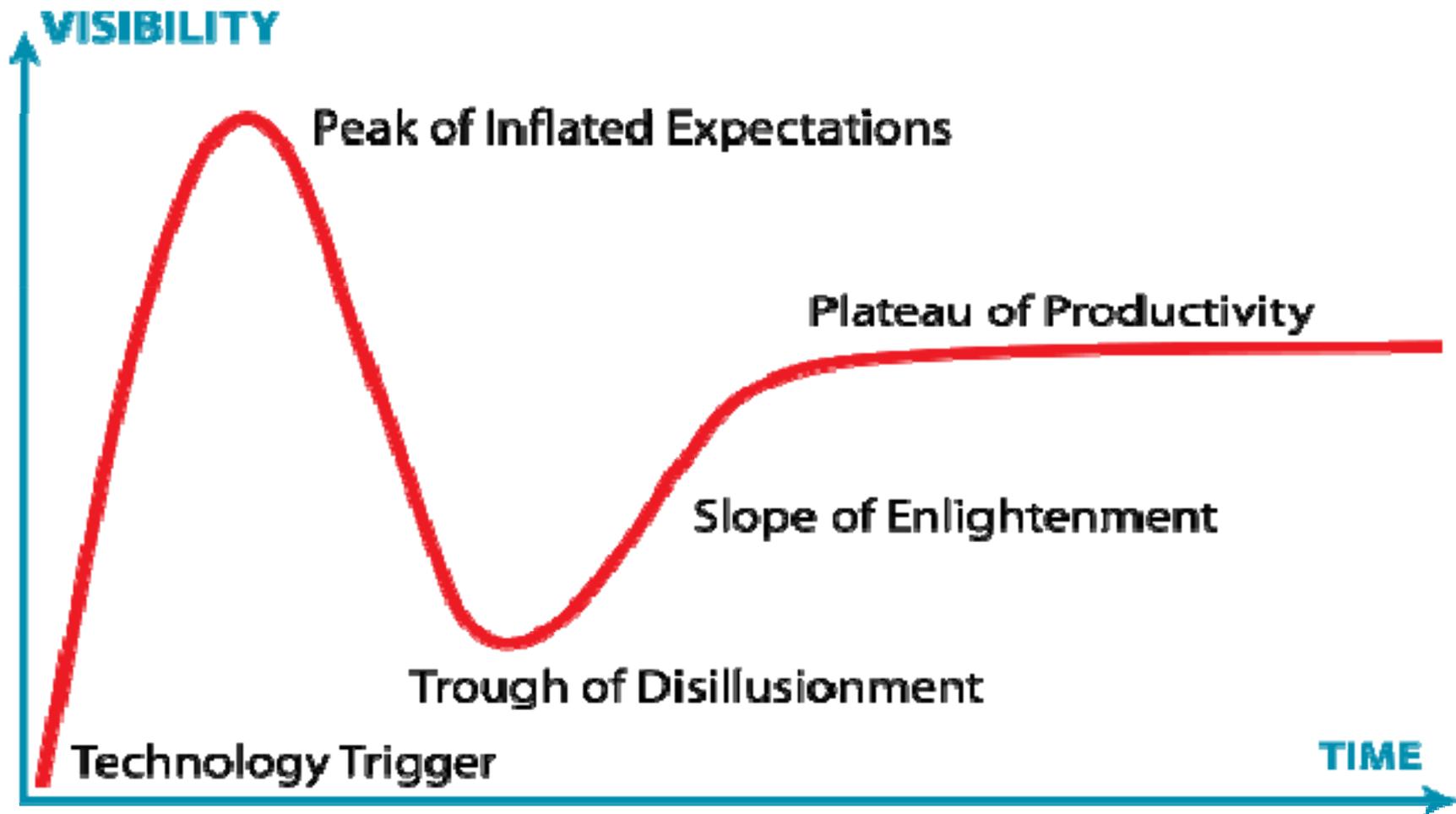
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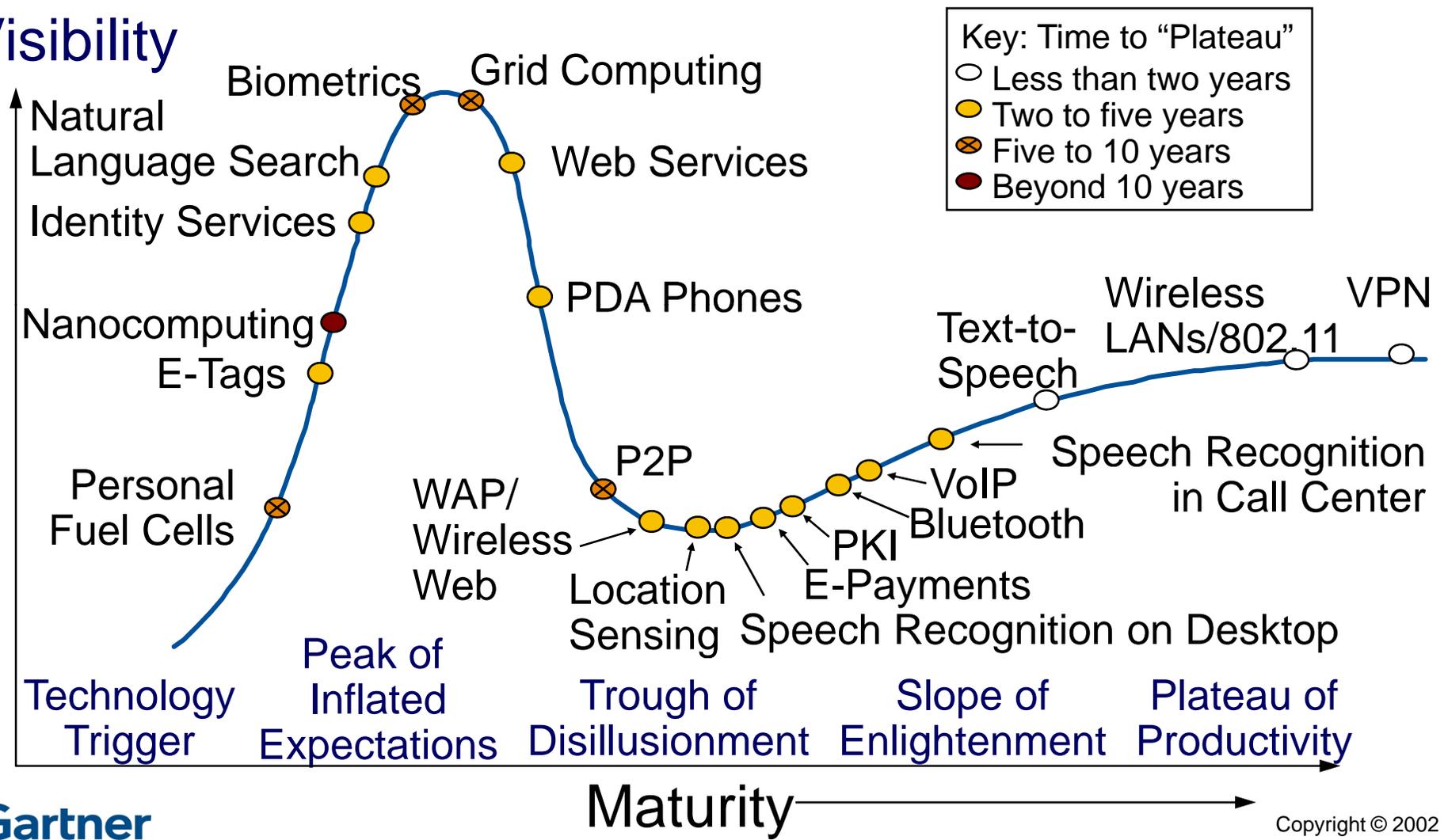
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Gartner Hype Cycle



Gartner 2002 Hype Cycle

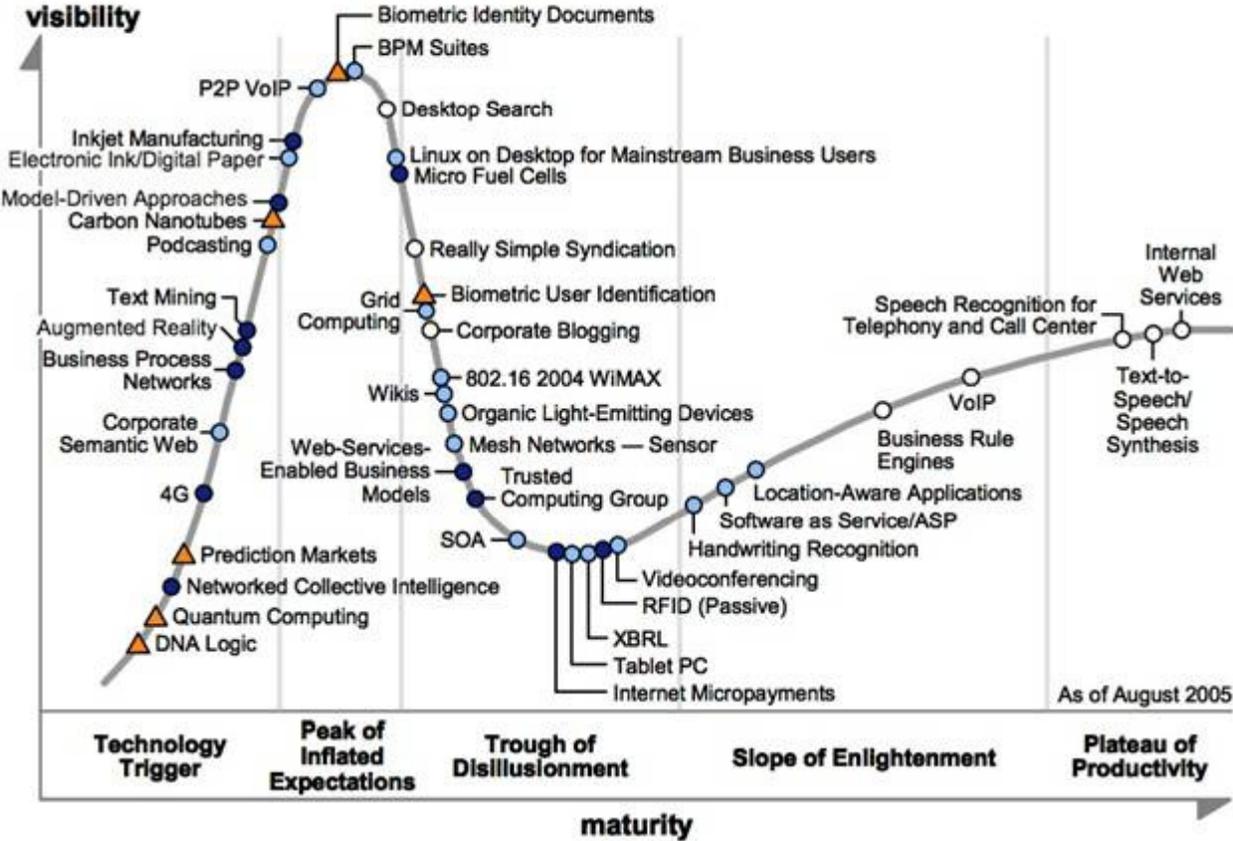
Visibility



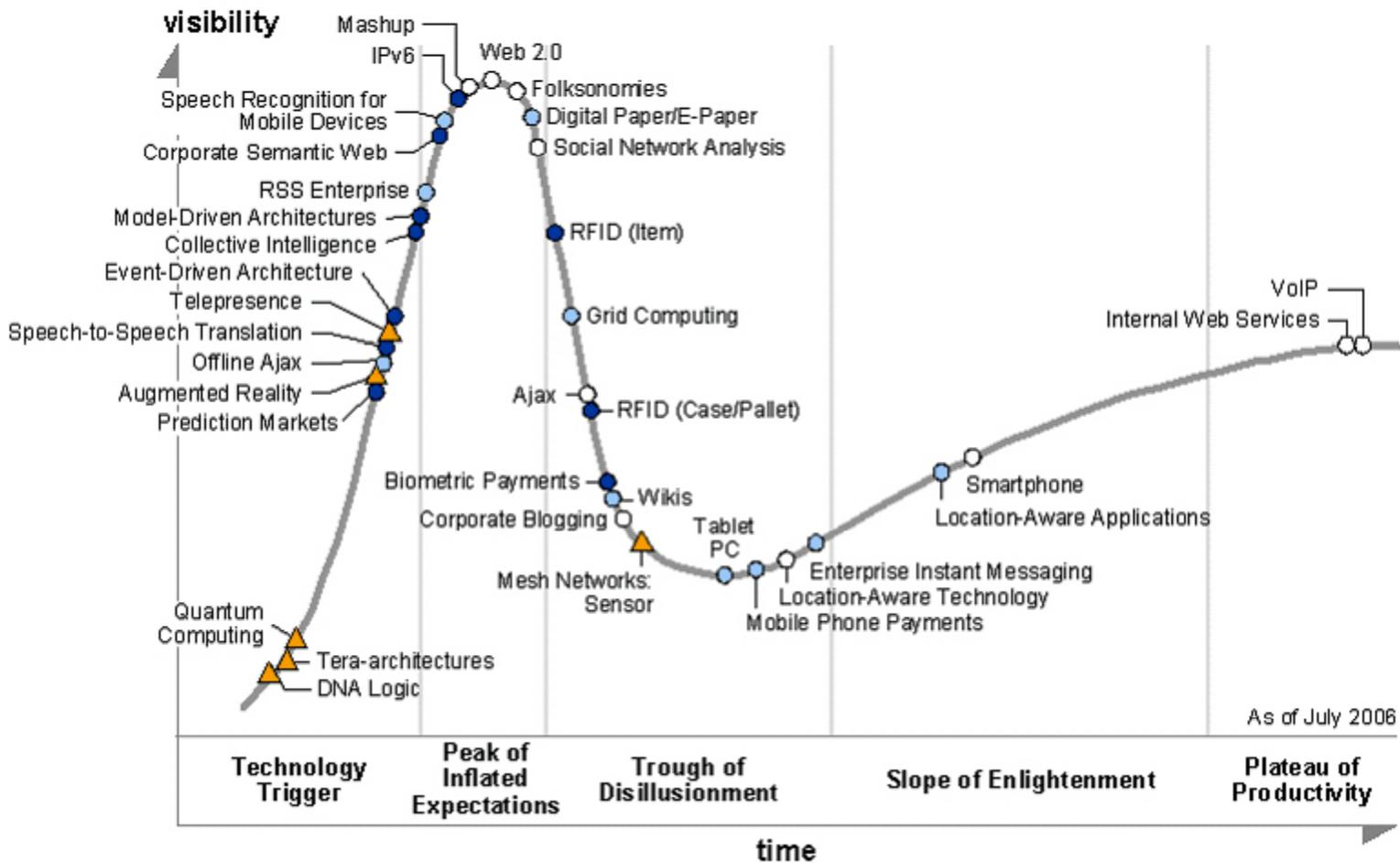
Gartner

Copyright © 2002

Gartner 2005 Hype Cycle

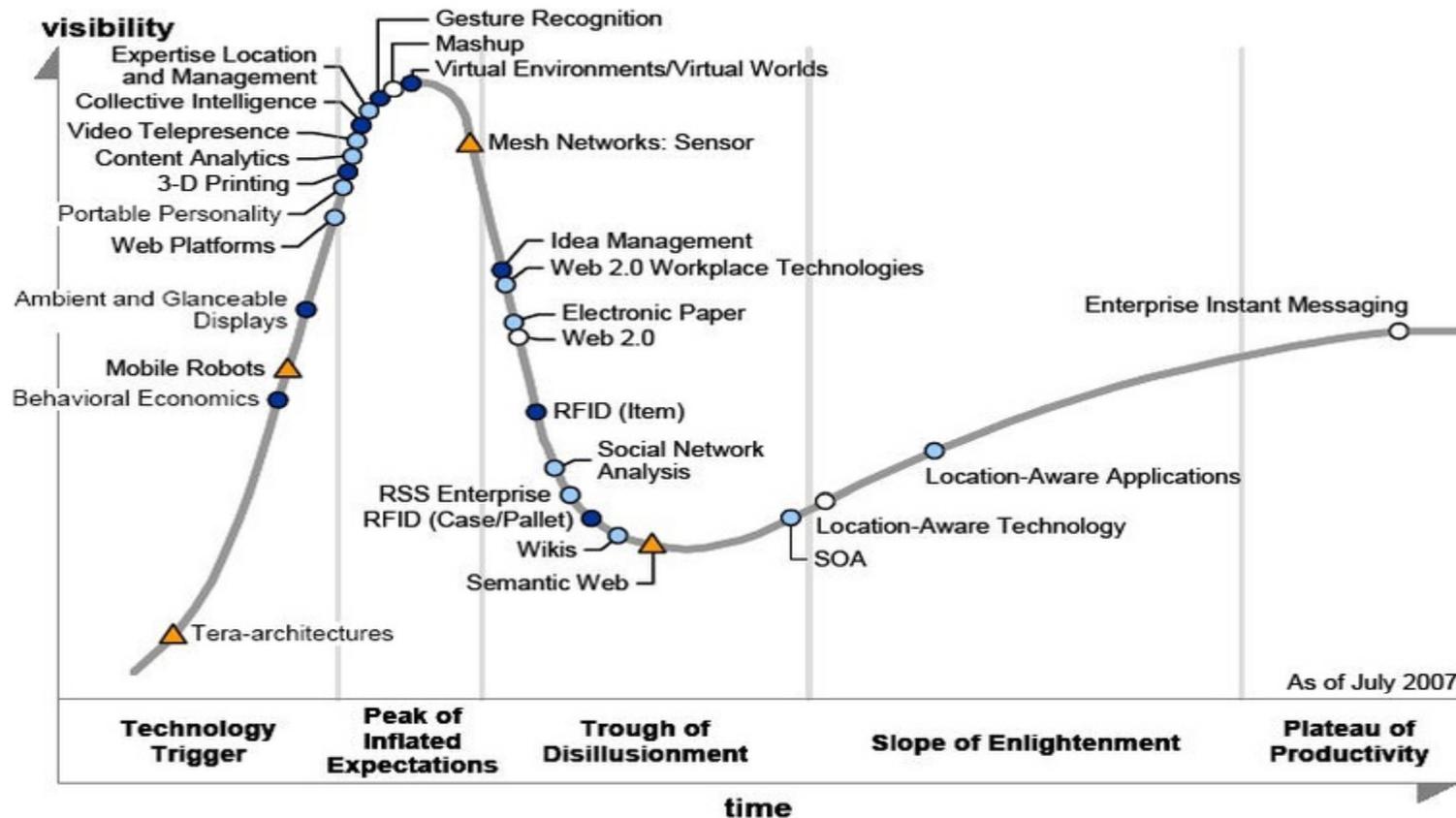


Gartner 2006 Hype Cycle



Gartner 2007 Hype Cycle

Hype Cycle for Emerging Technologies, 2007



As of July 2007

Years to mainstream adoption:

○ less than 2 years

○ 2 to 5 years

● 5 to 10 years

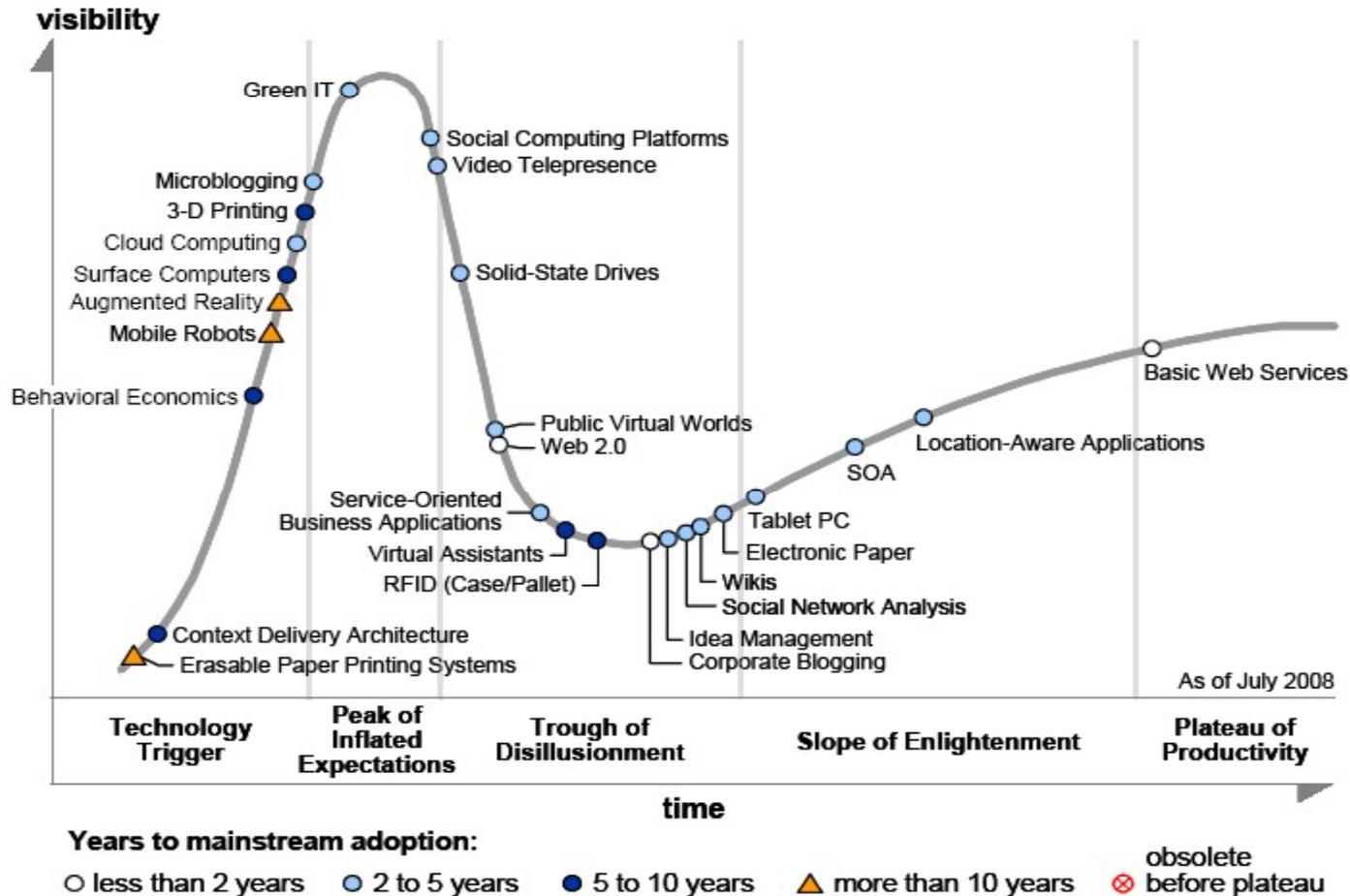
▲ more than 10 years

⊗ obsolete before plateau

Source: Gartner (July 2007)

Gartner 2008 Hype Cycle

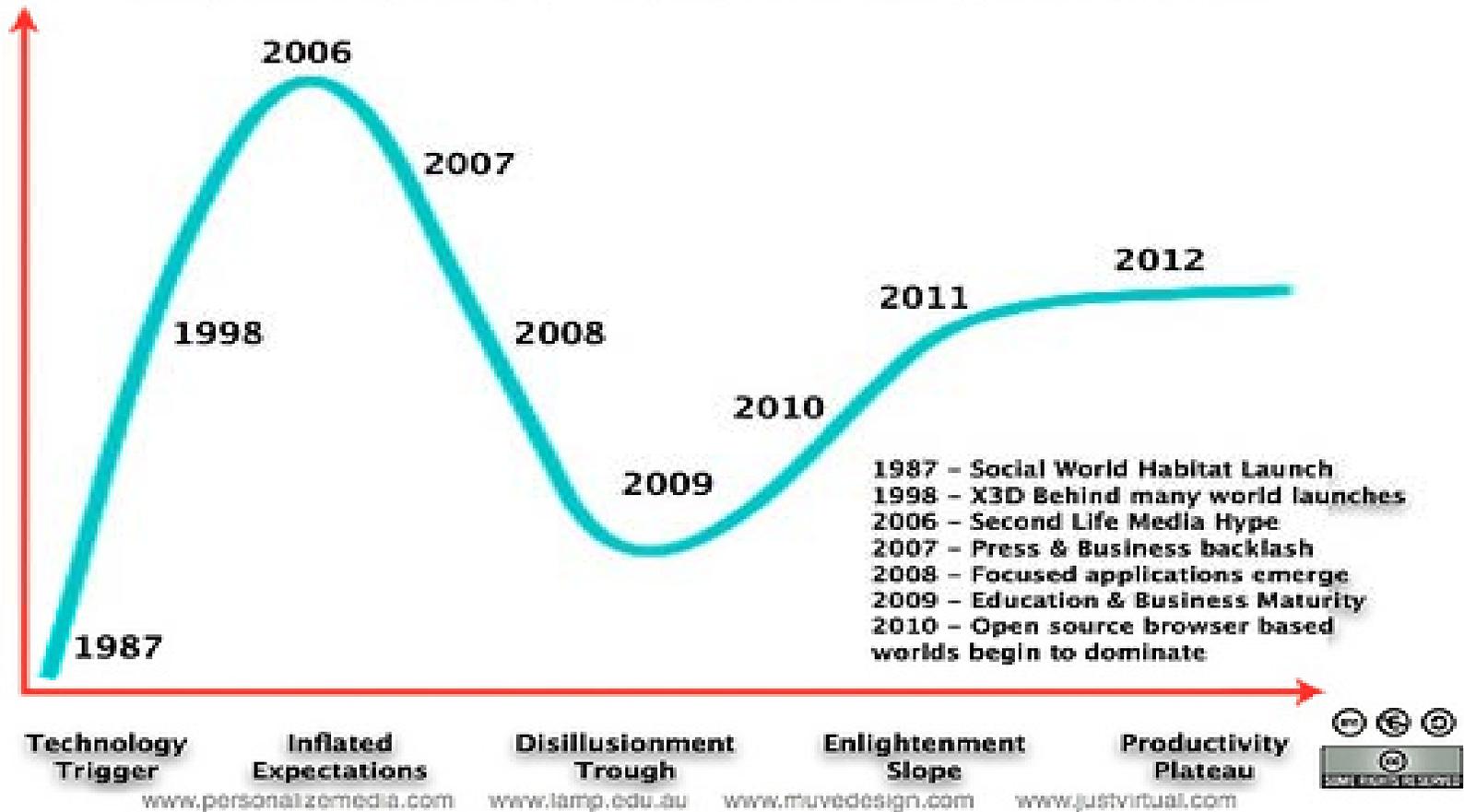
Figure 1. Hype Cycle for Emerging Technologies, 2008



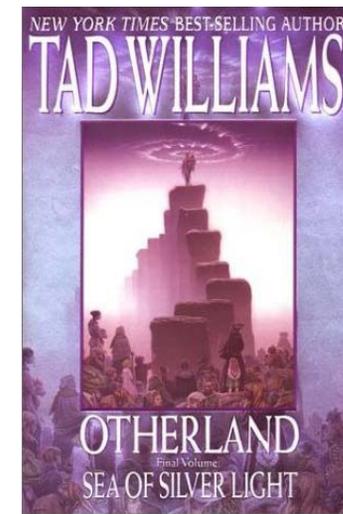
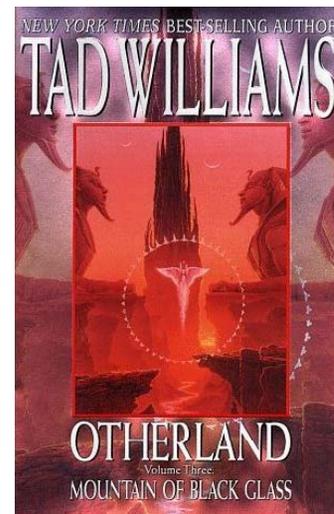
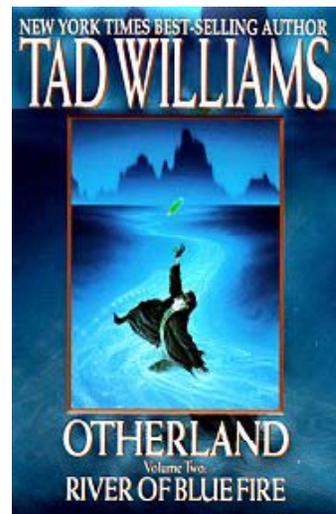
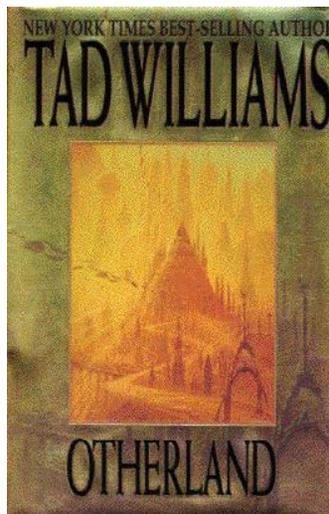
Source: Gartner (July 2008)

Social Virtual Worlds Hype Cycle 2009

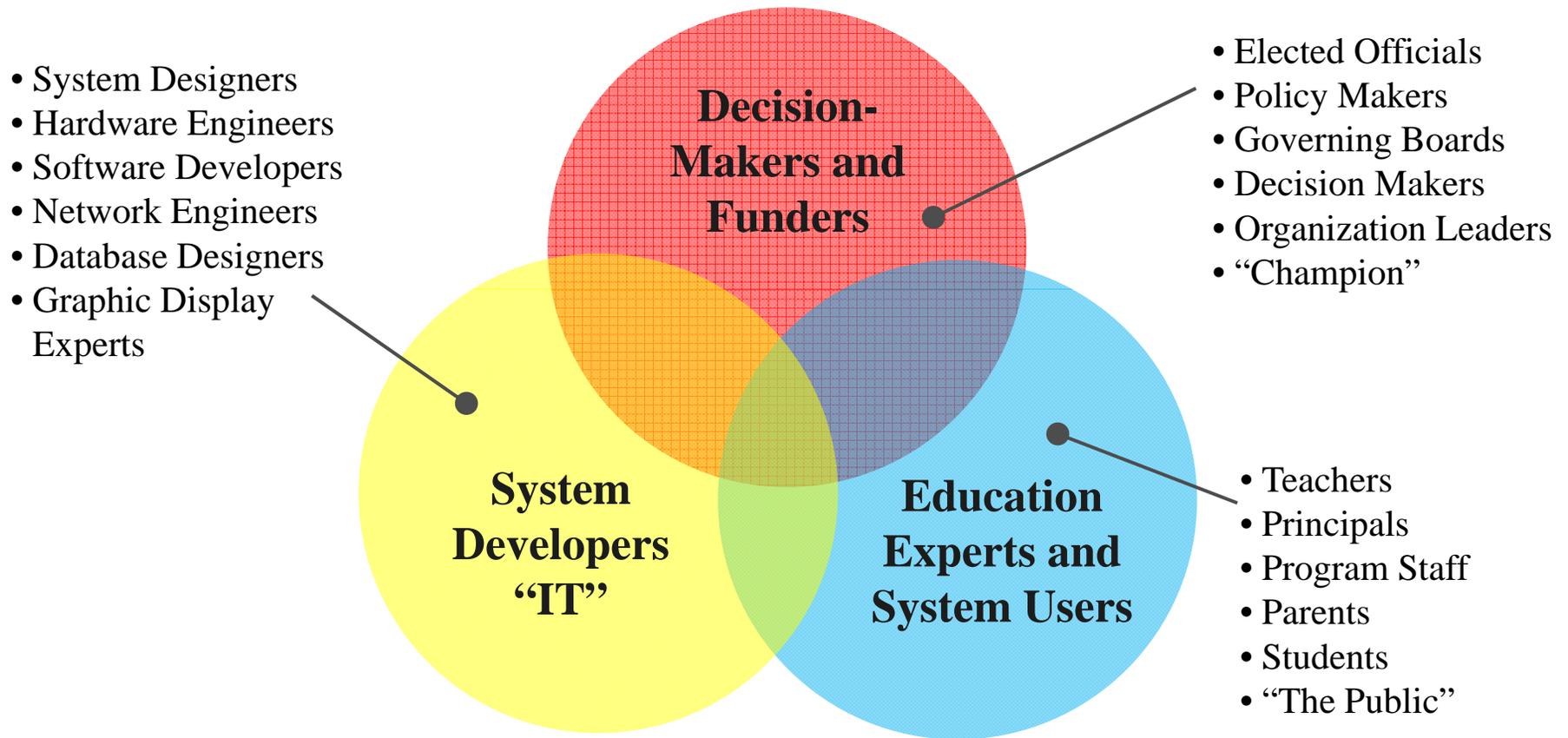
GARTNER HYPE CYCLE For Social Virtual Worlds
 Temporal Perspective by Gary Hayes muvedesign.com 2009 Jan



Social Virtual Worlds

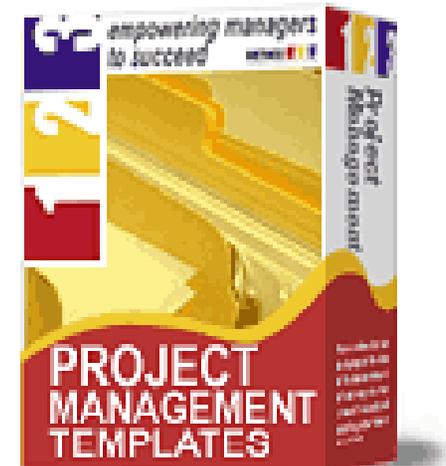
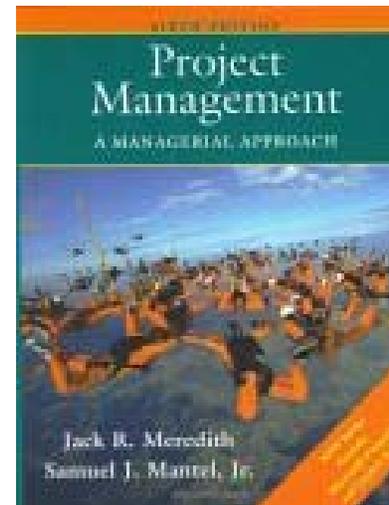
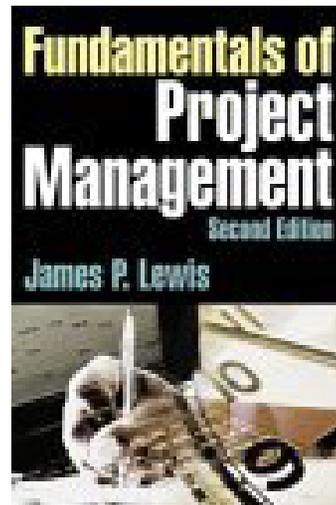
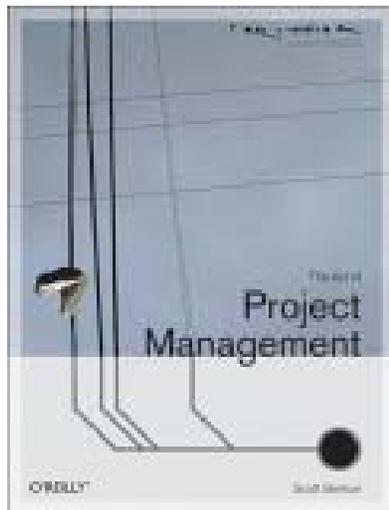
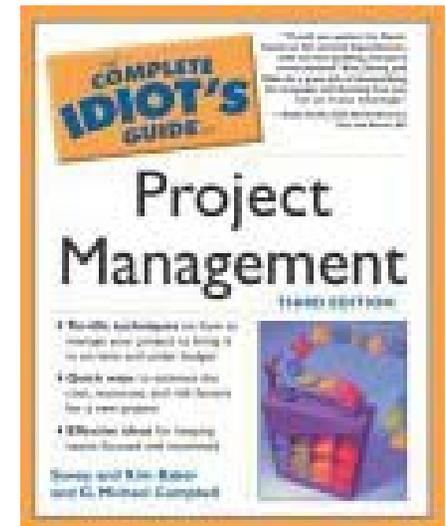
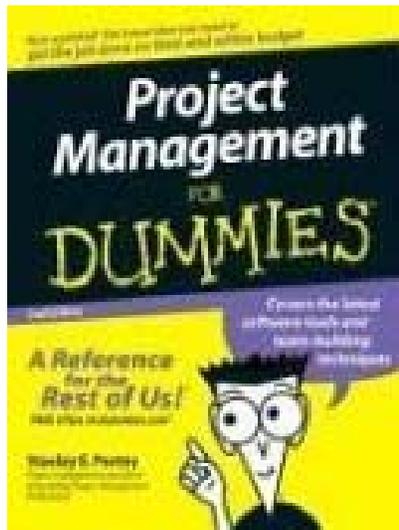


Education Information Audiences



Different Perspectives, Different Languages

Project Management



Project Management



Project Management

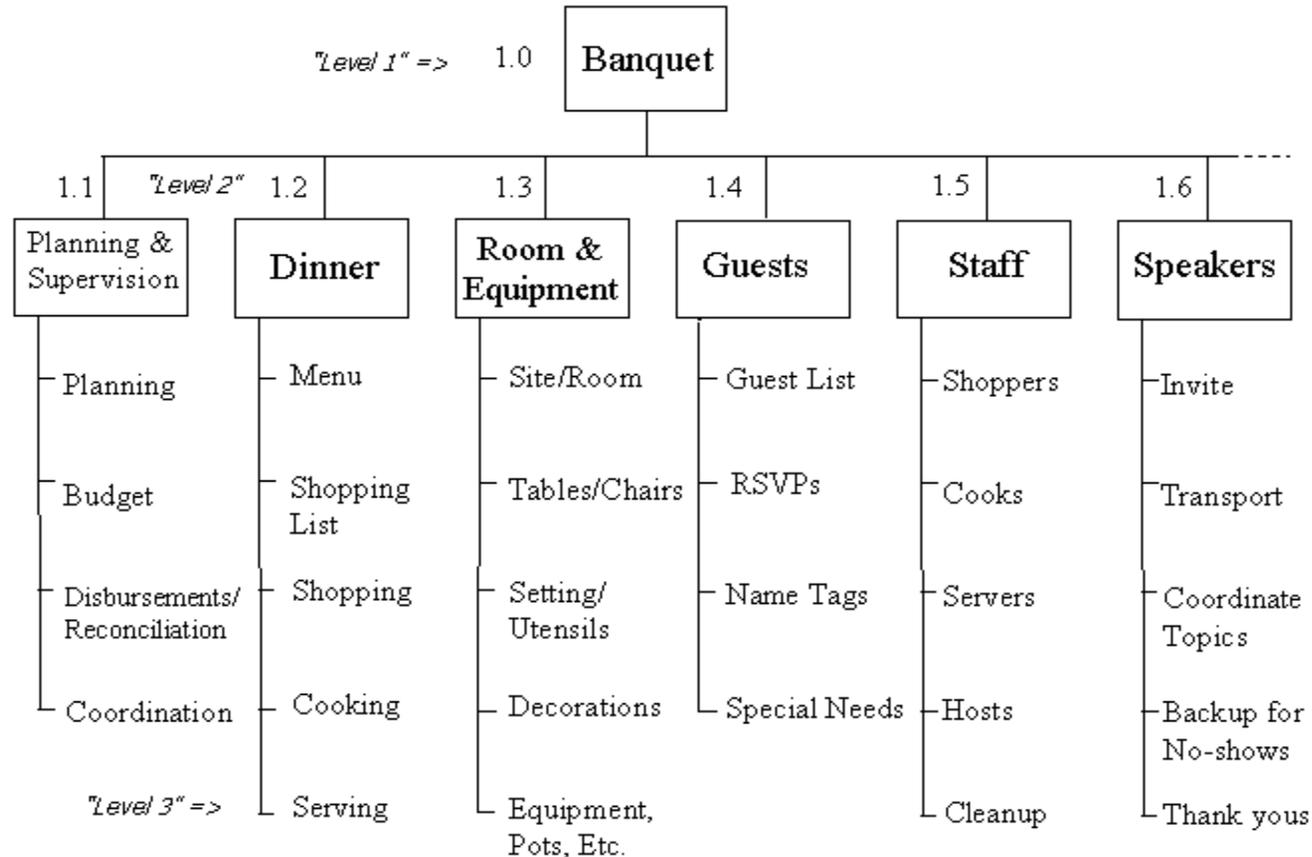
Capability Maturity Model – Integrated

Level	Focus	Process Areas	Result
5 Optimizing	<i>Continuous process improvement</i>	Organizational Innovation & Deployment Causal Analysis and Resolution	Productivity & Quality
4 Quantitatively Managed	<i>Quantitative management</i>	Organizational Process Performance Quantitative Project Management	
3 Defined	<i>Process standardization</i>	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition Organizational Training Integrated Project Management Risk Management Decision Analysis and Resolution	
2 Managed	<i>Basic project management</i>	Requirements Management Project Planning Project Monitoring & Control Supplier Agreement Management Measurement and Analysis Process & Product Quality Assurance Configuration Management	
1 Initial	<i>Competent people and heroics</i>		

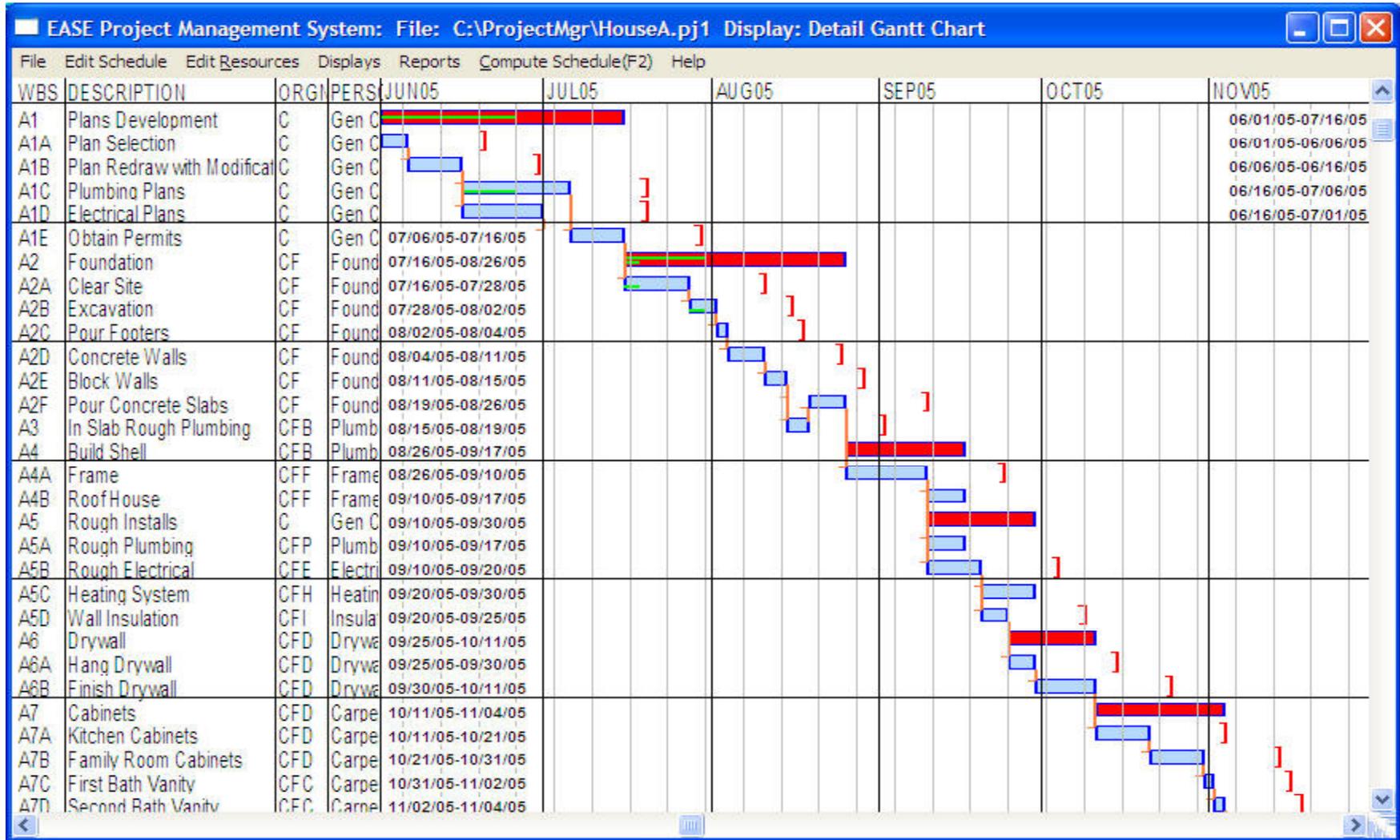


Work Breakdown Structure

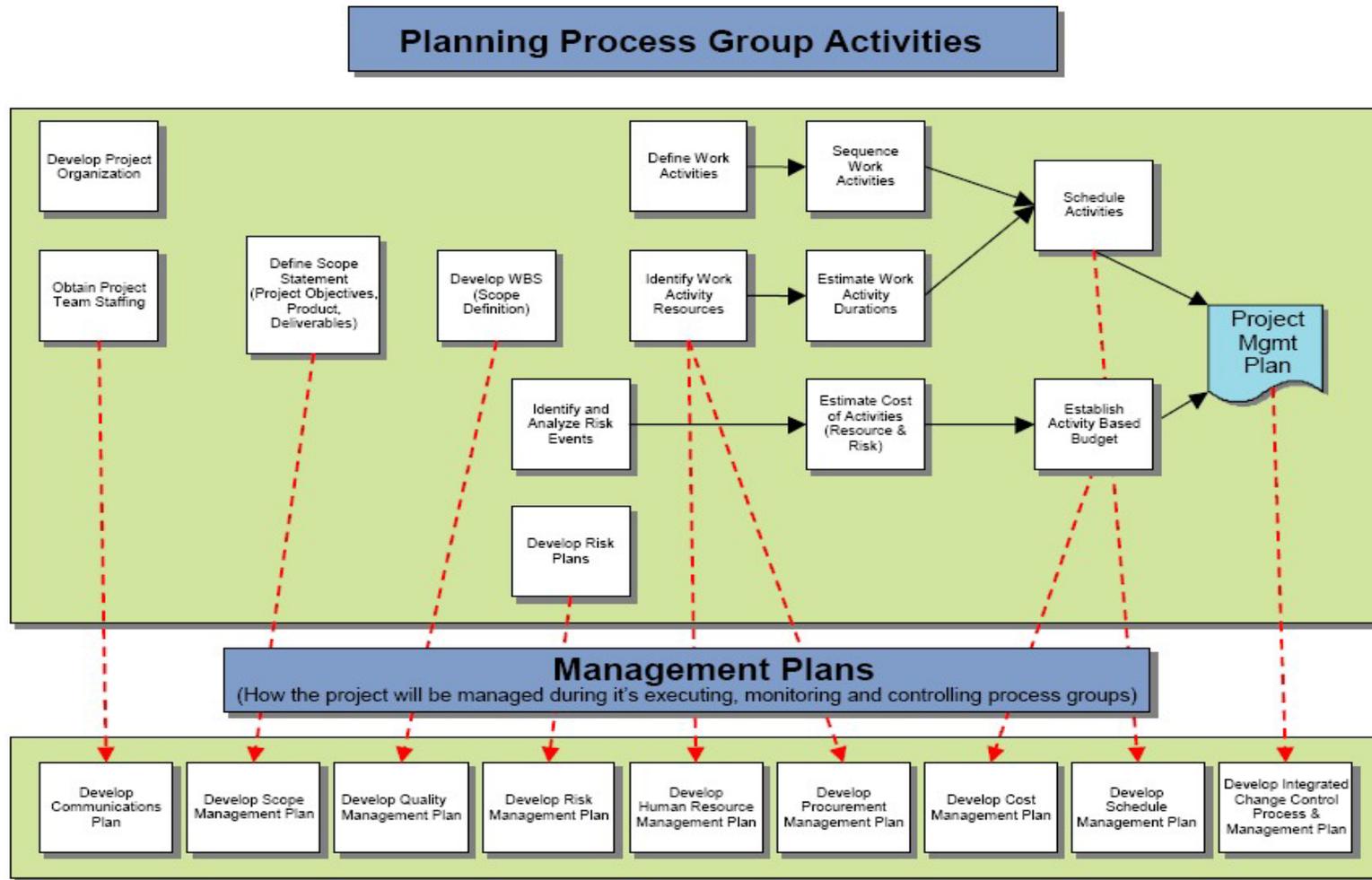
WBS Example - Banquet



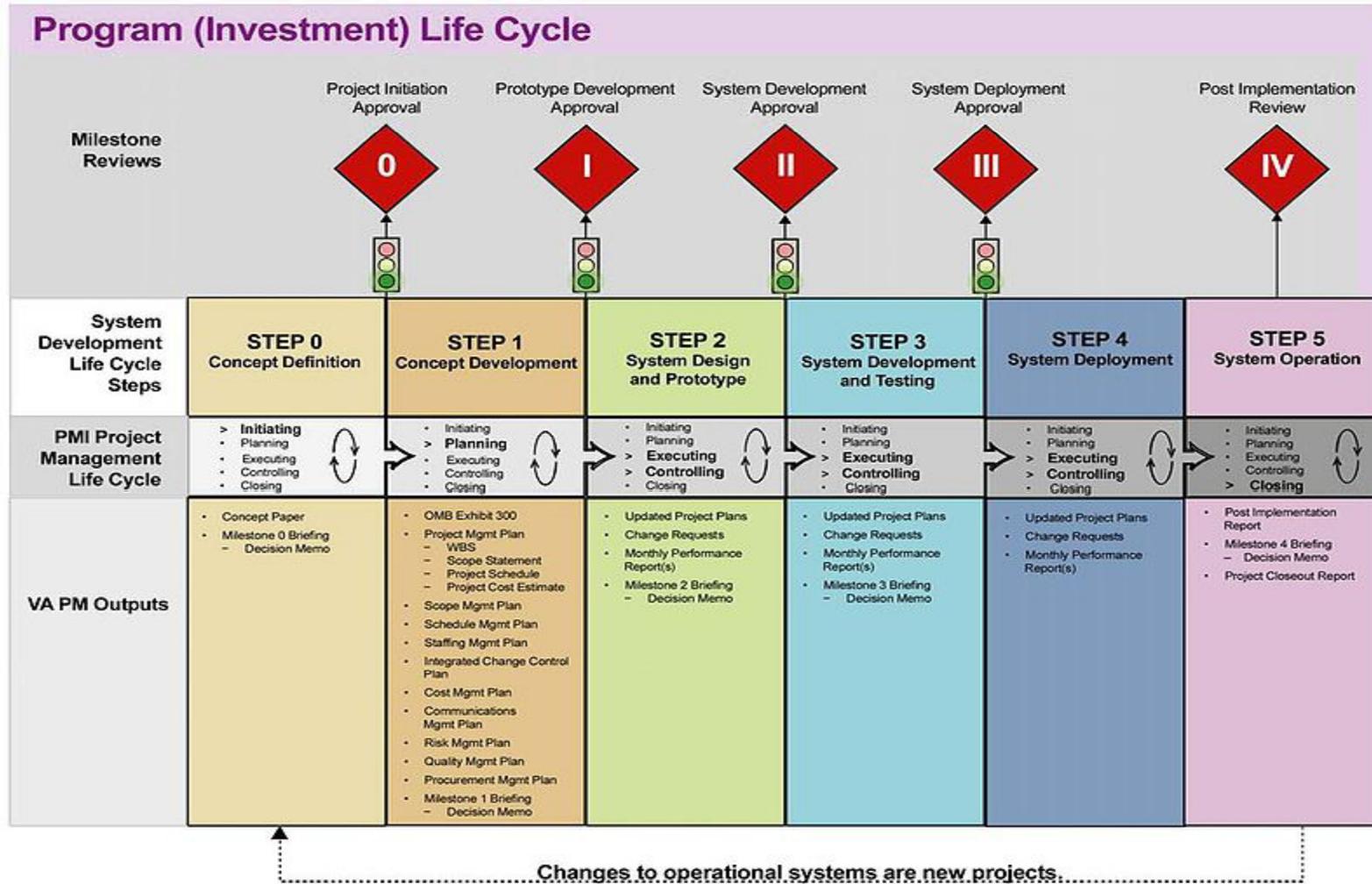
Work Breakdown Structure



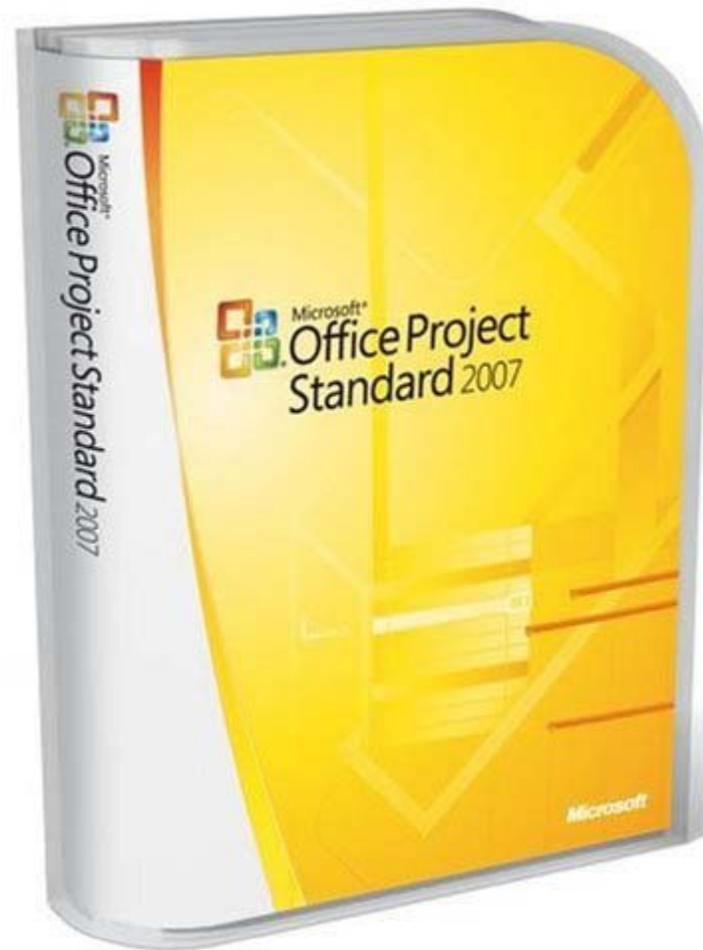
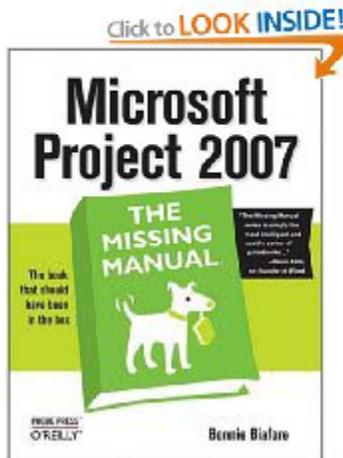
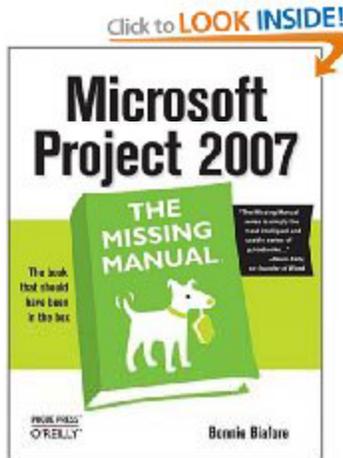
Project Management Plans



Project Management



Project Management Software



Project Management Software

The screenshot displays the RationalPlan software interface for a project named 'project.xrp'. The main window is divided into several sections:

- Left Panel:** A tree view showing project structure with folders like 'Project', 'Info', 'Notes & Links', 'Calendar', 'Assumptions & Constraints', 'Risks', 'Planning', and 'Define resources'. The 'Schedule tasks' option is highlighted.
- Task List Table:** A table listing tasks with their IDs, names, and durations.
- Gantt Chart:** A visual representation of the project schedule, showing task bars and dependencies over time. The chart is split into two weeks: January 18, 2007 - w08 and February 25, 2007 - w09.

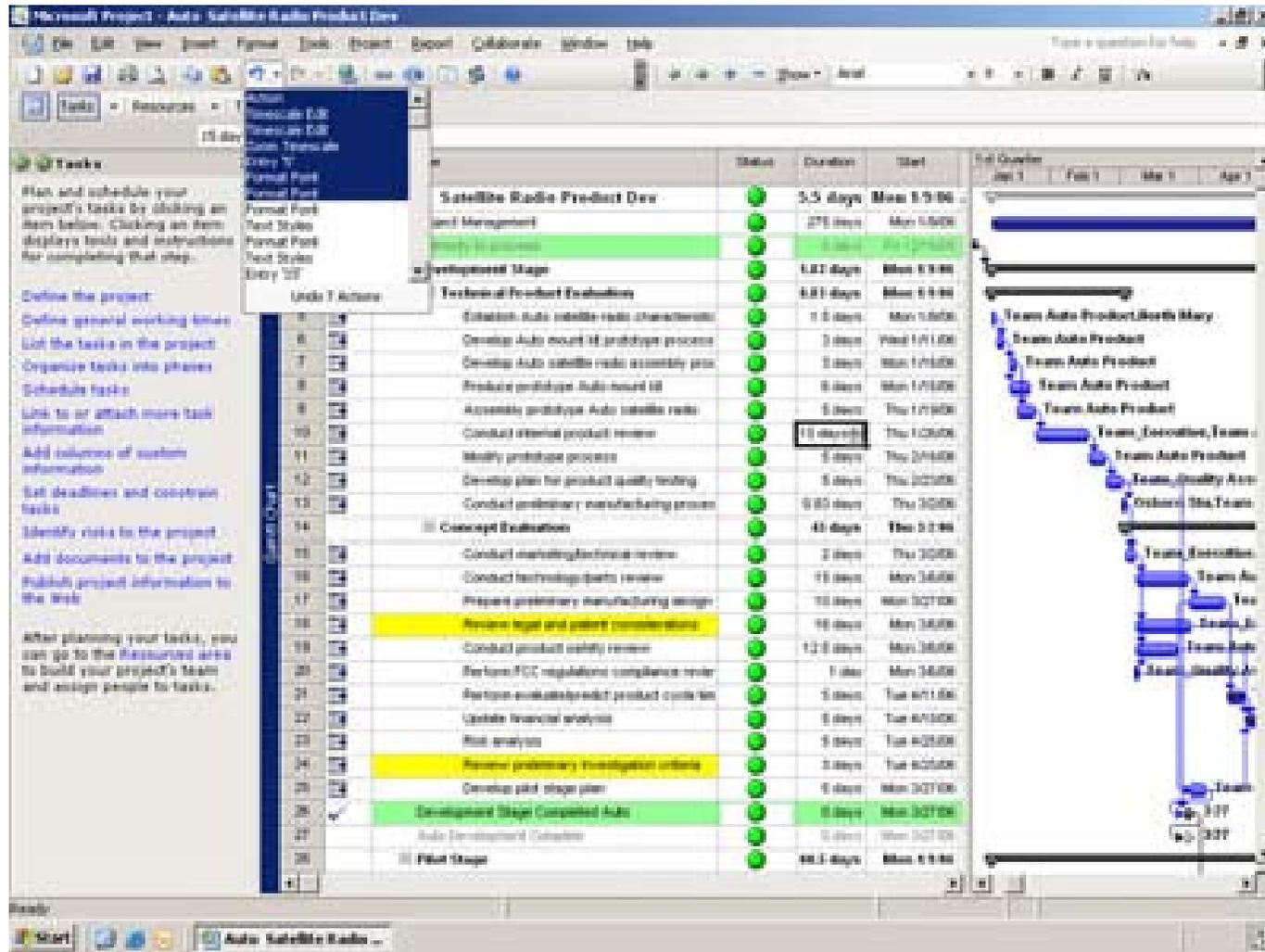
Id	Task Name	Duration
1	House design	2d
2	Architectural design	1d
3	Structural design	1d
4	Execution contract	2d
5	Offer selection	1d
6	Contract signing	1d
7	Execution permits	1d
8	House construction	5d
9	Site clearing	1d
10	Utilities instalation	1d
11	Foundation	1d
12	Excavate	1d
13	Form walls and...	1d
14	Place concrete	1d
15	Foundation inspect...	1d
16	Joists, decking and...	1d
17	Framing inspection	1d
18	Sheathing	1d

Define the activities, set dependencies and estimate durations

Identify the activities that must be performed to produce the deliverables composing the WBS.

Sequence the activities by defining their dependencies (links,

Project Management Software



Questions and Answers

Please Provide Comments and Suggestions to:

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U.S. Department of Education

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202-708-8196



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Information Systems Planning

System Development Life Cycle

Information Life Cycle

Enterprise Architecture



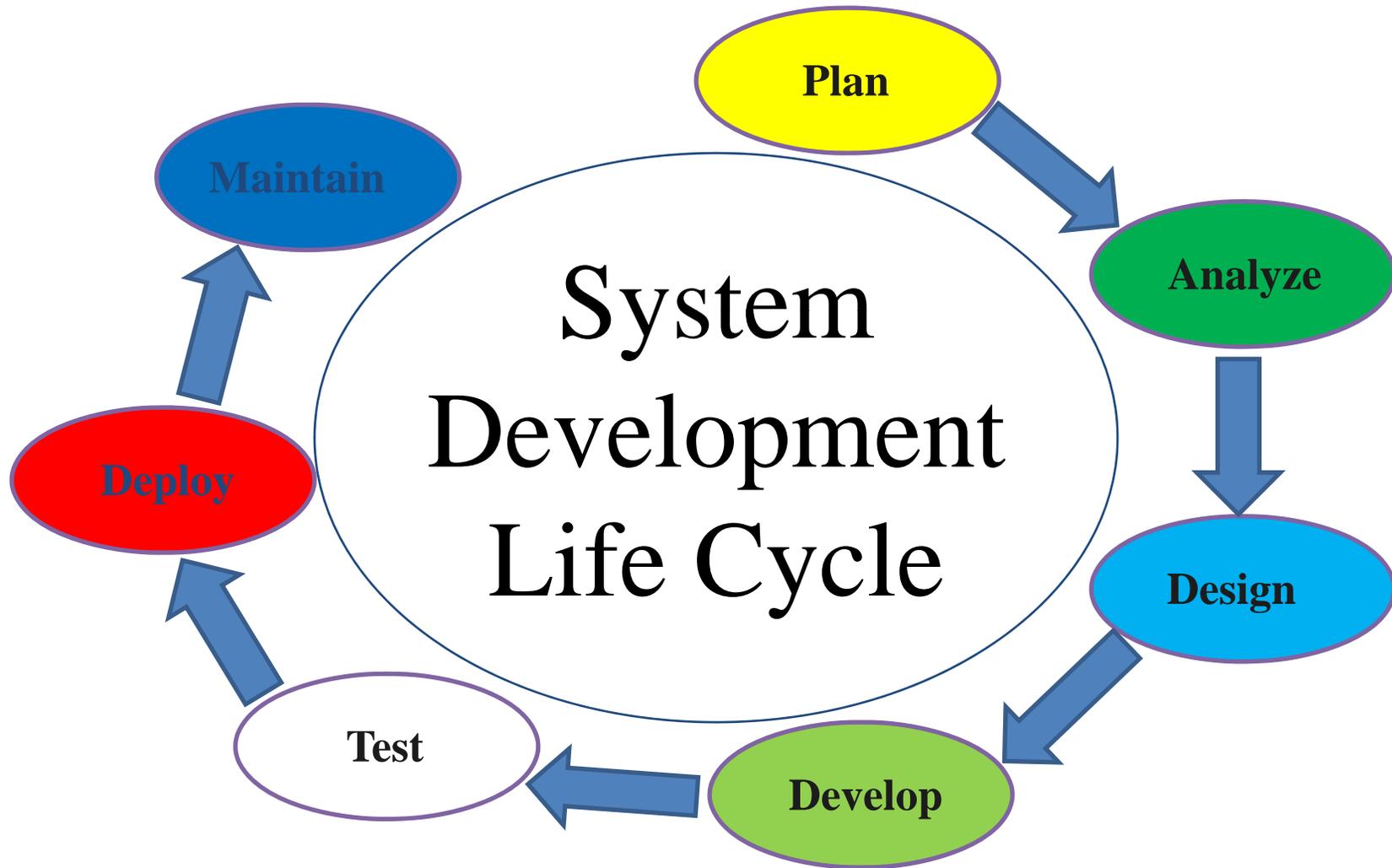
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Systems Development Life Cycle



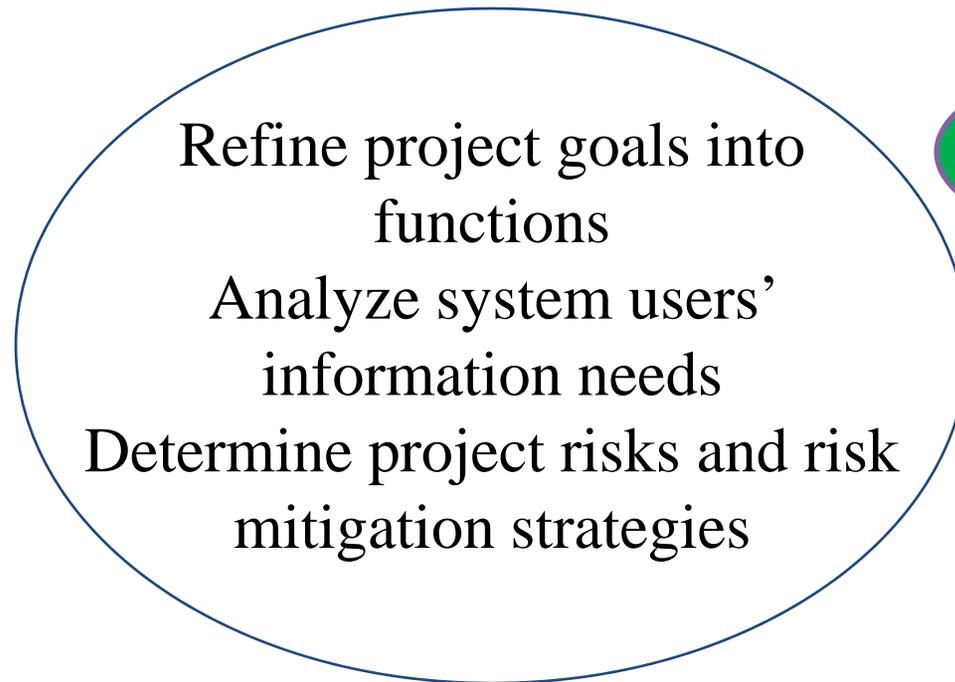
Systems Development Life Cycle

Plan

Articulate system goals and
establish high level view of
project
Define responsibilities and roles
Define deliverables, budget and
schedule



Systems Development Life Cycle



Systems Development Life Cycle

Describe desired features including screen lay-outs, business rules, process diagrams, system documentation and collection methods

Design



Systems Development Life Cycle

Establish coding standards and naming conventions, write code and begin project documentation

Develop



Systems Development Life Cycle

Develop testing plan, testing requirements, testing schedule, run user acceptance tests and obtain feedback, correct defects and complete documentation manuals

Test



Systems Development Life Cycle

Deploy

Develop schedule and install applications into production environment, run new systems parallel to old system, verify data quality and establish a hard cut over date.



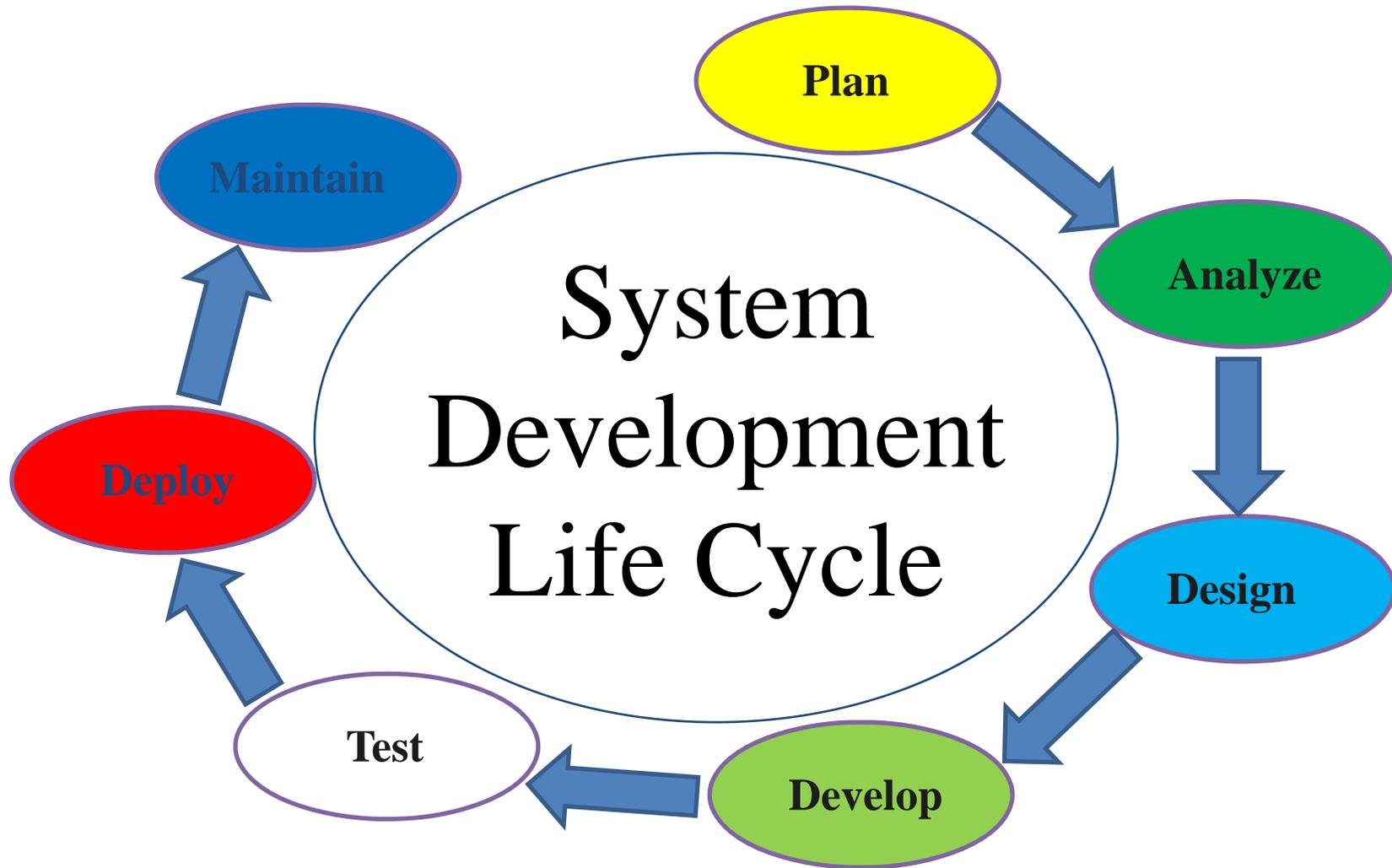
Systems Development Life Cycle

Maintain

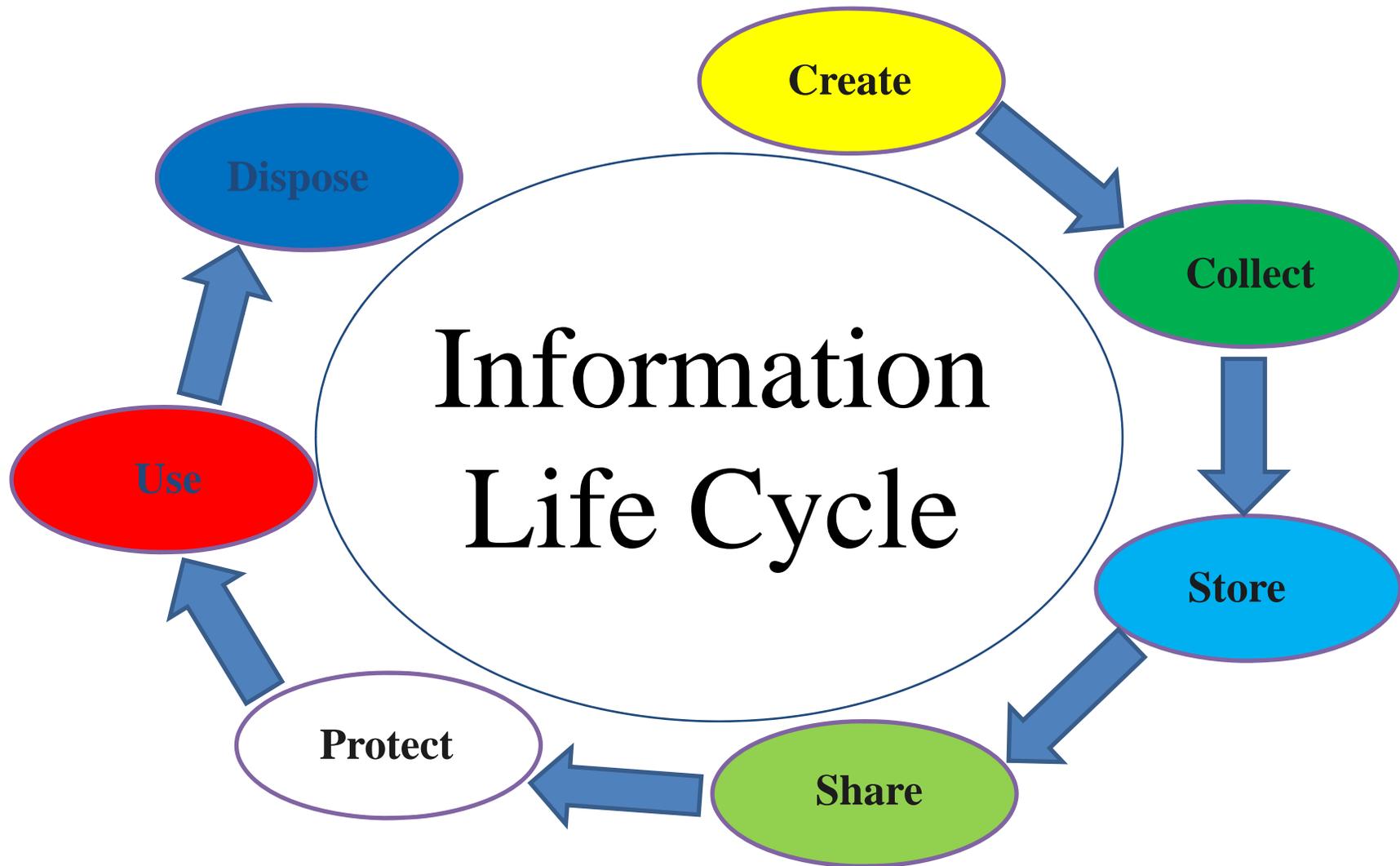
Develop/update schedule for hardware and software as needed, maintain documentation, perform quality assurance and system security audits



Systems Development Life Cycle



Information Life Cycle



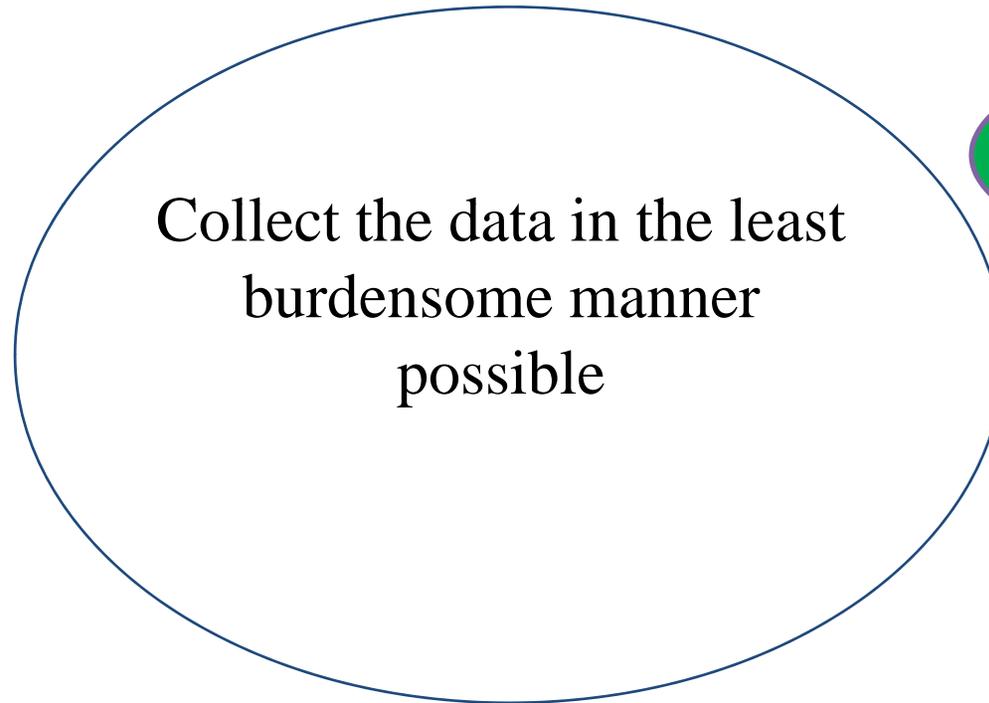
Information Life Cycle

Create

A lot of descriptive data
already exists and other
new data will be created by
events such as tests



Information Life Cycle



Information Life Cycle

Store data in accessible
data formats for efficient
access and use

Store



Information Life Cycle

Provide others and the public with data such as Freedom of Information Act data

Share



Information Life Cycle

Secure data from
individual or technological
intrusion

Protect



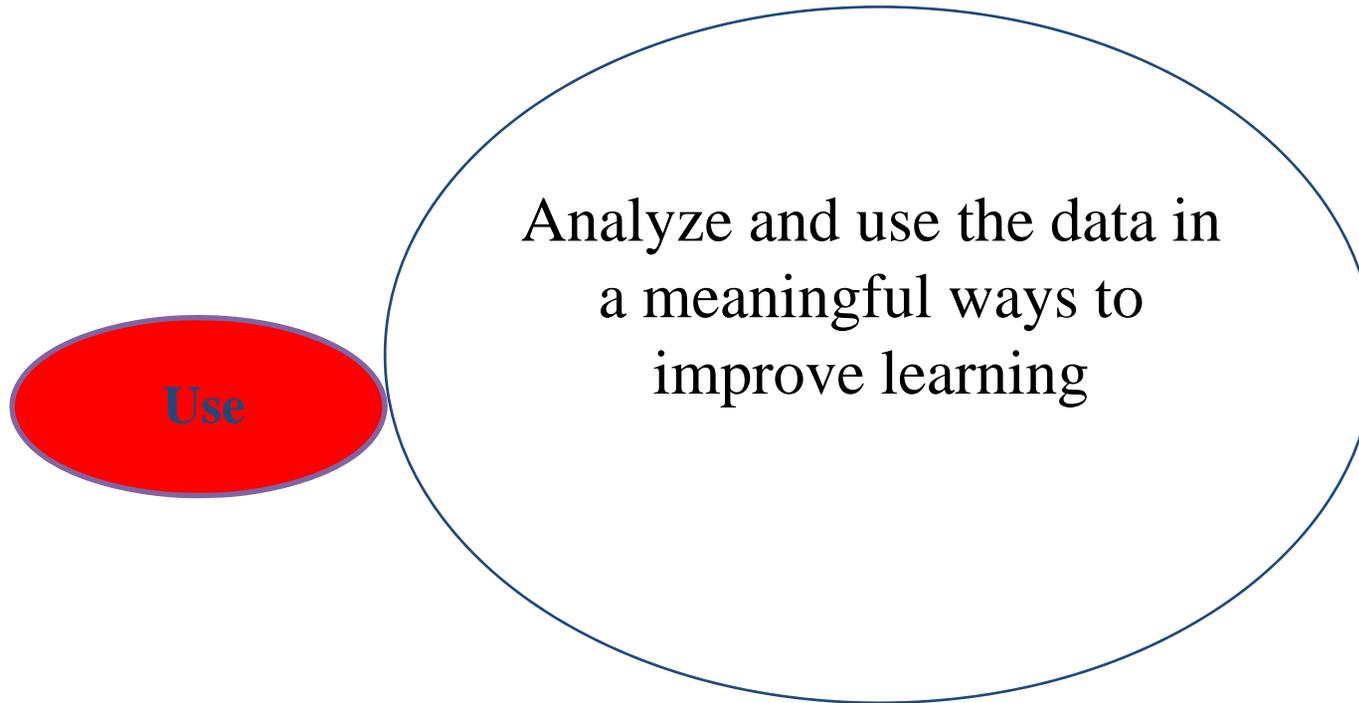
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Information Life Cycle



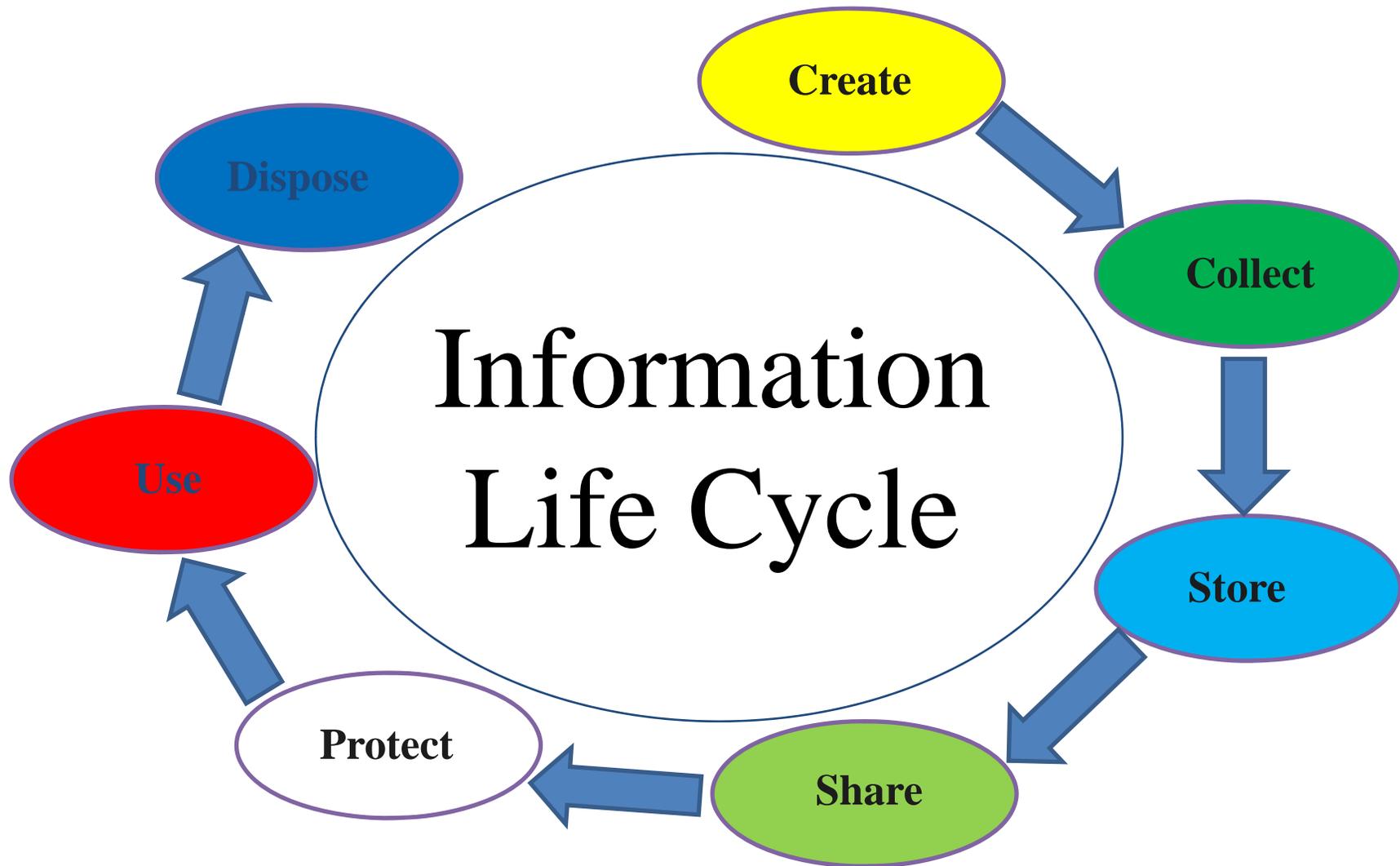
Information Life Cycle

Dispose

Archive permanent records with historical or legal value and destroy electronic records with little or no value to data owner

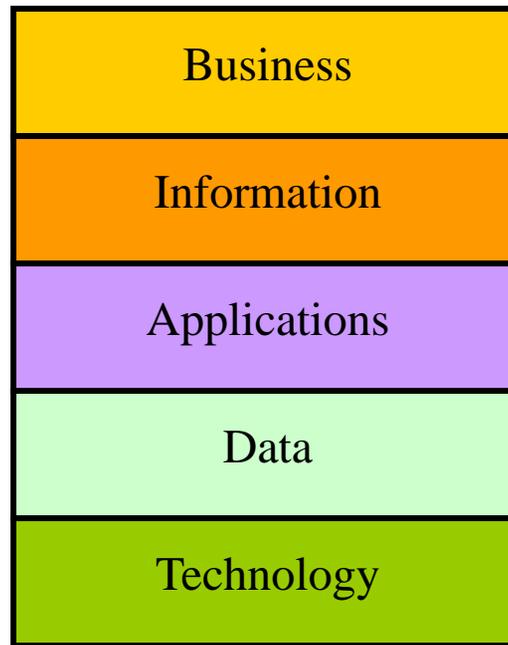


Information Life Cycle



Enterprise Architecture

Enterprise Architecture



Enterprise Architecture

Business Architecture

Why does our business exist? What is its mission? What does it accomplish?

How do we do what we do? What are our core processes? Whom do we serve?

How are we organized? How do people and processes interact to do what we do?

What are the strengths of our enterprise? What do we do well, and very well?

What are our weaknesses or failures? What have we learned from those failures?

How will our business change in the future? What are our growth challenges?



Enterprise Architecture

Information Architecture

What decisions do “I” make? What information do I need to make each decision?

What are the component parts of that information? How do “I” obtain each part?

Where does that information originate? Who creates it? What is its quality?

What information is needed to produce the products the business produces?

Is any of the information highly sensitive? How is that information protected?

Is there other information we do not have that could be valuable to our business?



Enterprise Architecture

Application Architecture

How does this information need to be presented?

What data presentation tools are known and used?



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Enterprise Architecture

Data Architecture

What are the data components of the required information?

Are there multiple data stewards and data definitions?



Enterprise Architecture

Technology Architecture

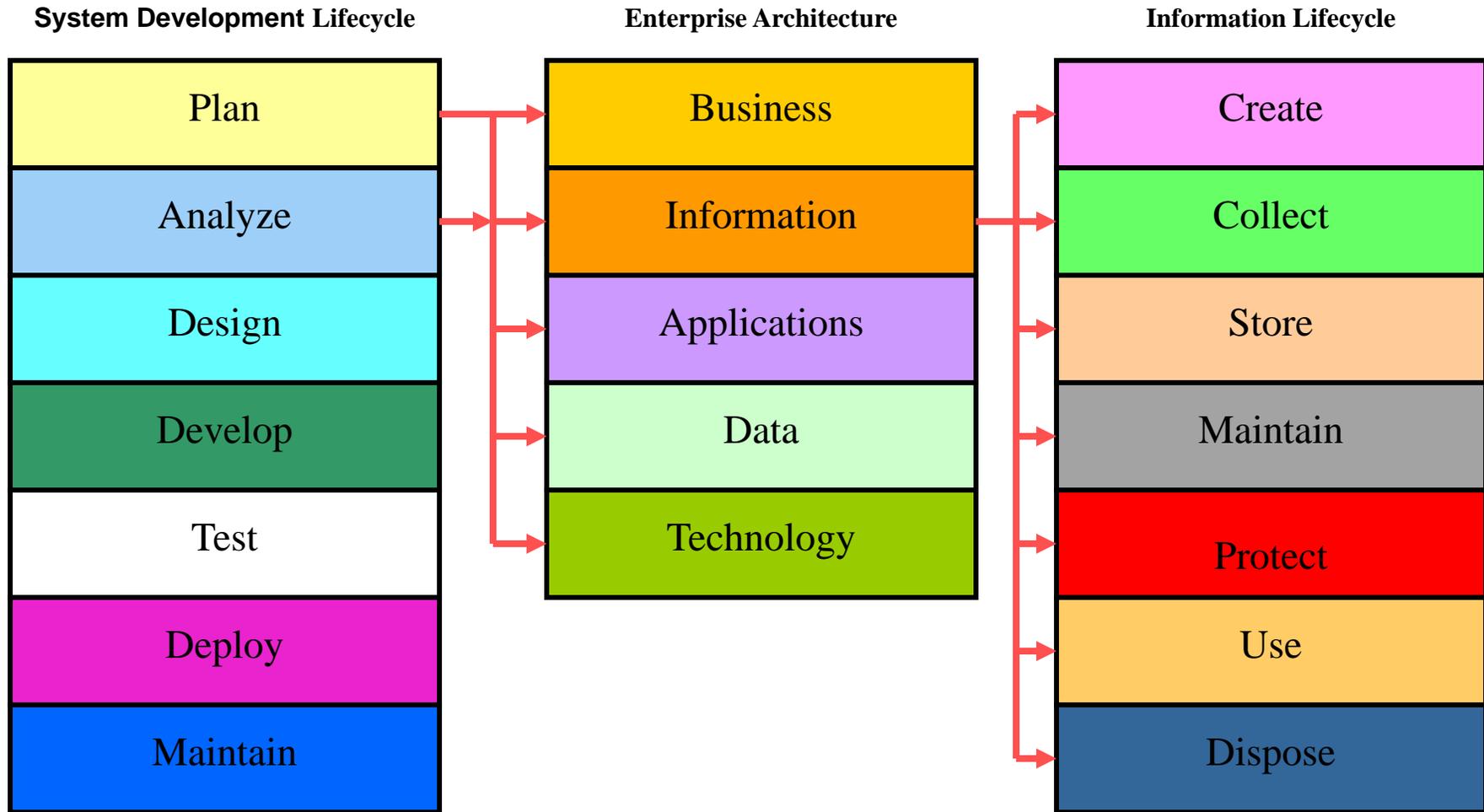
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Are there any system constraints?

What opportunities are there with emerging technology?



Information System Planning



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