Gartner Closing Keynote: Top 10 Impacts of Digital Business and Bimodal IT on Infrastructure and Operations

Milind Govekar
David A. Willis
Digital Business: The Creation of New Business Designs by Blurring the Digital and the Physical Worlds
Business as a Platform: Deepening the Digital Journey

Economics of Connections

Multidisciplinary by Design

Semiporous Boundaries

Continually Sensing, Learning and Reconfiguring

Dynamically Connected and Reconfigurable

IT Infrastructure Platform

Delivery Platform

Talent Platform

Leadership Platform

Business Model Platform

Enterprise

Ecosystem
Bimodal IT Means — having two modes of IT, each designed to develop and deliver information- and technology-intensive services in its own way.

Mode 1 is traditional, emphasizing predictability, accuracy and stability.

Mode 2 is exploratory, emphasizing agility and speed.
Bimodal IT is NOT a "nice to have."

75% will have a bimodal capability by 2017.

50% will make a mess of it.
# The Technology Priorities and Opportunities

<table>
<thead>
<tr>
<th>No.</th>
<th>Priority</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BI/Analytics</td>
<td>39%</td>
<td>41%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Infrastructure and Data Center</td>
<td>27%</td>
<td>31%</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cloud</td>
<td>25%</td>
<td>27%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ERP</td>
<td>21%</td>
<td>26%</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Digitalization/Digital Marketing</td>
<td>21%</td>
<td>17%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Mobile</td>
<td>20%</td>
<td>24%</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Security</td>
<td>15%</td>
<td>13%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Networking, Voice and Data Communications</td>
<td>10%</td>
<td>12%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Legacy Modernization</td>
<td>10%</td>
<td>7%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Industry-Specific Applications</td>
<td>9%</td>
<td>9%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>CRM</td>
<td>9%</td>
<td>11%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentages represent the proportion of CIOs citing each priority as one of their top three areas of new IT spending.
Impact on I&O
WhatsApp supports over 700 million users with a total staff of less than 60.
# Impact

<table>
<thead>
<tr>
<th>Technology</th>
<th>Process</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Machines and Automation</td>
<td>ITIL for Stability and DevOps for Agility</td>
<td>New Organizational Model and Shadow IT</td>
</tr>
<tr>
<td>Device Mesh</td>
<td>Technical Debt</td>
<td>Culture and Skills</td>
</tr>
<tr>
<td>Information of Everything</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise-Defined Data Centers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software-Defined Everything and Cloud</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## A Spectrum of Autonomous Smart Machines

<table>
<thead>
<tr>
<th>Physical</th>
<th>Virtual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Camera Systems</td>
<td>Virtual Customer Assistants</td>
</tr>
<tr>
<td>Intelligent Sensors</td>
<td>Virtual Personal Assistants</td>
</tr>
<tr>
<td>Smart Appliances</td>
<td>Smart Advisors</td>
</tr>
<tr>
<td>Robots</td>
<td></td>
</tr>
<tr>
<td>Drones</td>
<td></td>
</tr>
<tr>
<td>Driverless Vehicles</td>
<td></td>
</tr>
<tr>
<td>Speech to Text</td>
<td></td>
</tr>
<tr>
<td>Language Translation</td>
<td></td>
</tr>
<tr>
<td>NLP-Based Applications</td>
<td></td>
</tr>
</tbody>
</table>
Plan for I&O Automation Evolution

Deterministic:

Workflow and process-driven
The technique, method or system of operating or controlling a process by highly automatic means, as by electronic devices, reducing human intervention to a minimum

Heuristic:

Knowledge and analytics-driven
The science or study of how man uses experience to learn, apply patterns and improve to solve certain types of problems
## Make I&O Automation Systematic

<table>
<thead>
<tr>
<th>Opportunistic</th>
<th>vs.</th>
<th>Systematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad hoc</td>
<td>Case analysis</td>
<td>Governance — visibility + control</td>
</tr>
<tr>
<td>No governance</td>
<td></td>
<td>Policy-driven</td>
</tr>
<tr>
<td>Lack of policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual-centric</td>
<td>Enterprise-centric</td>
<td></td>
</tr>
<tr>
<td>Technology first, process next</td>
<td>Process first, technology next</td>
<td></td>
</tr>
<tr>
<td>Islands of automation</td>
<td>End to end</td>
<td></td>
</tr>
<tr>
<td>Not scalable</td>
<td>Enterprise grade with dependencies</td>
<td></td>
</tr>
<tr>
<td>No reporting</td>
<td>Reporting — metrics-driven</td>
<td></td>
</tr>
<tr>
<td>No quantifiable benefits</td>
<td>Business benefits</td>
<td></td>
</tr>
<tr>
<td>High TCO and maintenance</td>
<td>Manageable TCO</td>
<td></td>
</tr>
<tr>
<td>Fragile</td>
<td>Rigorous and robust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Device Mesh Is Dynamic and Pervasive

A Shifting Set of Endpoints

On the Desk
With the Person
In the Environment

At Work
In the Car
With the Customer
Away From Home
Consumer Retail

At Home
At the Game
At the Bar/Restaurant
Device Mesh: From Desktop to Mobile to Wearables

- Audio and video
- Medical and safety
- Clothing
- Hands
- Pets
- Jewelry/Accessories
- Carryable or pocketable
- Quantified self
- Feet
- Pets
## Device Mesh Needs Gartner's Managed Diversity Model

<table>
<thead>
<tr>
<th></th>
<th>Fully Managed</th>
<th>Semimanaged</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device Ownership</strong></td>
<td>IT</td>
<td>BYOD</td>
<td>IT or end user/BYOD</td>
</tr>
<tr>
<td><strong>Device Choice</strong></td>
<td>IT choice</td>
<td>End-user choice (limited to IT recommendations)</td>
<td>End-user choice</td>
</tr>
<tr>
<td><strong>Security Responsibility</strong></td>
<td>IT is 100% responsible for device, content and applications</td>
<td>IT is 100% responsible for enterprise content; end user is 100% responsible for device and applications</td>
<td>End user is 100% responsible for device, content and applications</td>
</tr>
<tr>
<td><strong>Security Approach</strong></td>
<td>Device-level control via lockdown</td>
<td>Content-level control via isolation</td>
<td>Ad hoc and manual</td>
</tr>
<tr>
<td><strong>Support Responsibility</strong></td>
<td>IT is 100% responsible</td>
<td>Split between IT and end user</td>
<td>Third-party service</td>
</tr>
<tr>
<td><strong>Support Approach</strong></td>
<td>IT provides full service</td>
<td>IT promotes end-user self-service and peer-to-peer support</td>
<td>IT contracts with a third-party service</td>
</tr>
<tr>
<td><strong>Special Services</strong></td>
<td>VIP option</td>
<td>VIP option</td>
<td>End user relies on third-party support; IT procures and manages budget</td>
</tr>
</tbody>
</table>
The Information of Everything Is the "Life Blood" of the Digital Business and Algorithmic Economy

**Internet of Things**
25 Billion Things by 2020

**Internet of People**
1.35 Billion Monthly Active Users

**Internet of Places**
6 Billion Foursquare Check-Ins
Dealing With the Information Explosion

- Identify the information that matters
- Consider all types and sources of information — inside and outside the enterprise
- Use a risk-adjusted value approach to rationalize the value of your information
- Leverage a variety of tools and approaches:
  - Big data and advanced analytics
  - Information graphs and dynamic ontologies
Enterprise-Defined Data Centers

The New Data Center Is Everywhere

- DR Site
- Hosted Site
- Public Cloud
- Colocation
- SaaS
- Second DC
- EDDC
- Branch Office
- SaaS
- PaaS Provider
- Social Platforms
- Branch Micro-DC

It's not about "my data center" — it's about delivering compute resources to the business in the best way possible.
Services Innovation Delivered

- Centrally operate, orchestrate and automate.
- Allows configuration from one place.
- Enhances workload and traffic flow.
- Networks, storage, servers, data centers, etc.

Services delivered from the right place, for the right price, from the right platform.
Integrated Systems

- Integrated one or many vendor products.
- "Stack" sale versus component sale.
- Competes with general-purpose designs.
- Optimized for ease of use.
- Best of brand versus best of breed.
Plan for Integrated Systems Evolution

**Pre-evolved:** Take it or leave it; you get what you pay for; upgrade when outgrown or obsolete; employ an integrator or DIY.

**Evolving:** Prebuilt; compute-network-storage integrated through virtualization and management to vendor specifications; automation and policy provisioning; hyperscale.

**High-Evolved:** Adaptable; frequent and continuous; SW-driven; intelligent-aware; IoT and Nexus of Forces.
Software-Defined Everything, the Story So Far …

- Software Defined Everything
- Virtualization and Cloud Infrastructure
- Network
- Storage
- SDN
- Compute
- Data Center Facilities
- Provision
- Consumption
SDx — Journey to Programmable Everything

Software-Defined Networking
Software-Defined Storage
Software-Defined Data Center
Virtual Data Centers

IaaS
OpenStack
Fabric-Based Computing
Real-Time Infrastructure
Open Compute Project

Integrated Systems
Software-Defined Everything (SDx)
Choose Partners That Are Digital Accelerators

Summary of Responses from Survey Respondents

Q1: Please list the top 5 IT and IT-related vendors and service providers (including hardware, software, outsourcing, and other services), in terms of the amount your business will spend with them this year, and up to 5 other IT and IT-related vendors and service providers that you consider important/strategic for your enterprise now, or that will be in the next 3 years.

Q2: For each of these vendors, please indicate whether you view them as inhibitors, neutral or accelerators for your business’s digital needs today (1 = major inhibitor, 2 = minor inhibitor, 3 = neutral, 4 = minor accelerator, 5 = major accelerator).

Length of colored segment indicates % of respondents who mentioned a vendor and gave it that rating. For example, of the 1,807 respondents who identified Microsoft as one of their vendors in Q1, 29% scored them 5 (major accelerator).

Chart shows results for the 30 vendors most frequently mentioned, ordered in terms of their average “digital acceleration score.”

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Avg. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALESFORCE (n=238)</td>
<td>4.45</td>
</tr>
<tr>
<td>AMAZON WEB SERVICES (n=202)</td>
<td>4.40</td>
</tr>
<tr>
<td>SERVICE NOW (n=72)</td>
<td>4.33</td>
</tr>
<tr>
<td>GOOGLE (n=177)</td>
<td>4.29</td>
</tr>
<tr>
<td>VMWARE (n=271)</td>
<td>4.16</td>
</tr>
<tr>
<td>APPLE (n=164)</td>
<td>3.97</td>
</tr>
<tr>
<td>HUAWEI (n=90)</td>
<td>3.96</td>
</tr>
<tr>
<td>ACCENTURE (n=235)</td>
<td>3.95</td>
</tr>
<tr>
<td>MICROSOFT (n=1807)</td>
<td>3.88</td>
</tr>
<tr>
<td>CITRIX (n=75)</td>
<td>3.88</td>
</tr>
<tr>
<td>CISCO (n=798)</td>
<td>3.86</td>
</tr>
<tr>
<td>HITACHI (n=67)</td>
<td>3.75</td>
</tr>
<tr>
<td>SAP (n=715)</td>
<td>3.68</td>
</tr>
<tr>
<td>EMC (n=298)</td>
<td>3.63</td>
</tr>
<tr>
<td>NETAPP (n=80)</td>
<td>3.63</td>
</tr>
<tr>
<td>TELSTRA (n=75)</td>
<td>3.61</td>
</tr>
<tr>
<td>TATA CONSULTANCY SERVICES (n=98)</td>
<td>3.60</td>
</tr>
<tr>
<td>IBM (n=882)</td>
<td>3.55</td>
</tr>
<tr>
<td>CAPELLINI (n=82)</td>
<td>3.55</td>
</tr>
<tr>
<td>FUJITSU (n=72)</td>
<td>3.52</td>
</tr>
<tr>
<td>VERIZON (n=119)</td>
<td>3.46</td>
</tr>
<tr>
<td>HP (n=850)</td>
<td>3.45</td>
</tr>
<tr>
<td>DELL (n=534)</td>
<td>3.40</td>
</tr>
<tr>
<td>CDW (n=83)</td>
<td>3.37</td>
</tr>
<tr>
<td>LENOVO (n=167)</td>
<td>3.36</td>
</tr>
<tr>
<td>VODAFONE (n=67)</td>
<td>3.36</td>
</tr>
<tr>
<td>AT&amp;T (n=213)</td>
<td>3.31</td>
</tr>
<tr>
<td>ORACLE (n=1048)</td>
<td>3.30</td>
</tr>
<tr>
<td>INFOR (n=72)</td>
<td>3.27</td>
</tr>
<tr>
<td>BT (n=84)</td>
<td>3.23</td>
</tr>
</tbody>
</table>

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Actions for Technology

- Invest in automation and plan for a programmable infrastructure (SDx).
- Deliver services to the business at the right location through enterprise-defined data center.
- Implement managed diversity to support a device mesh.
- Prioritize data based on its value to future business strategies to manage information explosion.
The Industrialization Era Created Marathon Runners

IT Industrialization

- Processes
- IT Management, Service Management
- Treat Colleagues as Customers, Unengaged With External Customers
- Services and Solutions, Efficiency and Effectiveness
The Digital Era Requires Sprinters

Digitalization

- Adopt
- Ideate
- Monetize
- Offer
- Engage
- Create

Business Models
Digital Leadership
Treat Colleagues as Partners, Engage External Customers
Digital Business Innovation, New Types of Value
Bimodal IT = Marathon Runners + Sprinters
Deeply Different, Both Essential

<table>
<thead>
<tr>
<th>Think Marathon Runner</th>
<th>Mode 1</th>
<th>Mode 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Goal</td>
<td>Agility</td>
</tr>
<tr>
<td>Price for performance</td>
<td>Value</td>
<td>Revenue, brand, customer experience</td>
</tr>
<tr>
<td>Waterfall, V-model, ITIL</td>
<td>Approach</td>
<td>Agile, kanban, DevOps</td>
</tr>
<tr>
<td>Plan-driven, approval-based</td>
<td>Governance</td>
<td>Empirical, continuous, process-based</td>
</tr>
<tr>
<td>Enterprise suppliers, long-term deals</td>
<td>Sourcing</td>
<td>Small, new vendors, short-term deals</td>
</tr>
<tr>
<td>Good at conventional process, projects</td>
<td>Talent</td>
<td>Good at new and uncertain projects</td>
</tr>
<tr>
<td>IT-centric, removed from customer</td>
<td>Culture</td>
<td>Business-centric, close to customer</td>
</tr>
<tr>
<td>Long (months)</td>
<td>Cycle Times</td>
<td>Short (days, weeks)</td>
</tr>
</tbody>
</table>

Think Sprinter
You Must Resolve the Core Conflict in IT

Outcome
Help the Business Be Successful

We Must
Enable the Business
Protect the Business

Development
Go Faster
Go Slower

Operations

Therefore
ITIL and DevOps; Not ITIL Versus DevOps

ITIL — Mode 1

- Traditional and sequential, emphasizing stability, safety, accuracy.

DevOps — Mode 2

- Exploratory and nonlinear, emphasizing agility and speed.

Systems of Innovation

Systems of Differentiation

Systems of Record

Change

Governance

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Lower Technical Debt and Complexity
# Identify Debt Sources and Cost to I&O

<table>
<thead>
<tr>
<th>Debt Source</th>
<th>Cost to IT I&amp;O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding necessary hardware capacity or other changes (patches, etc.) because the business cannot accept any downtime within specific time periods.</td>
<td>The interest paid in this example is the cost of added monitoring or management technology, in addition to other unplanned activities, to ensure performance and availability goals are able to be met.</td>
</tr>
<tr>
<td>Continuing to perform manual operations instead of developing, when appropriate, automated workflows (and associated infrastructure and application APIs) because of a surfeit of skills and/or time.</td>
<td>The interest occurs with higher personnel costs performing what could be automated operations, plus the variations in quality (not to mention the timeliness or speed) of the output that may occur.</td>
</tr>
<tr>
<td>De-emphasizing capacity planning and other infrastructure rightsizing activities.</td>
<td>The interest would be reflected in the potentially unnecessary procurement of additional hardware, software or services, plus the labor to support this additive infrastructure.</td>
</tr>
<tr>
<td>Neglecting to document the infrastructure because higher, more urgent priorities consume the necessary resources.</td>
<td>The interest surcharge in this example would be the increase in mean time to diagnose (MTTD) as problems arise.</td>
</tr>
<tr>
<td>Not adopting I&amp;O standards due to a lack of architectural blueprints.</td>
<td>The interest would arise in higher costs of technical support, as well as potentially lower service quality, as sufficient resources may be unable to be spread across heterogeneous environments.</td>
</tr>
</tbody>
</table>
Show That You Deliver What the Business Values
Actions for Process

- Invest in Both ITIL and DevOps
- Set Bimodal Process Objectives and Metrics
- Identify Sources and Lower Technical Debt and Complexity
- Continually Improve the Customer Experience
People Fit for Digital Business
CIOs and CEOs Vary in View of Who Will Lead Digital Innovation and Change

The CIO and CEO views of digital leadership

Please allocate 100 leadership points to show how you anticipate your CEO will distribute relative responsibility for leading digital innovation and change over the next two years.

CIO’s view

CEO’s view

CMO 11%

BU leaders 17%

CIO 47%

Other

Head of sales

Head of innovation

CDO

CTO

CFO

BU leaders 9%

CMO 10%

CIO 15%

n = 1,258
By 2018, controlled shadow IT will contribute up to 30% of IT operations activities, up from 15% in 2014.
Organizational Structure

- CIO
  - Development
  - Test and Transition
  - I&O
  - Enterprise Architecture
    - Service Desk

- CEO
  - CIO
    - Mode 1 Plan and Build
  - I&O
  - CDO
    - Mode 2 Plan and Build

DevOps
The beatings will continue until morale improves!

Trust

Collaboration

Honesty

Learning

Respect

Support

Empowerment

Ownership
By 2018, the total cost of ownership for business operations will be reduced by 30% through smart machines and industrialized services.

Source: "Top 10 Strategic Predictions for 2015 and Beyond: Digital Business Is Driving 'Big Change'' (G00269904)
Human Beings Will Not Be the Only Workforce

Social Interaction

Human Beings

Pattern Analysis

Smart Machines + Human Beings

Precision

Smart Machines

Ingenuity

Human Beings

The New Workforce Options

Strength

Smart Machines
Actions for People

- Put People First.
- Invest for the Power Change. Do Not Fight Shadow IT.
- Build Digital Talent.
- Build a Culture of Success.
A Bimodal I&O Leader Needs To

- Drive Culture
- Inspire People
- Embrace Agile Processes
- Adopt "Smart" Technology
THE COUNTDOWN CONTINUES …
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