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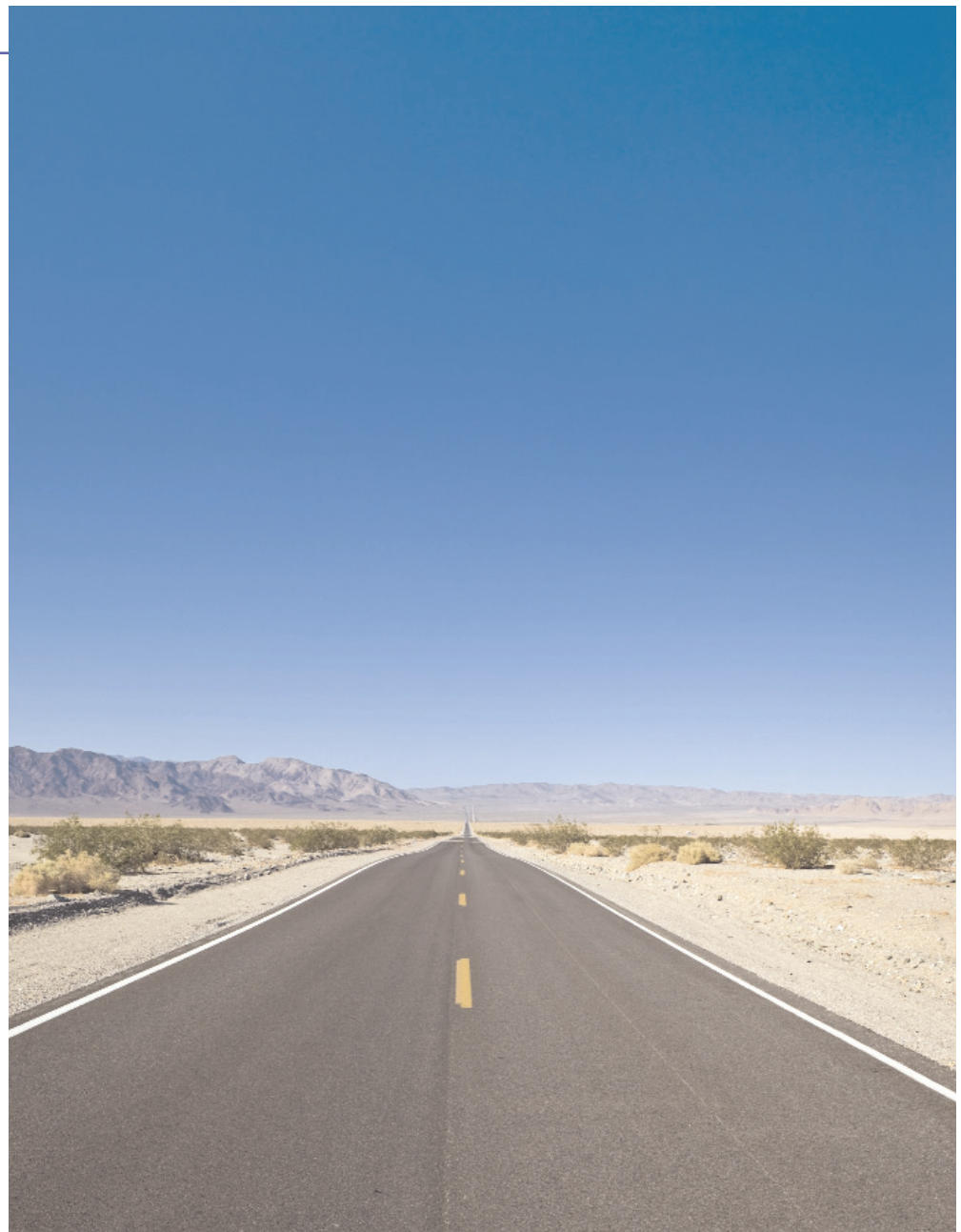
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# The Road to Infrastructure and Operations Maturity through Service Management

Featuring research from

**Gartner**

# Introduction: Balancing Innovation with Efficiency and Cost Control

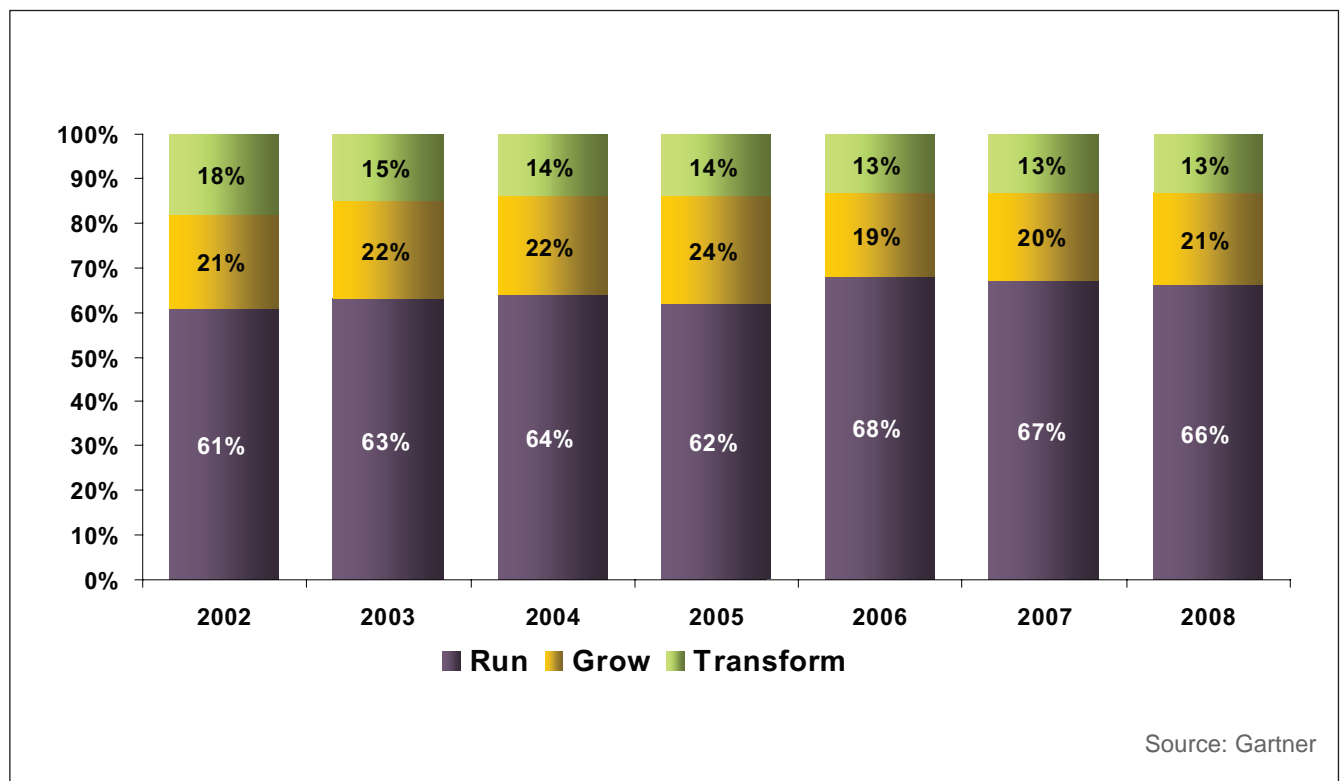
Consider any successful and well run enterprise today and you will find a focus on both innovation and cost control. Investments are made in projects that will provide an opportunity for the business to attract new customers, enter new markets or improve efficiency with a goal towards revenue and profit growth. Information technology plays an increasingly important function in how these businesses operate and a key role in these projects. Therefore, it should be no surprise that cost cutting measures continue to put more pressure on the IT organization to improve efficiency and effectiveness. For many organizations, this creates a paradox that pits innovation and greater IT agility against budget constraints and cost control.

Gartner research indicates that growth or transformation that is expected but not reflected in the IT budget can indicate that the business has not planned adequately or is looking to get IT support from somewhere else, such as outsourcing, which will

not be managed by the IT organization. Situations like this are symptomatic of IT organizations that are viewed as cost centers rather than strategic enablers and can also highlight competitive disadvantage. Gartner also states that organizations are constantly looking to reduce the cost of running the business, releasing more of the IT budget to invest in grow and transform activities, which are the areas the business sees IT really providing value to the business<sup>2</sup>.

As a strategic facet of the business, IT must be flexible and agile to support the rapid change and growth in business models. The challenge is to increase agility and responsiveness to business requirements while reducing costs and improving efficiency – essentially to “do more with less”. To make growth and business innovation a priority, 78% of CEOs interviewed see the integration of business and technology as the preferred path to meeting these objectives. Independent, quantitative research supports this belief and finds that

**Insert Figure 28. Historical IT Spending on Running, Growing and Transforming the Business, 2002-2008**



industry leaders who are successful at this convergence beat their industry peers in every financial metric, including an astounding 3X higher revenue growth and 2X in profitability. The research found that successful organizations “conduct fully data-driven decision-making enabled by consistent, coordinated, integrated use of automation.”<sup>3</sup> But how do they get there?

The right approach to service management can help organizations achieve customer orientation and innovation while driving greater efficiency. Through integrated visibility, control and automation, organizations can regain control across both business and technology assets and overcome roadblocks to innovation. Organizations that embrace an effective approach to service management, which integrates and aligns people, process, technology and business management, can achieve optimal efficiency and a true partnership between IT and the business.

In this publication featuring Gartner research, we bring you perspectives on infrastructure and operational maturity and the evolution to effective service management. This special issue features Gartner’s IT Infrastructure and Operations Maturity Model and provides insights into how IT can gain effective approaches on aligning people, process, technology, and business management. We offer insights from IBM on Service Management to achieve greater visibility, control and automation across the infrastructure and tighter convergence between IT and the business. By defining a path to infrastructure and operational maturity, we outline effective principles to service management for companies of all sizes and industries to align people, process, technology, and business management for greater efficiency and innovation.

Source: IBM

<sup>1</sup>Gartner IT Spending and Staffing Report, 2008”, dated 20 February 2008

<sup>2</sup>Gartner IT Spending and Staffing Report, 2008”, dated 20 February 2008

<sup>3</sup>BTM Institute, “Business Technology Convergence Index”, 2007.

## Introducing the Gartner IT Infrastructure and Operations Maturity Model

**Gartner’s IT Infrastructure and Operations (I&O) Maturity Model helps I&O leaders evaluate their maturity with respect to people, process, technology and business management, and establish a road map for increasing levels of maturity to service alignment and partnering with the business.**

### Key Findings

- The I&O Maturity Model assesses four dimensions of I&O: people, process, technology and business management.
- Each level of increased maturity provides substantially higher business value.
- Each maturity level transition is likely to take multiple years.

### Recommendations

- Assess your I&O maturity with respect to people, process, technology and business management.
- Develop a road map of increasing maturity levels along with return on investment (ROI) criteria for program justification – focus on the maturity dimension that needs the most improvement.
- Define maturity improvement initiatives that can be executed in four to six months.

### ANALYSIS

Gartner’s I&O Maturity Model assesses maturity in four critical dimensions – people, process, technology and business management – and enables the creation of a road map for improvement. This model can be used to

# Introducing the Gartner IT Infrastructure and Operations Maturity Model

track progress toward higher levels of maturity and business value.

We often get calls from I&O leaders looking to benchmark the maturity of their I&O environments, and looking for assistance in building a road map for improvement. Gartner has developed a number of maturity models in response to these requests (including the IT management process maturity model, networking maturity model and infrastructure maturity model); however, they all assess a portion of I&O, as opposed to the entire sphere of I&O responsibilities and functions. Although these individual maturity models are useful in terms of granularity in specific areas, we believe that it is necessary for I&O maturity efforts to be cross-disciplined and coordinated.

## The Structure of an IT Maturity Model

The grandfather of maturity models is the Capability Maturity Model (CMM), developed in 1987. CMM was breakthrough work, stressing the concept that process was central to capability maturity. Based on the CMM concept, numerous maturity models have been spawned – primarily focused on assessing IT process maturity.

Greater I&O process maturity is essential if I&O leaders are to improve IT services delivered to customers. However, we believe that, although a focus on process is necessary, it's not sufficient for IT maturity, especially in I&O. Process-centricity makes sense when process alone drives maturity, and all other elements follow. However, in the IT industry, the technology is constantly evolving, and discontinuity is the norm. Technological changes can require resetting maturity in other areas; for example, operationalizing virtualization requires process changes. Hence, technology is also affecting maturity. An IT maturity model must include technology. As IT becomes more ingrained in business processes, IT organization, culture and skills will also need to radically change. Culture, organization and personnel changes will often be prerequisites for process improvement and shifts in how technology is leveraged. Finally, people, process and technology

are driven and constrained by the ways in which they're managed, including the governance procedures. Hence, we see process, technology, people and business management as the four essential dimensions of I&O maturity.

These four assessment dimensions should generally move together and be aligned as I&O maturity increases. However, we recognize that, although they tend to move in the same direction, they don't all move at the same rate, because the rate will depend on organization, business and investment priorities. As a result, we encourage our clients to pay attention to all four dimensions; otherwise, if one lags consistently, it will hold you back from gaining the overall benefits of the I&O maturity level for which you're striving.

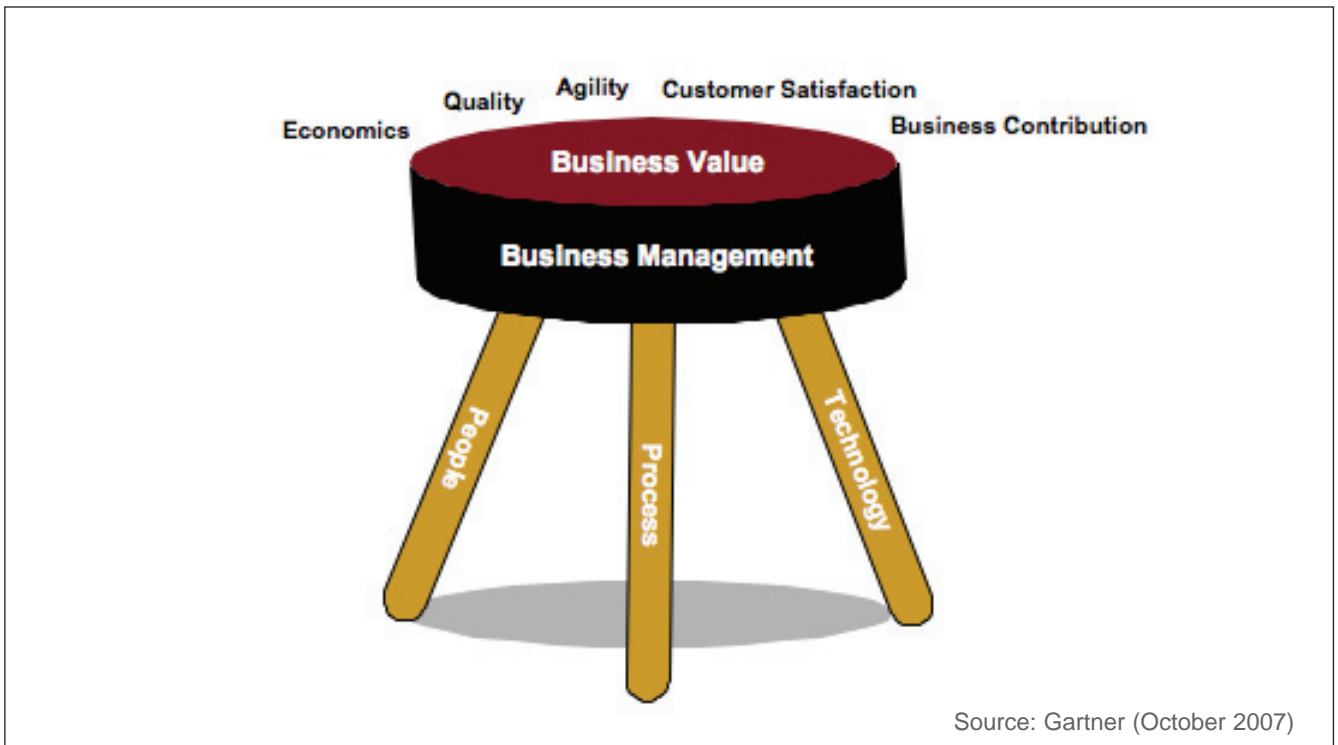
Another important aspect of an IT maturity model is the need for a rapid ROI. Because of the rate of technology change, the change in business requirements and operational processes, and the need for new skills and collaboration methods, IT projects that require many years of implementation and expect a long-term ROI inevitably fail, as tools change or goals shift. An IT maturity model must provide for smaller steps, implementable in no more than two or three years, that generate measurable, rapid ROI.

Although it may take several years for organizations to progress to the next level in the maturity model, they should define improvement initiatives that can be executed in four to six months. These smaller initiatives make the changes easier to absorb and ensure that incremental benefits are being realized while on the longer maturity journey.

Figure 1 identifies the four-dimensions assessment areas of the I&O Maturity Model, using a stool analogy. The people, process and technology assessments represent the legs of the stool, whereas the business management functions tie the legs of the stool together. The business value metrics of using the model are shown above the stool and include:

- **Economics** – Improvements in cost, efficiency, productivity
- **Quality of service** – Factors related to how required services are delivered to the business,

Figure 1. The Components of Gartner's I&O Maturity Model



including availability/uptime, response times and transaction rates

- **Agility** – The efficiency and speed with which IT responds to business, technology and regulatory change
- **Customer satisfaction** – Improvements in customer satisfaction
- **Business contribution** – Improved I&O business value (such as revenue, profits and speed to market)

Projects that move an I&O organization from one level to the next typically use these metrics to justify the project's ROI.

In Figure 1, the attributes being assessed for maturity are shown next to each of the four assessment dimensions. For example, business management maturity is measured in terms of planning, financial management, metrics, governance/standards, sourcing and project management.

### Gartner's I&O Maturity Model

We have defined six overall levels of I&O maturity, with the following objectives for each level:

- **Level 0, Survival** – Little to no focus on IT infrastructure and operations.
- **Level 1, Awareness** – Realization that infrastructure and operations are critical to the business; beginning to take actions (in people/organization, process and technologies) to gain operational control and visibility.
- **Level 2, Committed** – Moving to a managed environment, for example, for day-to-day IT support processes and improved success in project management to become more customer-centric and increase customer satisfaction.
- **Level 3, Proactive** – Gaining efficiencies and service quality through standardization, policy development, governance structures and implementation of proactive, cross-departmental

# Introducing the Gartner IT Infrastructure and Operations Maturity Model

Figure 2. The Levels of Gartner's I&O Maturity Model

	Survival	Awareness	Committed	Proactive	Service-Aligned	Business Partnership
People	No organizational focus on IT infrastructure and operations	Defined, technology-centric organization for IT infrastructure and operations	Technology-centric organization; investment in IT service desk function and staff	Process-centric organization, defined governance structure	Customer- and business-focused, IT service and delivery centric organization, formal governance	Business optimization and entrepreneurial focused culture
Process	No formal IT processes for IT infrastructure and operations	Ad hoc, but aware that processes are necessary; dependent on tools to implement de facto processes	Defined processes for IT service support and project management	Repeatable and individually automated; focus on IT service delivery-related IT processes	Integrated, automated and extended beyond I&O; focus on all service and business management processes	Dynamic optimization of IT services, implement processes fostering business innovation
Technology	No formal strategy or execution on technology investments	Basic management tools; no formal infrastructure hardware or software standards	IT support and project-related management tools; desktop hardware/software standards defined; begin infrastructure standardization/rationalization	Formal infrastructure standards and policies; process and domain-centric management tools; virtualization foundation in place	Formal IT management process/tools architecture; shared services; aggregated capacity management	Proactively promoting new technologies and impact to business; real-time infrastructure
Business Management	No formal IT business management functions	Very little outside of budgeting	Project management office	Financial management, formal key performance indicators	IT service cost metrics, competitiveness	Business contribution metrics
Level:	0	1	2	3	4	5

Source: Gartner (October 2007)

processes, such as change and release management.

- **Level 4, Service-Aligned** – Managing IT like a business; customer-focused; proven, competitive and trusted IT service provider.
- **Level 5, Business Partnership** – Trusted partner to the business for increasing the value and competitiveness of business processes, as well as the business as a whole.

Many large IT organizations will look to transform themselves to achieve Level 4 (service-aligned status) to align IT with business priorities and deliver consistent and competitive IT services. A few will make it past that to become a business partner, focused on innovation and increasing the value of the

entire business (not just IT service delivery), with benefit metrics focused at the business contribution level. Achieving I&O maturity is a multiyear transformation, and the movement from one level to another is not evenly distributed in time and effort. Each level transition is likely to take multiple years, and each is likely to require sustained commitment. Lapses (for example, due to organizational changes or changes in priorities) can result in significant delays achieving the next level, or cause it not to be attained.

Figure 2 depicts the six levels of I&O maturity, with a high-level description of each of the four dimensions of assessment: people, process, technology and business management.

**Table 1. I&O Maturity Level Estimates for 2007 and 2012**

Timeline	Survival	Awareness	Committed	Proactive	Service - Aligned	Business Partnership
12/2007	<2	45	30	15	8	<1
12/2012	<2	30	35	21	12	<2

Source: Gartner (October 2007)

I&O maturity levels will differ across industries, enterprise size and business strategies. Table 1 is an estimate of I&O maturity at each level, with a prediction of progress by year-end 2012.

Associated planning assumptions include:

- By year-end 2012, only 35% of I&O organizations in large enterprises will have achieved proactive or higher levels of I&O maturity; this is up from fewer than 25% in 2007.
- By year-end 2012, fewer than 14% of I&O organizations in large enterprises will have achieved service-aligned or above; this is up from fewer than 9% in 2007.
- By year-end 2012, fewer than 2% of large enterprises will have achieved the business partnership level of maturity.
- By year-end 2012, the awareness level of I&O maturity will drop by one-third.

### Using the I&O Maturity Model

I&O leaders should use this model to assess each of the I&O maturity dimensions – people, process, technology and business management. I&O leaders can then identify projects that would take them forward to align the dimensions at a particular level or to move forward to the next level of maturity.

Moreover, as they move up in maturity toward becoming an internal IT service provider and the elusive business partnership level (focused on business innovation), they also must manage the business of IT differently and more cohesively. This requires that they manage all the business functions that are required of their business customer counterparts, including product management, marketing, business development and cost accounting.

Gartner RAS Core Research Note G00147962,  
Donna Scott, Jay E. Pultz, Ed Holub, Thomas J. Bittman,  
Paul McGuckin, 1 October 2007

# Current Challenges to Attaining Higher Levels of Maturity

Organizational and environmental complexities are probably the biggest inhibitors to achieving higher levels of maturity. Many organizations lack a coordinated approach to seeing, managing and automating IT which often results in a wide range of disparate management tools, hundreds of scripts and highly customized code. True success requires a cross-functional coordination effort – communication and collaboration across people, process, information and technology – coupled with a proven method of operating.

Effective service management helps organizations meet these challenges by enabling them to turn assets into value for the company. It reaches across an entire organization including IT and various lines of business, and touches its people, processes and technologies to ensure they are considered in an integrated fashion. However, there are some common obstacles to service management such as a lack of real-time **visibility** into business services, caused by siloed processes and teams that force organizations to navigate blindly through the service landscape. A second, equally impairing obstacle is a lack of the **control** needed to manage business services across the entire service life cycle. And a third obstacle is IT organizations often suffer from a disconnect caused by a lack of established, repeatable process **automation** that can deliver consistent, accurate data throughout the service life

cycle. The following sections explore the challenges that organizations face in maturing across the four dimensions of people, process, technology, and business management:

**People:** Improving an organization's people maturity level may be the most challenging of the four dimensions – not because it is the most complex, but because it is the hardest to measure in terms of return on investment. IT organizations are consistently under pressure to deliver new technology and innovation while reducing costs. This pressure makes efforts to improve maturity around roles, skills and training seem a luxury and often get pushed aside as more easily measurable areas get addressed. In addition, internal staff may resent a structured, formalized organization if regarded as a commoditization of their role. However, creating a well defined, cross-trained organization can free senior staff to focus on key areas that require the greatest skill. For management, the reality is that by improving the maturity level in this dimension, organizations can reduce internal bottlenecks, inefficiencies, and risk.

**Process:** The challenge to improving process maturity is similar. It is often regarded as difficult in terms of measuring its ROI. In addition, efforts to create processes have sometimes created barriers and require

extensive manual support. As a result, the creation and adoption of processes sometimes can be met with resistance across many organizations. However, compliance and regulatory mandate have put greater pressure on organizations to improve in the process dimension. Therefore the goal must be to focus on creating repeatable, straight forward processes where it is clear to process participants why each step and control must be in place.

**Technology:** An organization's technology maturity levels are under continuing pressure. New technologies constantly emerge, while existing technologies supporting critical production needs are difficult to update. Throw into this mix other issues such as less flexible older technologies and incompatibilities across

vendor implementations of newer "standards", and it is easy to see the challenges facing organizations as they try to improve their technology maturity level.

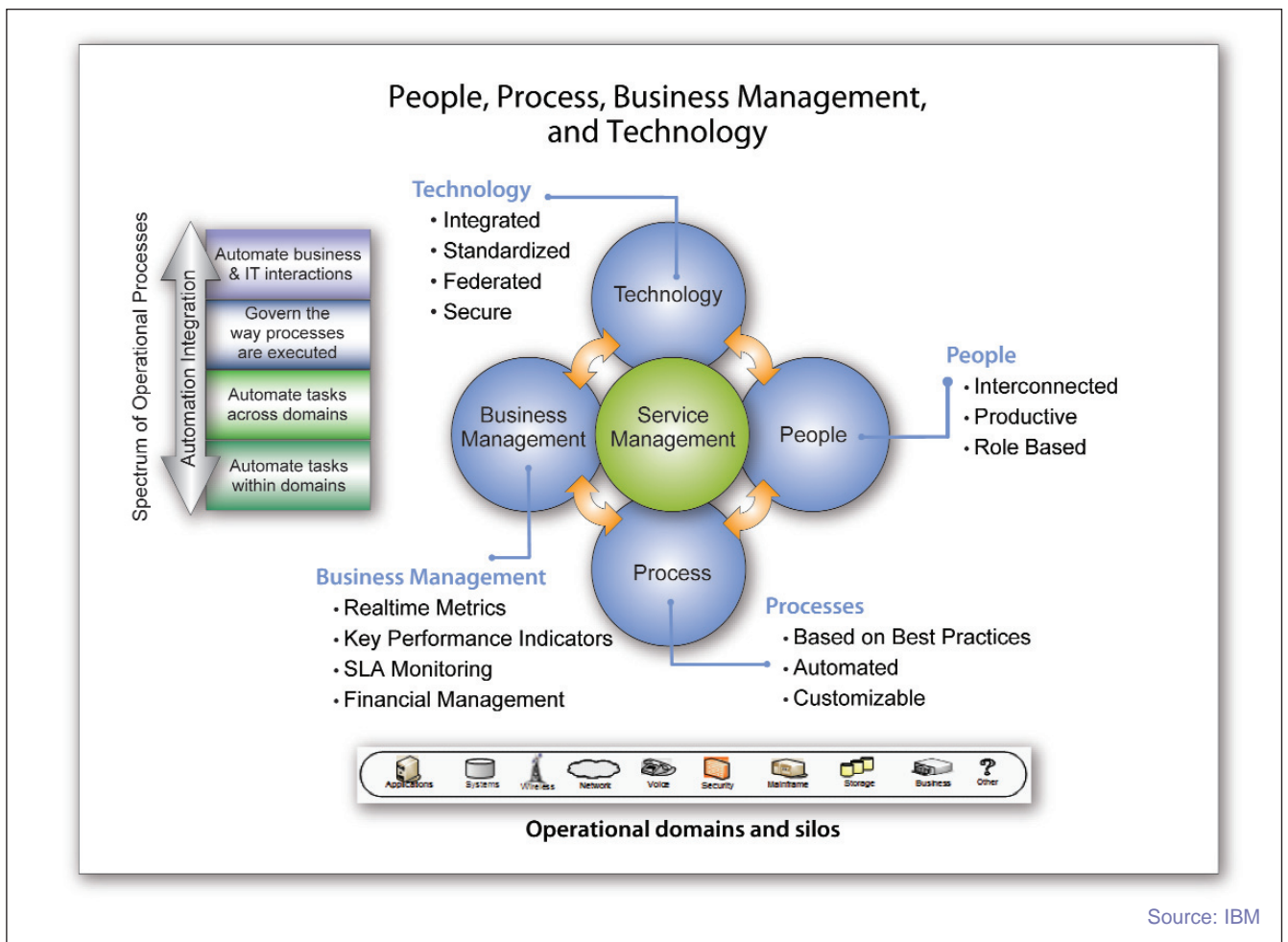
**Business Management:** Lines of business are under increasing pressure to grow revenue. At the same time, operations are under pressure to develop IT solutions that properly align with business objectives, provide accurate, timely and comprehensive information to users, and support service level agreements (SLAs) across the business. Add to this the need to better to understand and track the cost of IT services and you can see the need for greater visibility and meaningful data and KPIs that enable IT and the business to work in a more collaborative fashion.

Source: IBM

# Introduction to IBM Service Management

To address these service management challenges, the IT vendor and analyst communities have been hard at work with solutions and practical advice. One can follow these efforts along a continuum of technologies that includes help desks, business service management technologies and strategies, ITIL and other process frameworks, configuration management databases, service catalogs and run books. And while each has its merits, a disconnected implementation can leave performance gaps between where IT managers want their organizations to be – the upper levels of I&O maturity (3 and 4) – versus where their organizations typically are: the lower levels of I&O maturity (1 and 2).

IBM provides comprehensive Service Management to help organizations optimize their business and technology assets. Tivoli software offers a service management platform for organizations to deliver quality service by providing visibility, control and automation across people, process, technology, and business management. It provides visibility to see and understand the workings of their business; control to effectively manage their business, minimize risk, and protect their brand; and automation to optimize their business, reduce the cost of operations and deliver new services more rapidly.



Unlike IT-centric service management, Tivoli provides a common process automation foundation to manage, integrate and align across people, process and technology and business management for greater infrastructure and operational maturity.

Tivoli helps organizations advance in the area of business management with contextual service visibility that links infrastructure to the corresponding services, processes and customers. Business and operations teams can gain actionable intelligence that includes transactional, compliance, revenue, service level and other success indicators required to effectively manage ongoing delivery against objectives. Through targeted role-based dashboards, lines-of-business and operations executives, managers and staff gain the

visibility they need to gauge how the business is actually delivering against defined revenue, growth and operational objectives.

The table below offers an analysis of process methodologies and service management technologies, highlighting IBM's solution and its unique capabilities.

For more than 30 years, IBM service management consultants and partners, engineers and architects have been advising some of the world's largest businesses in how to manage IT. IBM itself is a global organization of over 380,000 employees with an infrastructure to support manufacturing, supply chains, sales channels and countless other internal and external applications and services in 100+ countries.

Solution	Value Proposition	Other Solutions	IBM Offering
Help Desk	Consolidate IT/Customer Interaction	Overwhelmingly reactive; Difficult to customize	Simple customization with seamless upgradeability. Integrated Service Catalog delivers automated service request capability
Business Service Mgt	Close visibility gap between IT infrastructure and business services it supports	Status only and lacks ability to coordinate response in a repeatable fashion	IT and Business Assets integrated, grouped, managed and viewed as services
Process Frameworks	Prescribes what IT governance means	Unable to show how governance should be implemented	Best practices included in the offerings provide proven implementation guidelines
CMDB	Provide a shared view of operational service assets and their relationships	Implemented without control processes, becomes just another repository of out of date information	Delivered with control processes of change and configuration management to maintain data currency and accuracy
Service Catalog	Provides a catalog of IT Services to internal and external clients	Introduces another workflow technology that must be integrated with governance processes to achieve integrated automation	Unified with service desk and workflow to allow truly consolidated IT/Business interaction and process automation
Run Book Automation	Provides a set of automated procedures designed to automate routine tasks	Introduces another disjointed set of workflows requiring integration with higher level governance processes	Unified workflow technology and user interfaces allow for seamless interoperation across the spectrum of processes

# Introduction to IBM Service Management

In 2004, IBM's Services and Software organizations came together to document the knowledge from these implementations in a comprehensive set of best practice documentation known as the Process Reference Model for IT – PRMIT. PRMIT, and its companion piece, Tivoli Unified Process, contains the process workflows, including inputs and outputs, the organizational roles and responsibilities, and the supporting technology solutions, and how they should be used to advance IT operations management to support the business.

IBM has led the industry with its vision and strategy in delivering integrated service management solutions to organizations across all sizes and industries. And Tivoli's unique integrated foundation for process automation can help organizations make significant advancements across the four dimensions of operational and infrastructure maturity, and drive innovation by enabling tighter convergence between business and IT organizations.

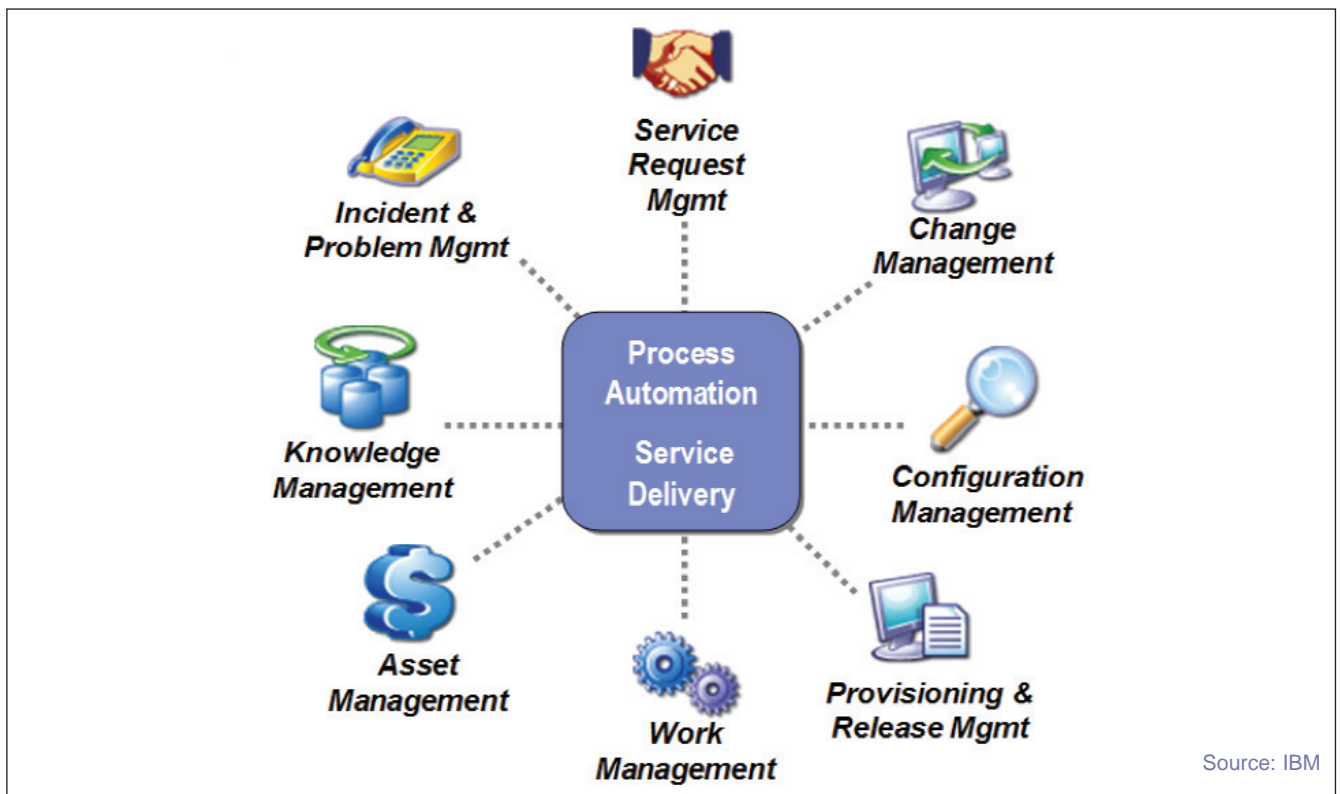
Source: IBM

# IBM Tivoli Process Automation

IBM Tivoli Process Automation delivers unique market-leading capabilities that are unmatched by any other service management offering. Unlike other solutions, Tivoli provides an integrated offering that includes asset management, CI management, and all the process activities of configuration management, change management, release management, problem management and incident management in a unified solution that can be deployed in a stepwise manner.

Through Tivoli's Process Automation organizations benefit from **visibility** with a single user interface to simplify administration and usage, **control** with a shared configuration management system that offers holistic view of the enterprise, and **automation** leveraging a single workflow engine that facilitates organizational integration by integrating across the spectrum of operational processes. These technical underpinnings further differentiate the Tivoli service management solution in the following ways:

1. Combines all classes of asset management and service management with a federated configuration management database for data integration supported by integrated discovery and application mapping.
2. Leverages leading, standards-based technology, built on J2EE with advanced business process management for business process integration.
3. Enables easy version to version upgrades with workflow configuration and other UI changes with "what you see is what you get" tools.
4. Provides a single, role-based interface for all critical assets including both IT and enterprise business assets.
5. Offers full end-to-end management, views of business applications including those on the mainframe, and third-party tool integration via web services and XML.



# IBM Tivoli Process Automation

Tivoli Process Automation initially will be leveraged with four key products: the IBM Tivoli Change and Configuration Management Database 7.1, IBM Tivoli Asset Management for IT 7.1, IBM Tivoli Service Request Manager 7.1, and IBM Maximo Asset Management 7.1. Over time IBM will leverage the process automation foundation across a broader set of Tivoli products. Organizations can realize tangible results such as improved mean-time-to-repair, increased service quality and reduction of change-induced errors. In addition, organizations can foster greater team collaboration and business management by gaining an integrated view of data and metrics that can be shared across business, operational and IT departments.

As the connection point between people and technology, fully integrated and automated processes drive organizational consistency and alignment. Through effective deployment, organizations can realize both the efficiency and cost control today's business environment requires, while laying a foundation to meet aggressive time-to-market goals and high service quality.

Source: IBM

Alan Ganek

Chief Technology Officer, Tivoli Software

# Getting Started with IBM Service Management

The IBM approach to service delivery and process automation was originated from the ground up with best practices and the business goals in mind. Our well-established methodology and framework that leverages industry best practices – including the IT Infrastructure Library® (ITIL®) approach and IBM's Process Reference Model for IT (PRMIT) as discussed earlier – to plan, design, implement and run solutions that help clients achieve greater integration across their management environment. The IBM solution differentiates through breadth of capabilities coupled with best practices for aligning people, processes, and technology to more effectively deliver service management.

IBM IT Management Consulting Services can help you collaboratively define your service management strategy, conduct detailed maturity assessments, identify an appropriate solution approach, and finally document the set of transition initiatives that will be required to execute the strategy. By leveraging IBM's global intellectual capital developed from 20 years of experience with service management best practices in our own commercial data centers, in our internal operations and with our clients, IBM can provide practical and innovative thought leadership from planning to design and implementation.

Unlocking innovation while achieving cost control and efficiency requires effective processes, established management controls and automation to reduce both costs and human error. Learn more about how IBM's

unique approach to service management and process automation can help your organization move across the spectrum of infrastructure and operational maturity.

The IBM Service Management Entry Points address the top five customer pain points and minimize the time to value with a series of documented project solutions that achieve significant business benefits upon completion. There are five Entry Points: Discover, Monitor, Protect, Industrialize and Integrate. The five entry points cover understanding infrastructure and business dependencies (Discover), tracking infrastructure health and compliance (Monitor), ensuring security and resilience against threats and disaster (Protect), streamlining workflows and processes for repeatable, scalable and consistent results (Industrialize) and aligning and integrating IT and business operations and objectives for optimal impact (Integrate). To learn more about the IBM Service Management Entry Points, visit <http://www.ibm.com/software/tivoli/beat/05132008.html>.

You can also start aligning your organization with best practices for service management with our free IBM Tivoli Unified Process tool at <http://www306.ibm.com/software/tivoli/governance/service/management/itup/tool.html>.

Or visit <http://www-306.ibm.com/software/tivoli/solutions/vca/> to simply learn more about service management software and <http://www.ibm.com/services> to learn more about service management strategy and planning.

Source: IBM



#### About Tivoli software from IBM

Tivoli software offers a service management platform for organizations to deliver quality service by providing visibility, control and automation-visibility to see and understand the workings of their business; control to effectively manage their business, minimize risk, and protect their brand; and automation to optimize their business, reduce the cost of operations and deliver new services more rapidly. Unlike IT-centric service management, Tivoli software delivers a common foundation for managing, integrating and aligning both business and technology requirements. Tivoli software is designed to quickly address an organization's most pressing service management needs and help proactively respond to changing business demands. The Tivoli portfolio is backed by world-class IBM Services, IBM Support and an active ecosystem of IBM Business Partners. Tivoli clients and Business Partners can also leverage each other's best practices by participating in independently run IBM Tivoli User Groups around the world-visit [www.tivoli-ug.org](http://www.tivoli-ug.org)

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Somers, NY 10589  
U.S.A.

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