

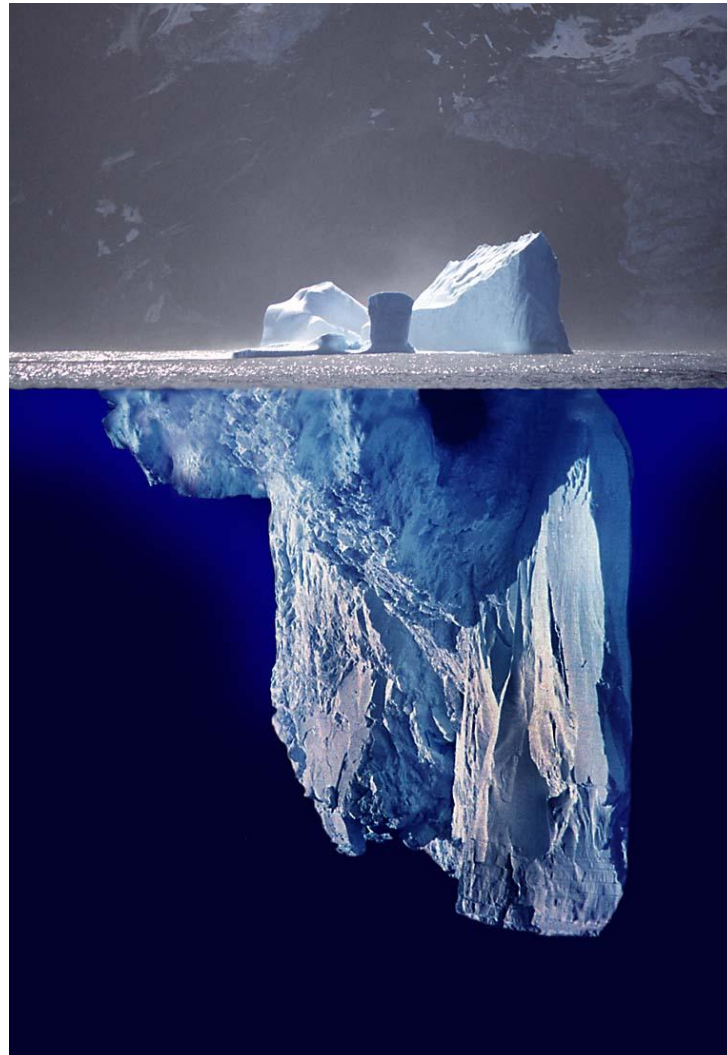
Roadmap for Your Infrastructure — The Gartner Infrastructure Maturity Model



Peter Hidas

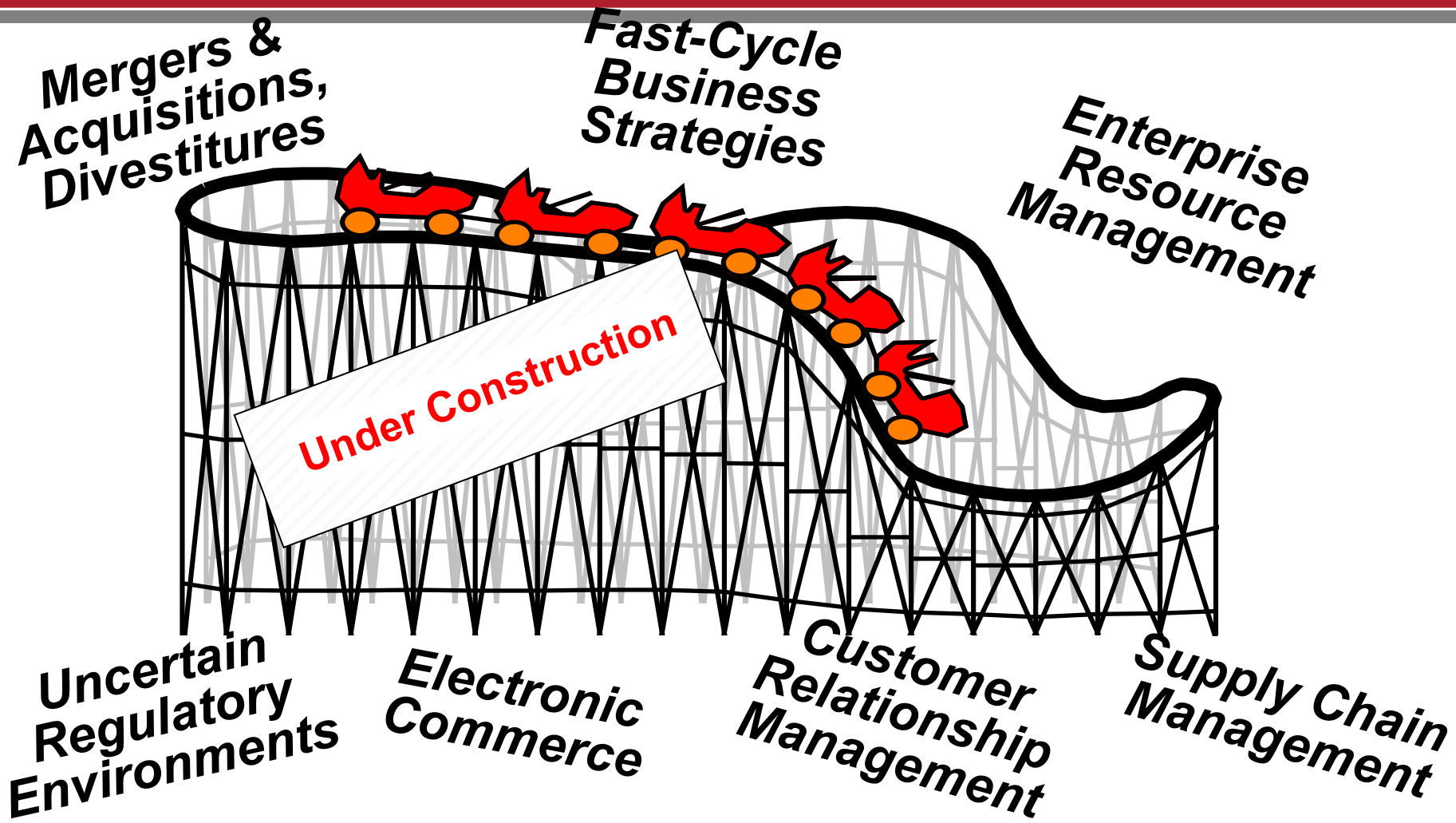
Infrastructure – Under Sea Level

Use



Run

Why Is Infrastructure Important to Business?



Bottom Line: Infrastructure is the "quality of the ride"

IT Infrastructure and Operations Overview

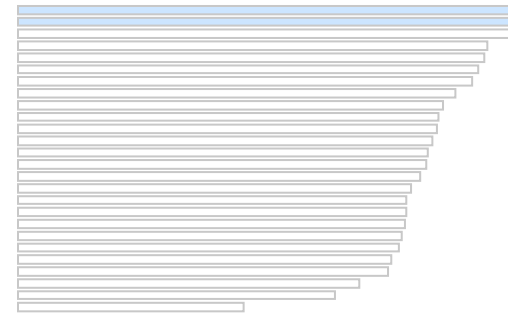
IT Infrastructure: The system of hardware, software and service components that supports the delivery of business applications and IT-enabled processes



IT Operations: The management and business processes associated with IT infrastructure

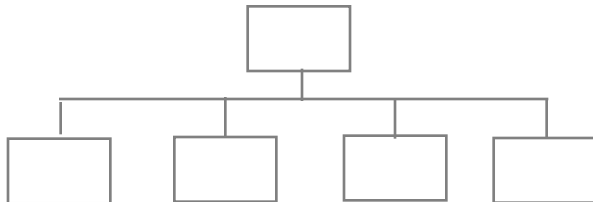
In most enterprises, I&O typically is 70% of the:

- CIO's top issues
- Total IT budget
- and 50% of the IT professionals

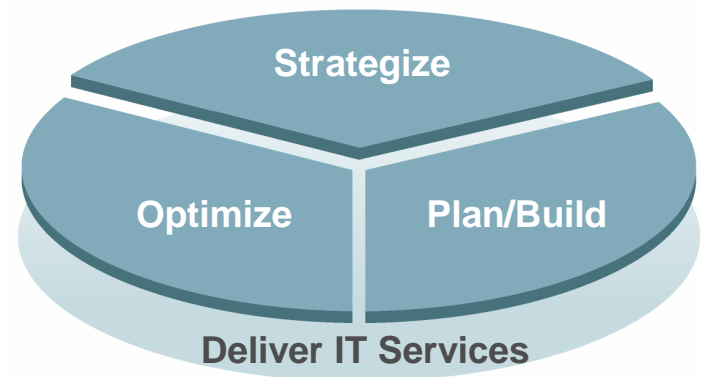


IT Infrastructure and Operations Leaders

... are executives, managers and senior IT professionals who plan, manage and run I&O



I&O leaders' mission is to deliver IT services to the business.



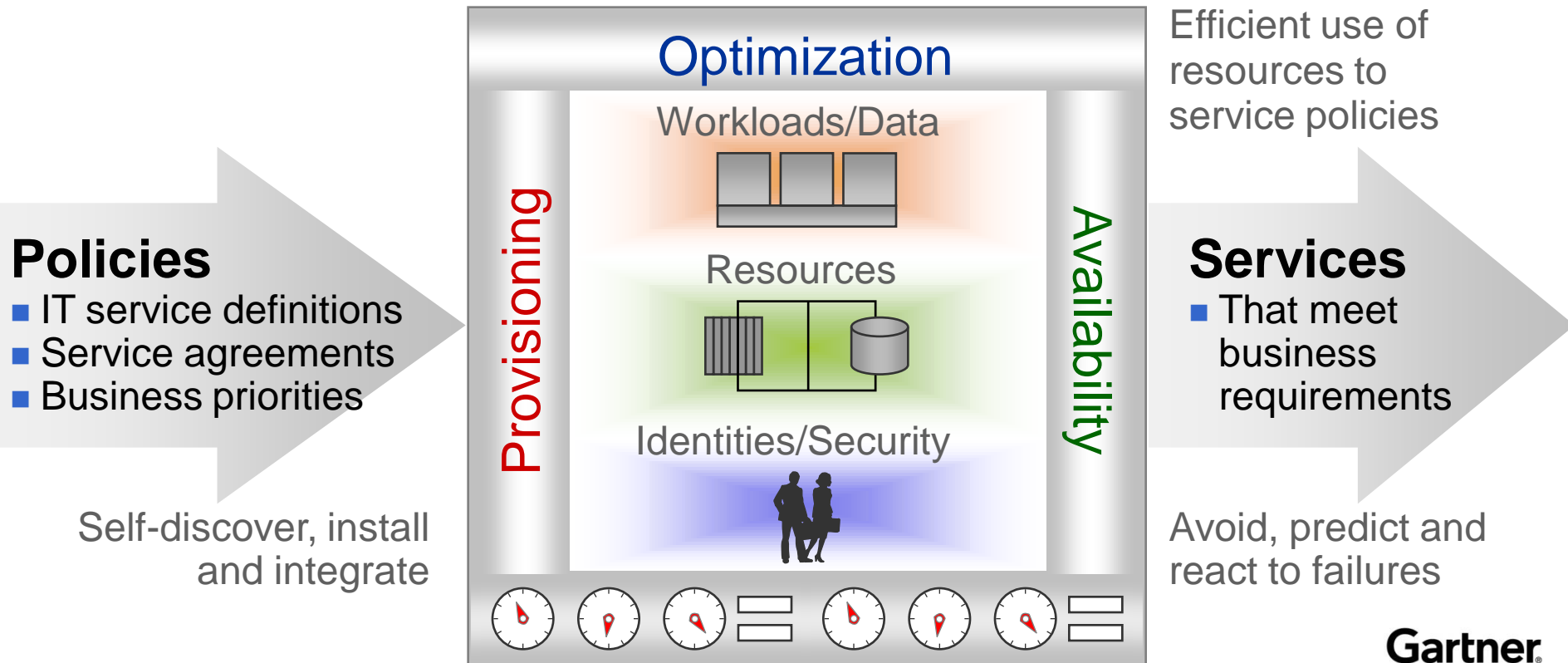
IT Infrastructure Maturity Model

- Gartner's Infrastructure Maturity Model identifies 6 development stages – how far has your infrastructure got?
- The model helps you to self-evaluate and build a strategic plan to reduce infrastructure costs, increase agility, improve service-level management and staffing development
- Modify it according your own goals!

The End Station: Real-Time Infrastructure

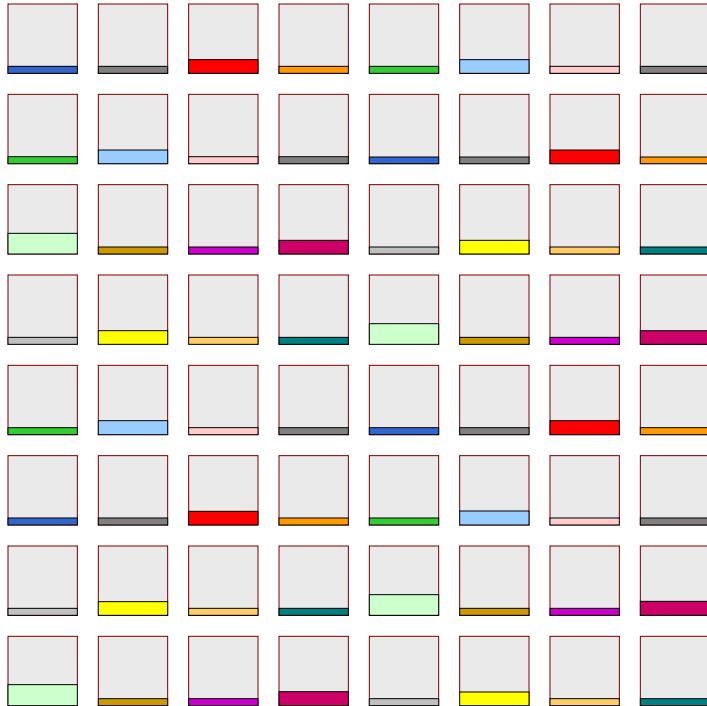
A **real-time infrastructure** is:

- An IT infrastructure shared across customers, business units and applications
- Dynamically driven by business policies and service-level requirements
- Automatically configured and optimized (“tera-architecture”)



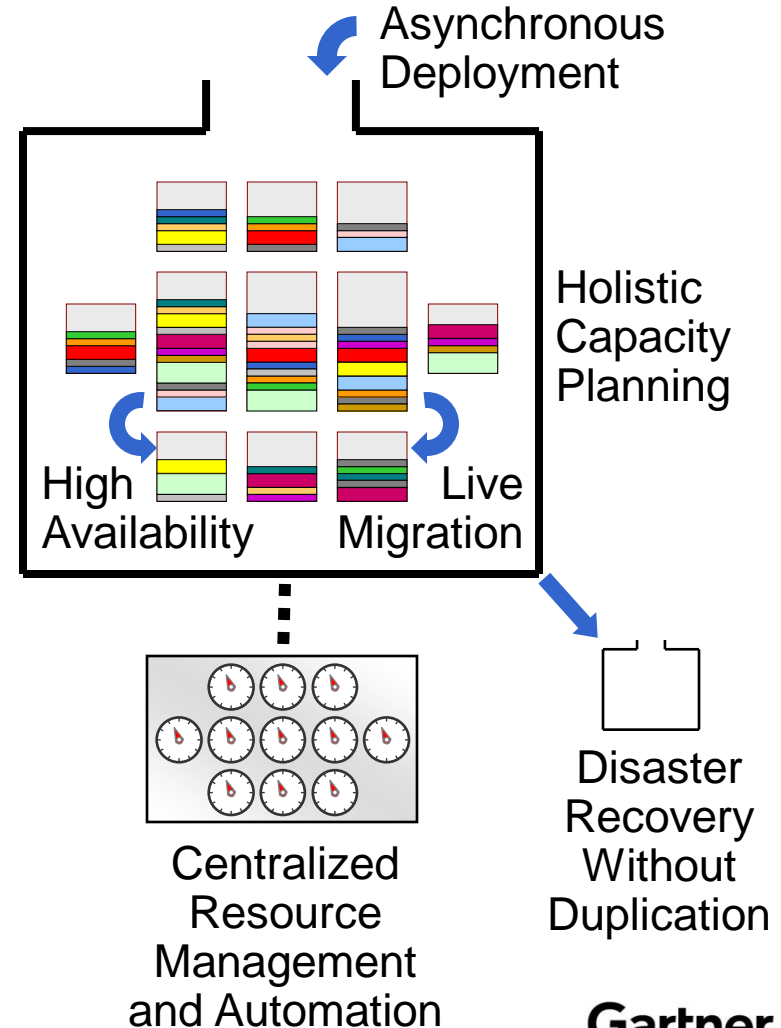
Server Virtualization: Where Is It Taking Us?

Before Virtualization...

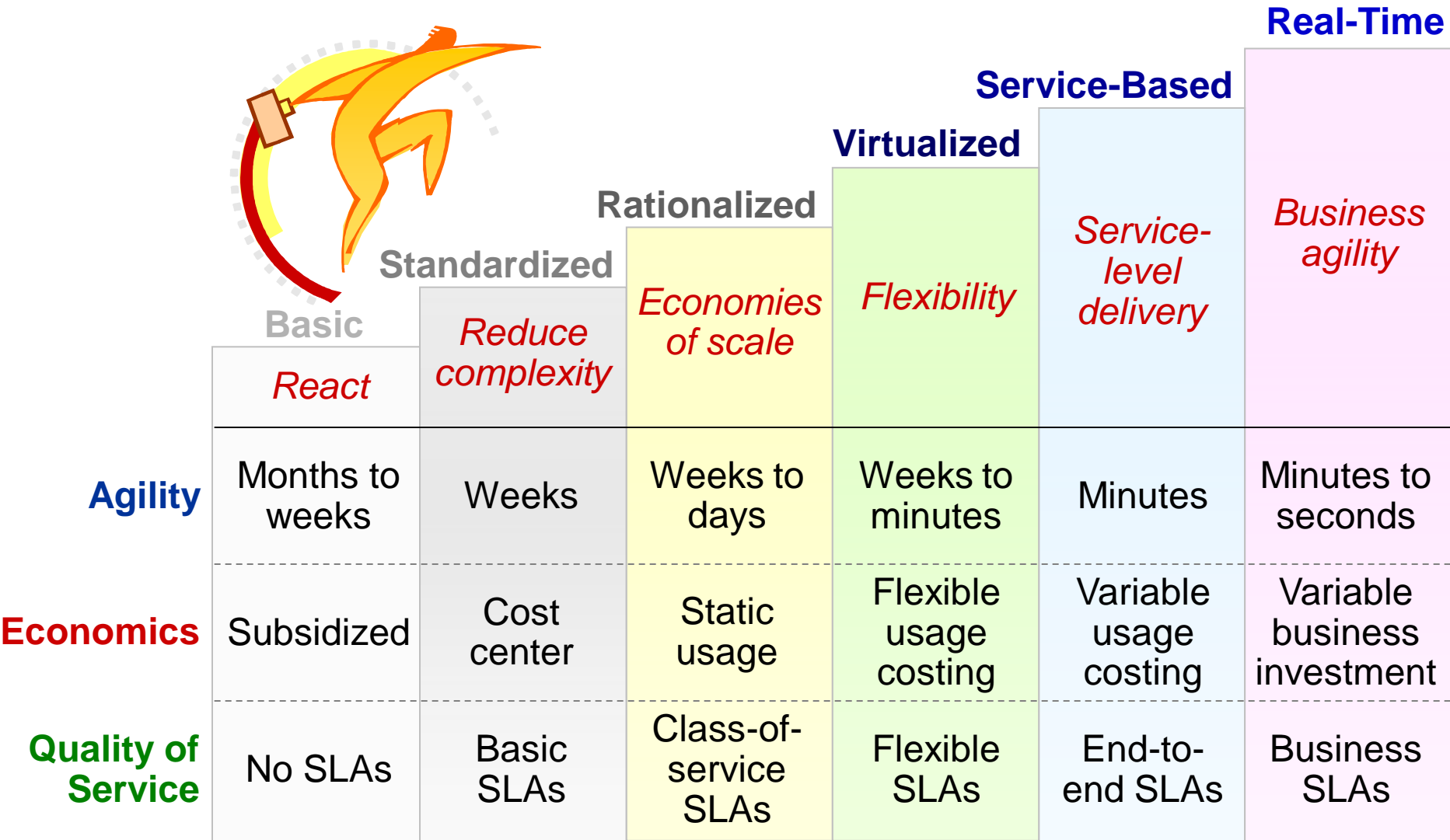


- Server Sprawl
- Low Utilization
- Synchronous Deployment
- Capacity Planning by Server
- Resource Management by Server
- Disaster Recovery by Duplication
- Management Downtime


...After Virtualization



The Infrastructure Maturity Model



Infrastructure Maturity Through People, Process and Technology

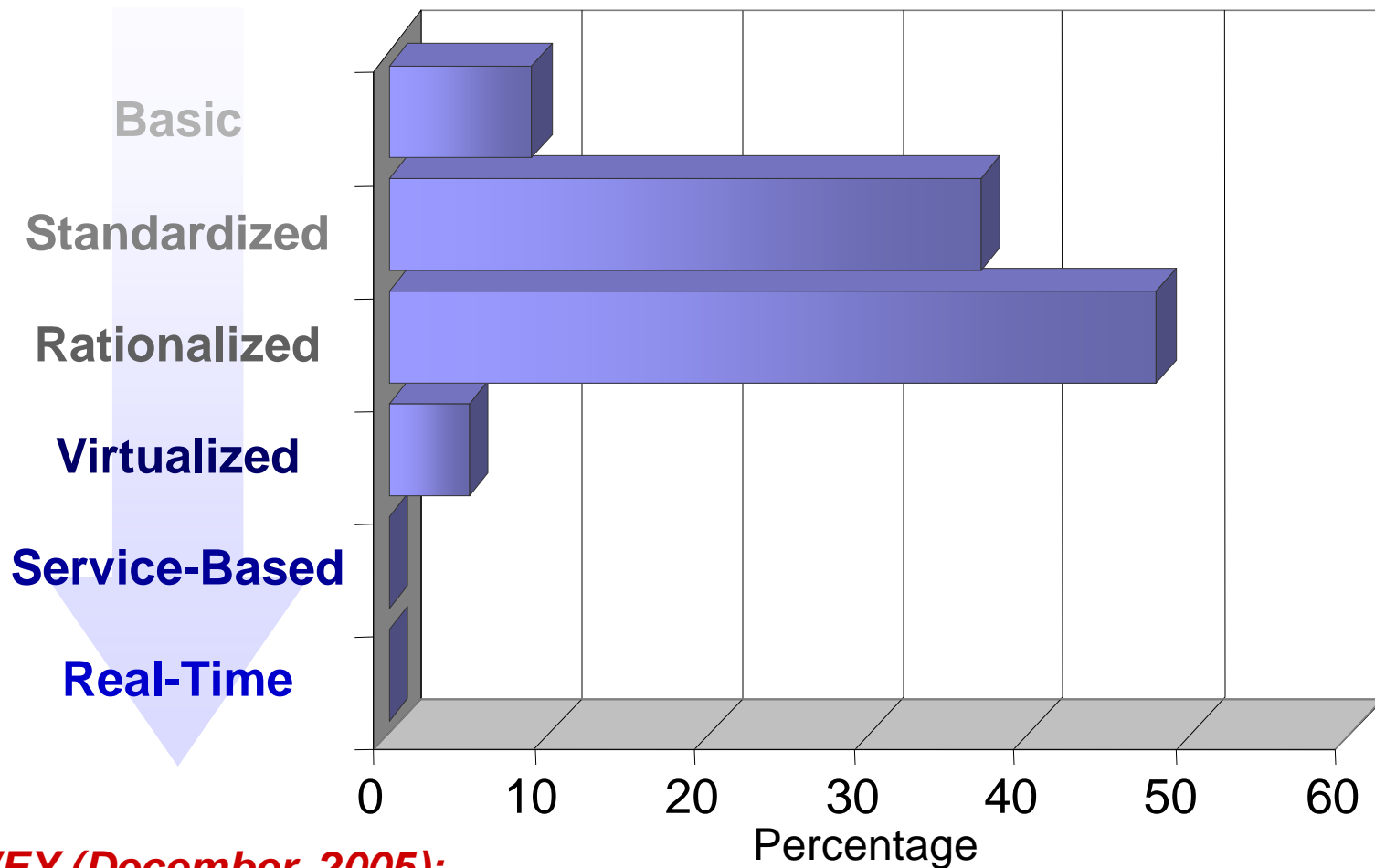


	<i>People</i>	<i>Process</i>	<i>Technology</i>
Standardized	<ul style="list-style-type: none"> IT owns assets Processes, tools are shared 	<ul style="list-style-type: none"> Infrastructure life cycle standards Basic SLAs Event management 	<ul style="list-style-type: none"> Standard configurations Tools to monitor assets
Rationalized	<ul style="list-style-type: none"> Organization structure and ownership rationalized across IT 	<ul style="list-style-type: none"> Mature and integrated systems management processes 	<ul style="list-style-type: none"> Integrated systems management tools Consolidated assets
Virtualized	<ul style="list-style-type: none"> Organization aligned to pooled asset usage 	<ul style="list-style-type: none"> Holistic capacity management Flexible chargeback 	<ul style="list-style-type: none"> Servers, storage, network capacity is virtualized
Service-Based	<ul style="list-style-type: none"> IT organization aligned to service delivery 	<ul style="list-style-type: none"> Measure, report, guarantee end-to-end services 	<ul style="list-style-type: none"> Service management tools manage end-to-end
Real-Time	<ul style="list-style-type: none"> IT proactively influences use of technology to drive business 	<ul style="list-style-type: none"> End-to-end services are centrally managed and balanced 	<ul style="list-style-type: none"> The business has direct interface to service prioritization

The Infrastructure Maturity Model in more detail

	Basic <i>Uncoordinated infrastructure</i>	Standardized <i>Standard resources, configurations</i>	Rationalized <i>Consolidate to fewer</i>	Virtualized <i>Infrastructure resources pooled</i>	Service-Based <i>Services managed holistically</i>	Policy/Value-Based <i>Dynamic optimization to meet SLAs</i>
Objective	<i>React</i>	<i>Reduce complexity</i>	<i>Economies of scale</i>	<i>Flexibility, reduce costs</i>	<i>Service-level delivery</i>	<i>Business agility</i>
Ability to Change	Months to weeks	Weeks	Weeks to days	Weeks to minutes	Minutes	Minutes to seconds
Pricing Scheme	None, ad hoc	Fixed costs	Reduced, fixed costs	Fixed shared costs	Variable usage costs	Variable business costs
Business Interface	No SLAs	Class-of-service SLAs	Class-of-service SLAs	Flexible SLAs	End-to-end SLAs	Business SLAs
Resource Utilization	Unknown	Known	Rationalized	Shared pools	Service-based pools	Policy-based sharing
Organization	None	Central control	Consolidated	Pooled ownership	Service-oriented	Business-oriented
IT Management Processes	Chaotic — Reactive Ad hoc	Reactive — Proactive Life cycle management	Proactive Mature problem management	Proactive Prediction, dynamic capacity	Service End-to-end service management	Value Policy management

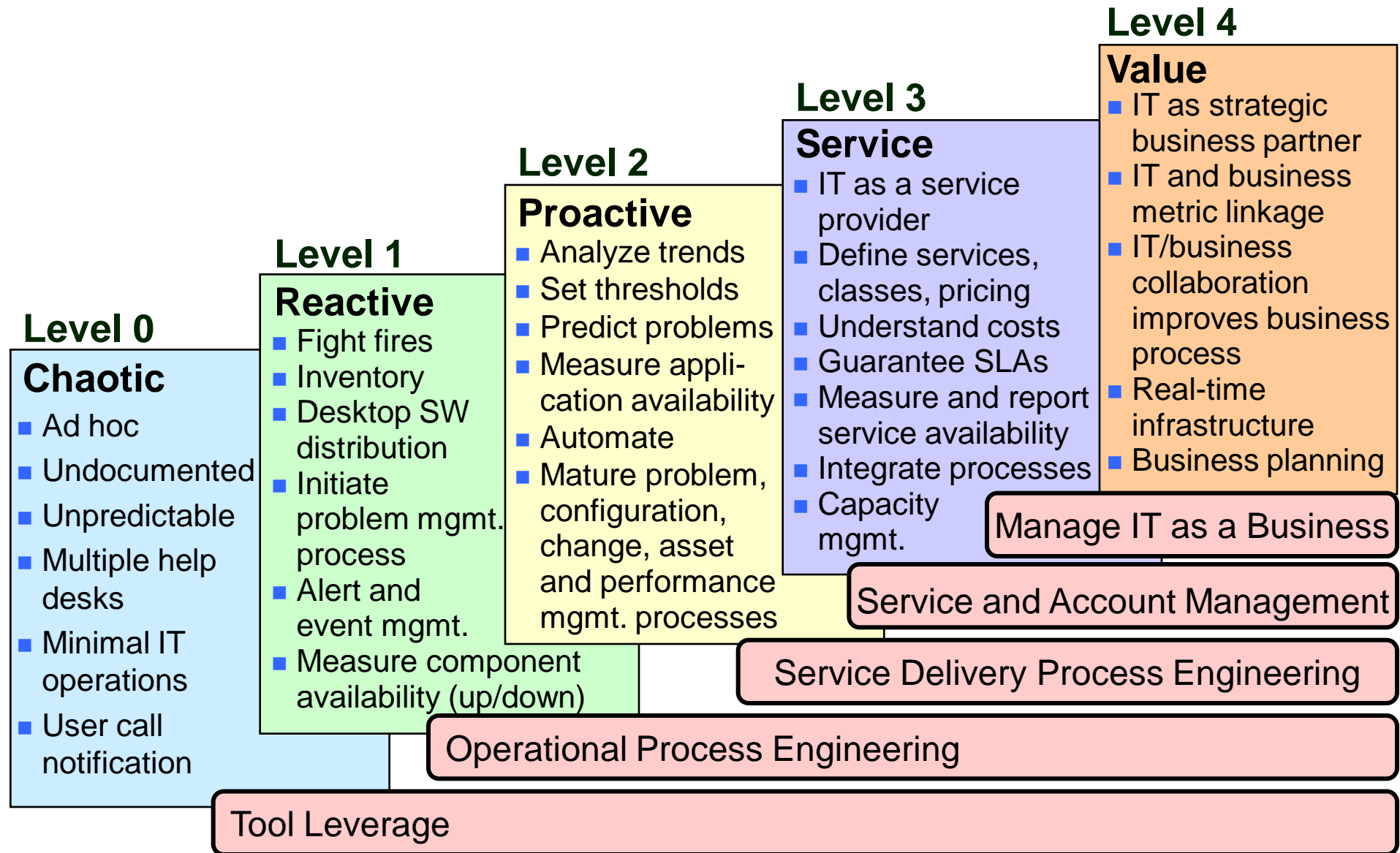
Infrastructure Maturity Evaluation: Where Users Are (December, 2005)



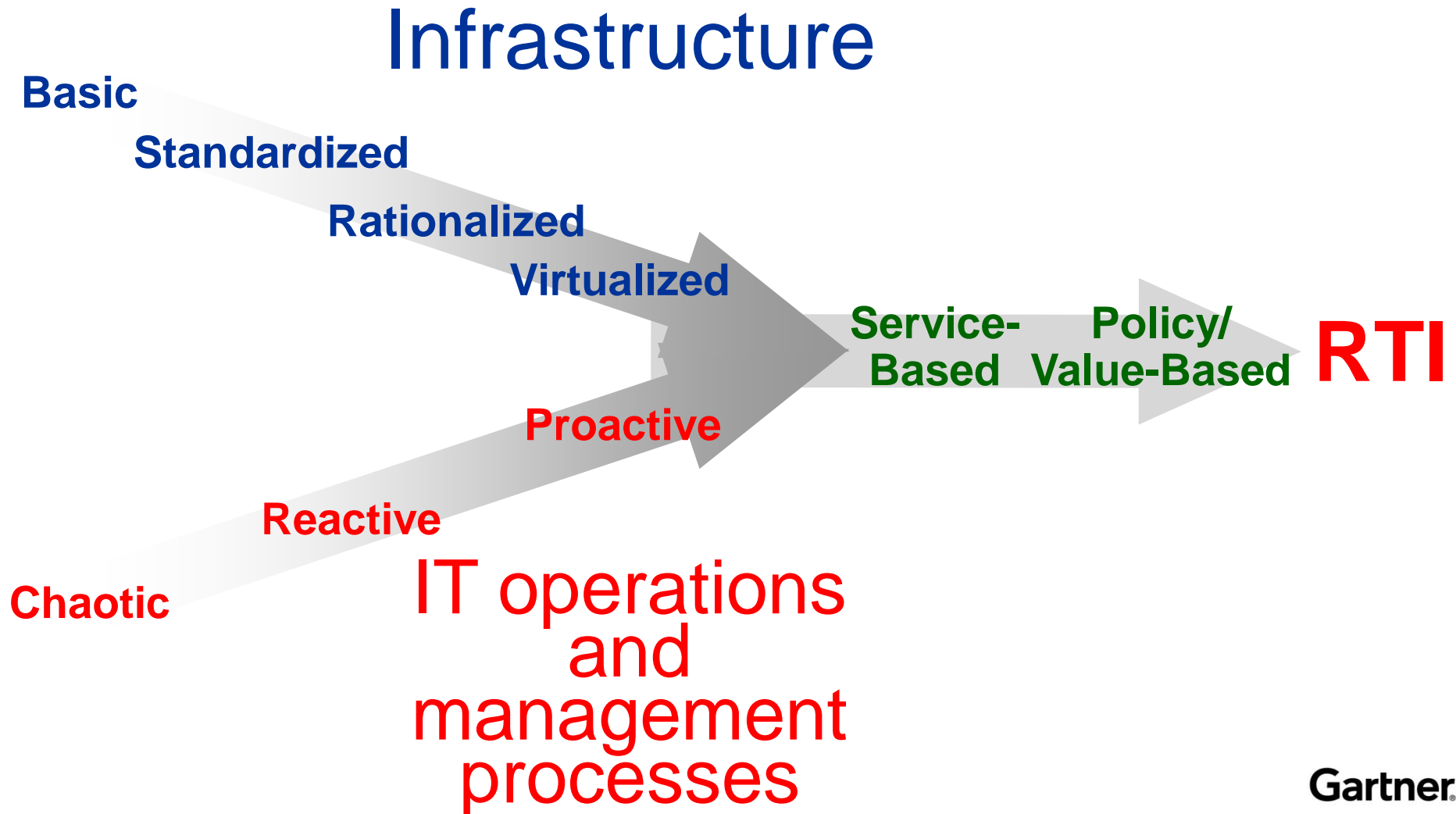
SURVEY (December, 2005):

Where would you place your organization on the infrastructure maturity model? (n=727)

IT Management Process Maturity Model



Infrastructure and Operations Maturity



Recommendations

- ✓ **Build an overall infrastructure vision**
 - RTI is our vision — what's yours?
 - What would have the greatest positive impact on your business? Near-term and long-term?
- ✓ **Evaluate your infrastructure against the vision**
 - Use our constructs to drive the discussion and make changes as needed
- ✓ **Build a periodic process to re-evaluate your infrastructure, to evaluate technologies and to adjust your strategic plan**
 - Measure your progress: the closer to the business, the better (costs, quality/service levels, agility)
 - Always consider alternative sourcing, but make strategic choices
- ✓ **Determine short-term (12 to 18 month) goals and execute them**
 - Through IMM's "virtualization" stage, all efforts should be self-funding, with rapid ROI, all while *increasing* quality and agility
- ✓ **Consider vendors with respect to how they're helping you to strategically evolve your infrastructure**

Supporting Slides



Infrastructure Maturity Model:

2. Becoming Standardized

Prior Situation: Assets are “owned” by business units; there’s no consistency in IT processes or technologies; no idea of costs; complexity — too much variety

Ownership

- ✓ IT owns all infrastructure assets.
- ✓ Assets are inventoried and tracked.
- ✓ Asset usage by business unit is roughly understood.
- ✓ Asset monitoring is standard across infrastructure (tools, processes).

Inhibitors: Political control of assets

Standards

- ✓ No asset is acquired without standards approval.
- ✓ All asset procurement is centralized.
- ✓ IT has created standard server configurations.
- ✓ There’s an asset change management process.
- ✓ There are no deployed, unused assets.
- ✓ IT offers class-of-service/tiered SLAs.
- ✓ IT management processes are shared throughout IT.

Inhibitors: Very specific application requirements, unique service-level requirements

Return on Investment

Economic: Reduction in wasted assets, cost reductions through consolidated negotiations, labor savings through reduction in complexity (configurations, organization, processes)

Quality: Class-of-service SLAs with fixed costing, faster problem resolution

Agility: Acquisitions and deployments are faster

Infrastructure Maturity Model:

3. Becoming Rationalized

Prior Situation: No economies of scale — many assets are doing the same thing in many locations; there's little automation

Location

- ✓ Physical sites have been reduced to an appropriate number.

Inhibitors: Costs of physically relocating (assets, skills), telecom, regional regulations and laws

Workloads and Assets

- ✓ Storage has been consolidated.
- ✓ Servers have been consolidated.
- ✓ Operating system instances have been reduced to a required minimum.
- ✓ IT has a mature availability management process.
- ✓ IT has appropriate disaster recovery in place.
- ✓ Chargeback is optionally offered on a percentage of asset basis.

Inhibitors: Software support/licensing, technologies to enable consolidation, costs associated with replacing hardware, and political and organizational issues revolving around asset ownership and management

Return on Investment

Economic: Fewer physical sites reduces fixed costs; consolidated workloads and assets reduce capital expenses and somewhat reduce labor costs; elimination of cost redundancy.

Quality: Fewer locations means faster reaction to problems; fewer assets enables more-mature availability management; chargeback can be based on percentage of assets used; disaster recovery expanded appropriately.

Agility: Assets can be reallocated as needed without physically moving them.

Infrastructure Maturity Model:

4. Becoming Virtualized

Prior Situation: Assets operate on physical boundaries — no flexibility; capacity is managed one asset at a time

Internal

- ✓ Storage has been virtualized and server compute power can be allocated in granular percentages.
- ✓ Server compute requirements by application can be scaled dynamically.
- ✓ Applications can be moved between servers.
- ✓ Storage and server capacity is managed holistically, and excess is pooled.
- ✓ Capacity planning is mature and centralized.

Inhibitors: Need for software pricing to become more usage-based; the need for software licensing to become less tied to specific hardware; political and ownership issues of assets; and the immaturity of technologies to enable virtualization

External

- ✓ IT offers a dynamic resource utilization chargeback mechanism for server, storage and network use.
- ✓ SLAs are flexible and can be changed (cost and service provided) within a day or so.

Inhibitors: Business

Return on Investment

Economic: Hardware capacity reduced to pragmatic minimum; virtual deployment time reduces labor cost.

Quality: Chargeback can be based on actual usage; workloads can be reallocated easily to avoid downtime.

Agility: SLAs can be flexible; resource usage can be changed quickly.

Infrastructure Maturity Model:

5. Becoming Service-Based

Prior Situation: Assets are efficient, but they're managed as assets, not as elements of an end-to-end service

Internal

- ✓ Services are managed holistically.
- ✓ Asset failures have minimal impact on services.
- ✓ Service life cycle (deployment, maintenance, retirement) is automated.
- ✓ Service-level pricing beats outsourcing alternative — services that can't be outsourced.
- ✓ Flexibility of SLAs beats outsourcing alternative.

Inhibitors: Service-based active management tools are immature; applications aren't operationally aware and manageable; staff needs to become service-centric.

External

- ✓ SLAs are flexible and can be changed (cost and service provided) within minutes.
- ✓ Chargeback is variable based on customer-defined SLAs.
- ✓ The business and IT completely agree on the SLA and associated costs.
- ✓ Business and IT costs are aligned.

Inhibitors: Changes in the relationship/costing with the business

Return on Investment

Economic: Labor focuses more on service management, less on resources; automation tools manage life cycles.

Quality: Chargeback is based on specific holistic services, not resources; business and IT are aligned on costing and can relate to business value.

Agility: SLAs can be managed flexibly as holistic services, increasing or decreasing resources as services require.

Infrastructure Maturity Model:

6. Becoming Policy/Value-Based

Prior Situation: Services are managed holistically, but manually

Internal

- ✓ Asset usage is balanced among services based on priorities, value and policies.

External

- ✓ Chargeback is dynamic, based on customer-defined policies and SLAs.
- ✓ Business and IT strategies are aligned.
- ✓ IT influences business strategy.

Inhibitors: Becoming policy/value-based requires business buy-in, changes in business processes to dynamically leverage infrastructure agility, and linkages between business and IT.

Return on Investment

Economic: Labor focuses more on service management, less on resources; automation tools manage life cycles.

Quality: Chargeback is based on specific holistic services, not resources; business and IT are aligned on costing and can relate to business value.

Agility: SLAs can be managed flexibly as holistic services, increasing or decreasing resources as services require.