

## WHITE PAPER

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# Windows Client Operational Costs: Trending Toward a More Mature and Cost-Effective Infrastructure

Sponsored by: Microsoft

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Al Gillen

Randy Perry

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## IDC OPINION

In 2006 IDC undertook a research project sponsored by Microsoft to categorize Microsoft end-user organizations into one of four categories of information technology adoption maturity. The results of this study were published in *Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Managing the Windows Desktop* (IDC #203482).

The four infrastructure optimization categories (referred to as the Infrastructure Optimization Model, or IOM) are as follows:

- ☒ **Basic organizations** are the least efficient performers and have high costs and average service levels and agility.
- ☒ **Standardized organizations** have better IT costs with similar service levels and agility compared with those of Basic organizations, but these firms leverage some of the easier-to-implement best practices.
- ☒ **Rationalized organizations** have very low IT labor costs and show modest improvements in service levels and agility compared with the two lower groups. These organizations use many IT best practices and automate and standardize wherever possible.
- ☒ **Dynamic organizations** shift the focus from cost reductions to enabling business with optimal service levels and agility. Dynamic organizations may even choose to accept best practices that increase costs to optimize service levels and agility.

The 2006 study found that the vast majority of the 141 organizations evaluated were categorized as Standardized. In 2009, IDC conducted detailed, in-depth interviews with 8 organizations that are categorized as Standardized to determine how adoption is shifting and best practices are improving.

Key findings from the 2006 study included the following:

- ☒ Most organizations' IT infrastructures are complicated by a wide mix of products in use, and there tend to be pockets of different optimization levels found throughout. Few organizations fit cleanly into any single category.
- ☒ Standardized companies were the most common category in 2006, accounting for 59% of the total sample.

- ☒ IT labor costs fall with a more mature level of infrastructure optimization. The 2006 study found that a move from a Basic environment to a Standardized environment caused IT labor costs to fall by 56%, from \$1,320 to \$580 per desktop per year.
- ☒ Additional savings could be found by moving to a Rationalized environment, but only a minority of organizations qualified for this rating.

Both the 2006 and the 2009 studies considered more than 20 best practices that customers could use and identified three that are consistently used by top-performing IT departments for optimizing:

- ☒ **Standard desktop strategy.** Deploying a standardized desktop by minimizing hardware and software configurations
- ☒ **Centrally managed PC settings and configuration.** Keeping deployed PCs standardized by preventing users from making changes that compromise security, reliability, and the application portfolio
- ☒ **Comprehensive PC security.** Proactively addressing security with antivirus, antispyware, patching, and quarantine

Of particular interest is that enterprises using at least one best practice tended to also use other best practices. IDC found that the more best practices an enterprise used, the greater the IT labor cost reduction the enterprise realized. However, some of the best practices correlated in their impact on IT labor (e.g., using directory services is part of standardizing the desktop and centrally managing PC settings and configuration), making it impossible to statistically tease out the exact IT labor impact of each individual best practice (single or compound) versus another.

## A Comparison of 2009 Versus 2006

Table 1 presents the data IDC published in 2006 and compares a snapshot for 8 organizations evaluated in 2009. The data in Table 1 shows three discrete data points:

- ☒ **IT labor costs**, expressed in terms of dollars of IT labor cost per year per PC (Labor costs include activities such as configuration and installation and cover staffing costs associated with evaluation, acquisition, hardware and software configuration, image management, hardware maintenance and software deployment, application management, security, and more. Labor costs were held constant at a fully burdened \$53/hour labor rate to ensure consistency with the 2006 study.)
- ☒ **Service levels**, expressed as the number of service desk calls per PC per year
- ☒ **Business agility**, expressed in the number of weeks to deploy a new application to >90% of the organization

In Table 1, we specifically compare data for Standardized companies from the 2006 study against data collected for Standardized companies in 2009. IDC calculated the changes in IT labor costs, service levels, and business agility for these organizations using the information collected in 2009 and then applied these changes to the 2006 data to provide a relative comparison across the two years.

Of particular interest are the percentage shifts that we have seen in IT labor costs, which shrank by 34% from 2006 to 2009. In the body of this IDC White Paper, we discuss in considerable depth the underlying factors that helped make this contraction possible. Those factors include a greater adoption of configuration and use policies that limit the end users' ability to disrupt, corrupt, or misconfigure their systems; more extensive use of security software; and a greater emphasis on the use of standardized operating system images.

**TABLE 1**

IT Optimization Levels and Related Costs

	Standardized (2006)	Standardized (2009)	Change (%)
IT costs (IT labor costs per PC per year, excluding software and hardware costs)	\$580	\$384	-34
Service levels (number of service desk calls per PC per year)	8.5	7.3	-14
Business agility (weeks to deploy new application)	5.2	4.5	-14
Number of respondents	83	8	

Note: IT labor costs are based on a fully burdened rate of \$53/hour for both years.

Source: IDC, 2009

The reduction in IT labor costs is accompanied by higher service levels (as indicated by the 14% reduction in service desk calls per PC per year) and better business agility. The improvement in service levels is measured in the number of service desk calls per year, which fell from 8.5 to 7.3.

The improvement in business agility is measured in the number of weeks required to deploy a new application to over 90% of the organization, which also fell by 14% from 5.2 weeks to 4.5 weeks.

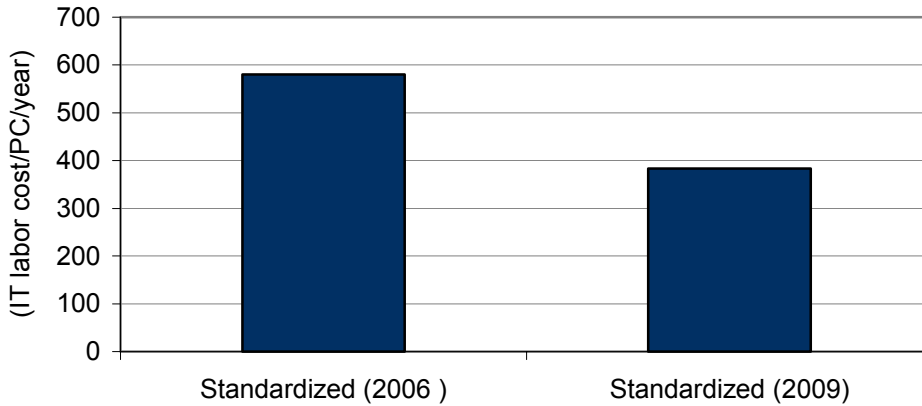
Figures 1 and 2 present the same data shown in Table 1 in graphical form.

It is important to understand that the IT costs are directly impacted by service levels and business agility. A reduction in the service-level metric, leading to a lower number of service desk calls per PC per year, will reduce the time and energy that IT must spend on responding to service desk calls. This either leads to a reduction in total costs or may lead to freeing up resources so IT staff can be assigned to work on other projects. Historically, the majority of IT effort is placed on keeping existing systems operational so that any transfer of resources from maintenance to new development or deployments is a positive for IT.

Likewise, reducing the business agility metric (speeding up the ability to deploy new applications) also lowers overall IT costs because less full-time equivalent time is spent on mundane tasks such as installing new applications.

**FIGURE 1**

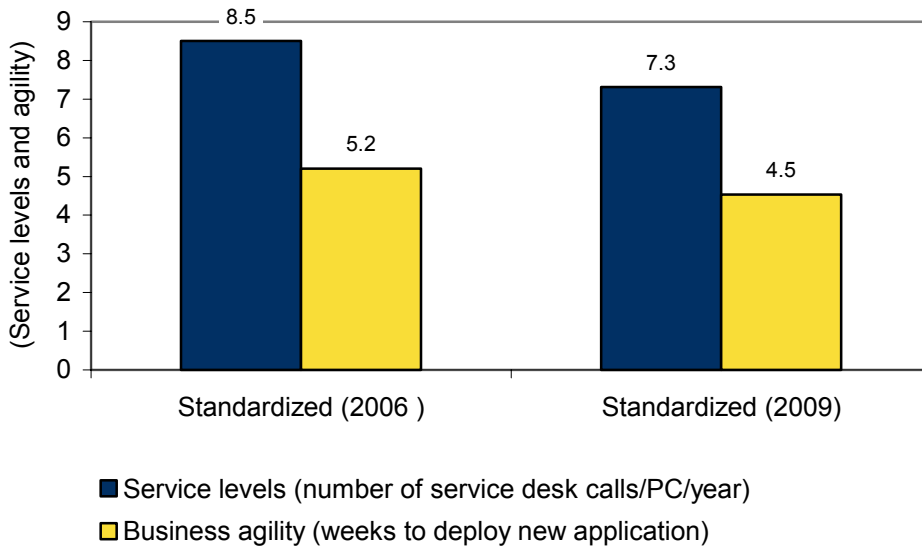
IT Optimization Levels and Related Costs (\$)



Source: IDC, 2009

**FIGURE 2**

IT Optimization Levels and Related Costs



Source: IDC, 2009

## **IDC Opinion Summary**

Based on the study conducted in 2006, we concluded that organizations were effective in promoting consistency. Our recommendations for Standardized organizations, published in IDC's 2006 document, were as follows:

- Focus on extending management technologies that automate the process of system configuration and software distribution.
- Set a goal for use of a finite number of operating system images.
- Work to limit or eliminate the ability of users to install their own software, but only after tools are in place within the organization to automate the software distribution process.
- Drive into greater levels of centrally managed PC settings and configurations.
- Ensure that comprehensive desktop security is fully leveraged.

We see evidence from the quantitative data captured in the interviews conducted for this paper that the value associated with using the IOM approach is real. Table 1 shows the cost structure model representative of the companies included in the 2006 and 2009 studies that IDC conducted.

While the absolute numbers presented in the tables in this document are unlikely to be identical for all end-user organizations, we believe the relative cost reductions that are illustrated are representative in scale of an organization that moves from a moderate adoption of a Standardized IOM deployment to a more sophisticated, highly inclusive Standardized IOM deployment.

Attaining success with an IOM deployment represents a long-term commitment that delivers benefits for many years after the investment. The data in Table 1 gives a clear indication of the magnitude of the savings and improved agility that can be realized.

## **METHODOLOGY**

IDC conducted in-depth interviews with IT personnel at 8 organizations during the first half of 2009, covering the use of Windows client operating environments (COEs) in managed and unmanaged environments, the use of related IT management technologies, and the use of images for operating systems and layered software. There were also separate discussions of IT labor, the IT adoption and deployment process, and outsourcing habits.

A key element of this study was the accumulation of staff cost data. Staffing costs tracked include the following topic areas:

- Hardware/software evaluation and purchase
- Desktop deployment/replacement (hardware/software)
- Threat assessment and security planning
- Addressing security breaches and viruses

- ☒ Hardware configuration /reconfiguration
- ☒ User administration and provisioning (adds, deletes, and changes)
- ☒ Application management
- ☒ Image management
- ☒ Software deployment and patching
- ☒ Hardware maintenance and configuration/reconfiguration
- ☒ Data management, storage planning, backup, and restore
- ☒ Help desk
- ☒ User downtime

IDC tested the impact of best practices by comparing the IT labor costs of companies using the best practice with those that did not. In some cases, a single best practice by itself resulted in savings. In other cases, we found that the interaction of multiple, related best practices was required to attain IT labor cost reductions.

Enterprises using at least one best practice tended to also use other best practices. We found that the more best practices an enterprise used, the greater the IT labor cost reduction that was realized. However, some of the best practices correlated in their impact on IT labor (e.g., using directory services is part of standardizing the desktop and centrally managing PC settings and configuration).

The data in this white paper is presented to enable IT professionals to weigh the cumulative value of adopting multiple best practices.

## IN THIS WHITE PAPER

This IDC White Paper presents the findings of an IDC study that examines the changing impact of using a set of best practices to optimize desktop environments, including using centralized managed PC settings and configurations, comprehensive security, and a standard desktop strategy. This study is a follow-up to a larger study conducted by IDC in 2006 on this same subject.

## SITUATION OVERVIEW

IDC conducted a research project in 2006 that categorized a group of 141 end-user organizations into four categories of Microsoft's Infrastructure Optimization Model. The IOM defines four levels of IT sophistication and process, ranging from unsophisticated organizations that do not consistently use management tools, best practices, or consistent images (described as "Basic" organizations) to highly sophisticated, virtualized, automatically managed environments (described as "Dynamic" organizations). The specifics of the categories include the following attributes:

- ☒ **Basic organizations** use uncoordinated manual infrastructures, tend to have significant inconsistency in the deployed hardware and software images, do not have any form of automated management, and can be at significant risk from a

security perspective. The IT operations in these organizations tend to be among the least efficient performers and have high costs and average service levels and agility. Often, IT is treated purely as a cost center at these organizations.

- ☒ **Standardized organizations** are better organized than Basic organizations and tend to have management tools in place that address a majority of the client systems in use. These organizations have lower IT costs than Basic organizations, although service levels and agility tend to be similar to those of Basic organizations. These firms do leverage some of the easier-to-implement best practices studied by IDC, and IT operations in these organizations still tend to be treated as a cost center, although the costs are generally lower than those found at Basic organizations.
- ☒ **Rationalized organizations** are highly managed and automated and tend to have a high level of consistency across hardware and software in use. The result is that these organizations experience relatively low IT labor costs and show modest improvements in service levels and agility compared with the two lower groups. Organizations that fall into the Rationalized category tend to see investments in IT as a business enabler rather than as a cost center.
- ☒ **Dynamic organizations** use a fully automated management infrastructure and tend to shift the focus of IT investment past cost reductions to enabling business operations with optimal service levels and agility. Dynamic organizations may even choose to accept best practices that increase costs to optimize service levels and agility. Dynamic organizations view their IT investments as a strategic asset rather than as a cost center.

For a more complete discussion on IOM, see *Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Managing the Windows Desktop* (IDC #203482).

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## The Evolving Nature of IOM

The data presented in Table 1 and Figures 1 and 2 indicates a trend toward lower costs, fewer support requirements, and increased business agility for user organizations that are operating in a Standardized scenario. While it is intuitive for costs to come down over time — resulting from experience with products and improved processes for configuring, managing, and operating Windows PCs — there is more to the story than just better experience.

As part of the process of building to build out operational cost models, IDC conducts interviews and asks many questions about specific practices related to IT operations within the organizations being interviewed. These individual questions typically are used to set the cost parameters for a variety of general activities, and the overall cost is a summation of these individual factors.

In most cases, IDC presents the sum total of this research, as shown in Table 1. However, because in this instance we are comparing year-over-year data for the same category of end-user organizations, it makes great sense to go one level deeper to understand how the behavior of the IT organizations interviewed in 2009 compares and contrasts with the behavior of the IT organizations interviewed in 2006. This section discusses these comparative data points.

Accordingly, Tables 2, 3, and 4 provide actual survey data collected in 2006 and 2009 that focuses on adoption and utilization of three key best practice areas. Table 2 presents the results of the data showing adoption of best practices that fall under the general category of centralized managed PC settings and configurations; Table 3 focuses on best practices collected under the theme of the use of comprehensive security; and Table 4 covers best practices that are incorporated in the area of using a standard desktop strategy.

Each table presents three columns of data: the results of the 2006 survey, the results of the 2009 survey, and a comparison that calculates the percentage shift from 2006 to 2009.

**TABLE 2**

Change in Best Practices in Standardized Shops: Centralized Managed PC Settings and Configurations (% of Respondents)

	2006 Results	2009 Results	Change (%)
<i>Q. Please describe the way your organization handles user/desktop lockdown.</i>			
There are no policies	39	0	-39
Users cannot change settings but can install software	21	0	-21
Users cannot install software but can change settings	29	0	-29
Users cannot install software or change settings (total lockdown)	32	100	68
<i>Q. Which of the following statements best describes the way your company manages account privileges on PCs?</i>			
No policy; all have administrator rights	34	0	-34
Most users get no administrator rights; some get administrator rights to accommodate applications	47	86	39
Everyone gets standard user rights, and no application requires administrator rights	25	14	-11
<i>Q. How do users get new applications?</i>			
Users install them from CD or a share	20	40	20
IT installs them from CD or a share	56	86	30
Users respond to an advertisement in the directory and pull the application to the PC	30	17	-13
Applications are pushed to clients based on group membership or a directory profile	57	83	26

Source: IDC, 2009

As presented in Table 2, there are three key topic areas: the use of policies that lead to some degree of (or total) desktop lockdown; the level of account privilege that end users get on their PCs, and the process an organization uses to move a new application out to end users.

Considering the first topic, we can see that in 2009, all 8 companies interviewed locked down the ability of users to change settings or install software. This leads to a significantly more predictable system configuration and a reduction in potential conflicts that occur from multiple application software packages and from self-inflicted misconfiguration.

In this particular sample, all the organizations were able to achieve a total lockdown, which we know to be a major contributor to reducing operational and support costs associated with PCs.

Following this theme of limiting end users' self-management, this group also moved significantly to reduce access to administrative capabilities. The data in Table 2 shows that none of the companies interviewed allow unrestricted administrative rights and that there was a dramatic shift to limit the administrative rights to a small number of users to accommodate application needs. This type of delegation is made increasingly possible through the continued evolution of Active Directory and the associated administrative delegation that has been added to Active Directory in recent years.

Finally, the trend to formally push applications out to users through group policy, or for IT to do the install directly, goes hand in hand with the removal of user administrative rights in the first two groups of data in Table 1.

The takeaway from Table 1 is that Standardized shops are increasingly working to remove the ability of end users to configure and manage their own systems, a key activity that prepares an organization to potentially move into a Rationalized deployment scenario in the future.

Turning to Table 3, we next consider the changes in best practices for Standardized shops for the use of comprehensive security. In every category, with the exception of the use of VPN for remote connectivity, we saw a material increase in the use of these security practices.

**TABLE 3**

Change in Best Practices in Standardized Shops: Comprehensive Security  
(% of PCs and Laptops Covered or % of Companies)

	2006 Results	2009 Results	Change (%)
<i>Q. Please enter the percentage of PCs and laptops covered by the security measures listed below.</i>			
Firewalls (Windows, desktops)	31	31	0
Firewalls (Windows, laptops)	38	46	8
Firewalls (third party, desktops)	37	83	46
Firewalls (third party, laptops)	54	84	30
Antivirus (desktops)	100	100	0
Antivirus (laptops)	100	100	0
Antispyware/malware (desktops)	53	95	41
Antispyware/malware (laptops)	58	95	37
VPN for remote connectivity (desktops)	26	39	13
VPN for remote connectivity (laptops)	78	63	-15
Network access control (desktops)	77	89	12
Network access control (laptops)	80	89	9
Intrusion detection system (desktops)	56	71	15
Intrusion detection system (laptops)	60	61	1%
% of companies using all security measures for 100% of their laptops and PCs	24	86	62

Source: IDC, 2009

Table 3 shows a steady progression to favor better and more comprehensive adoption of security for the study participants in 2009. The use of firewalls is up both for Microsoft laptops and for third-party desktops and laptops — a positive step to reduce labor costs required by remediation of compromised systems. Likewise, antispyware use nearly doubled, with 95% of the PCs and laptops owned by companies surveyed in 2009 reporting use of antispyware solutions. Intrusion detection use was up for desktops, while network access control was up for desktops and for laptops. Intrusion detection deployment was flat for laptops.

The one outlier in this data set is the decline in the use of VPN connectivity for laptops. This finding presumably reflects the trend of front-ending key business applications with Web interfaces, reducing the need for a secure connection for laptop users. One of the most critical work applications, collaborative software is increasingly available with an HTTP interface, which eliminates the need to use a VPN for email access.

Of particular note, the growth in the percentage of companies using all security measures for 100% of their PCs and laptops, which jumped by a dramatic 62 percentage points, from 24% to 86%. This type of activity is indicative of companies that are moving strongly to embrace the best practices that result in both a return on the investment and a longer-term reduction in operational costs, particularly from IT labor costs associated with remediation of compromised systems.

Table 4 illustrates the changes in best practices related to using a standard desktop image. The magnitude of movement is generally lower, but the tendency for many organizations to avoid Windows Vista adoption is evident. There was significant growth in organizations that skip every other version and a significant decrease in organizations that use a hardware refresh as the trigger point to deploy new operating system versions and run two versions of Windows at one time.

**TABLE 4**

Change in Best Practices in Standardized Shops: Standard Desktop Strategy  
(% of Respondents)

	2006 Results	2009 Results	Change (%)
<i>Q. What is your OS deployment and image strategy for Windows PCs?</i>			
No strategy	3	0	-3
Standardization on one OS version, skipping every other version	9	31	22
Standardization on the latest OS version within 18 months of release	27	38	11
We use the hardware refresh to deploy new OS versions and run two versions of Windows at one time	58	31	-27
No image strategy, use what's on PC	0	0	0
IT provides some images, but business units create their own to meet their needs	5	0	-5
Provide a large number of images centrally per business unit	34	38	4
One corporatewide image, limited customization provided by group and user	61	71	10

Source: IDC, 2009

While this data might cause some disappointment on the part of Microsoft, IDC believes this is a positive development simply because having multiple operating systems to support is one of the fastest ways to increase management costs. This is an even worse scenario than having multiple images because there are two sets of patches to manage; (potentially) two sets of applications to purchase, manage and maintain; and so on. Reinforcing this view is that 27% fewer study participants said they use a hardware refresh to deploy a new OS — once again a reflection of corporate avoidance of Windows Vista.

The good news for Microsoft is that an additional 11% of participants plan to standardize on the latest client operating system within 18 months of its release. This may have a positive impact on Windows 7.

Remarkably, 71% of participants said they use a single corporatewide image of Windows and allow only limited customization. Reducing image counts is one of the key aspects of the desktop standardization best practice; therefore, it is a critical step in the right direction.

## **FUTURE OUTLOOK**

The data in Tables 2, 3, and 4 clearly shows that organizations are continuing to refine their deployments. The data indicates that customers are increasingly sticking with a single version of Windows (which is a best practice), typically Windows XP rather than Windows Vista.

In addition, there is a strong trend toward a secondary lockdown. This activity leads to an increasingly stable environment, which leads to a well-known, well-understood environment that can be extended with additional applications on a highly predictable basis. These factors boost productivity for IT staffing by reducing help desk support calls and boost agility because PCs are in a well-known state and can be updated without any remediation.

For most organizations, there is no particular hard stop for infrastructure optimization. In fact, having a nicely articulated chart that shows different IOM levels serves more as a way of placing a measurement system atop of customer behavior than of setting waypoints that customers strive to meet. As such, we believe that organizations are generally interested in moving to the right on the Infrastructure Optimization Model.

As we see in the data presented in this paper, moving from an early-stage Standardized infrastructure to a deeply adopted Standardized infrastructure results in significant cost savings; we expect that customers typified by those interviewed for this study will continue to invest in IT and, over time, will move forward to a Rationalized classification.

At the same time, for organizations that are currently operating in the Basic classification, this paper should present some proof that the value associated with moving to the right of the IOM depicted in the 2006 paper produced by IDC was real and continues to be a valid story today.

The data for this IDC White Paper was collected in North America. We believe the adoption and deployment practices used in North America are likely to be similar to those of other mature geographies. However, emerging geographies such as Central/Eastern Europe, Latin America, and Asia/Pacific outside of Japan will likely face different challenges and opportunities to adopt the IOM.

## **CHALLENGES/OPPORTUNITIES**

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### **Long-Term Investment, Long-Term Payback**

Buying in to the concept of Infrastructure Optimization is not a decision that should be made quickly, nor should organizations enter into such a program with expectations of seeing an ROI that is measured in terms of month. An IOM program requires a commitment and a game plan to adopt and deploy technologies over a multiyear, multiple product life cycle period of time.

As a result, organizations looking for an ROI story that can be measured and realized during a current budget year would be better off seeking smaller, more actionable activities.

The benefit associated with Infrastructure Optimization is clearly depicted in the tables presented in this document. Significant cost savings can be realized, and those savings are accompanied by both lower staffing costs and significantly improved agility.

IDC believes that most organizations that move through an Infrastructure Optimization exercise will end up reducing IT labor costs associated with their current infrastructure. But we also believe that by reducing the workload of existing staff, organizations will find that it becomes possible and practical to refocus some of those IT assets on addressing new and emerging challenges rather than running in place just to keep the ship afloat.

## **CONCLUSION**

The data in Table 1 shows the cost structure model representative of the companies included in the 2006 and 2009 studies that IDC conducted. While the absolute numbers presented in the tables in this document are unlikely to be identical for all end-user organizations, we believe the relative cost reductions that are illustrated are representative in scale of an organization that moves from a moderate adoption of a Standardized IOM deployment to a more sophisticated, highly inclusive Standardized IOM deployment.

Attaining success with an IOM deployment represents a long-term commitment that delivers benefits for many years after the investment. The data in Table 1 gives a clear indication of the magnitude of the savings and improved agility that can be realized.

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