

WHITE PAPER

The Business Value of IBM System i in Midsize Business Deployments

Sponsored by: IBM

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EXECUTIVE SUMMARY

IBM System i and its predecessors (IBM iSeries and IBM AS/400) have been deployed into midsize companies since the late 1980s. But System i has been transformed since that time, meeting a new set of price points and performance results that far outstrips the price/performance ratio offered in the 1990s, or even a few years ago.

The system is aimed at meeting the business and technology needs of midsize businesses, and it is designed to support the growth of a business over time. The broad inventory of packaged independent software vendor (ISV) applications, addressing many vertical markets and deployed in many geographies around the world, allows the System i solution to be responsive to local business conditions and to meet global needs for reliability, availability, and serviceability (RAS) features; high-availability features; and unified management of a set of integrated hardware and software technologies that result in reduced operational costs for IT and business.

In recent years, the ability to consolidate multiple workloads onto the System i for processing has reduced the total cost of ownership (TCO) and improved the return on investment (ROI) for customers across geographies. IDC demand-side, customer-based research has shown the results of customer experiences in a representative sample of midsize System i sites that are located in the United States, Canada, Europe, and Asia.

This paper provides details about the results of this customer-based research in terms of IT staff costs, uptime, and overall operational costs associated with System i deployments.

SITUATION ANALYSIS

Midsize companies face the challenge of needing to support growing businesses and hundreds of end users in one or more locations — but they typically have limited IT staff to deploy and maintain the infrastructure that supports all of the business processes. Being squeezed between multiple demands, midsize businesses sometimes leverage outside organizations to reach their IT goals — and in other cases, they aim to manage their existing infrastructure more efficiently. Efficiency is a key driver for these organizations and is seen in the form of cost-effective acquisitions of systems to keep capital expenditure (capex) under control and in labor-effective

management of workloads to keep operational expenditure (opex) under control. To the extent that midsize companies can acquire, deploy, and maintain systems that support these goals, they have more opportunities to keep IT spend in check and to redirect resources to supporting new projects and to building business value, wherever possible, across their operations.

Overview of Midsize Customer Environments

Small and medium-sized businesses (SMBs) account for the greatest share of all businesses worldwide. In all, there are 67 million SMB companies worldwide, including more than 8.3 million U.S. SMB companies. Of these, there are nearly 100,000 midsize businesses (IDC defines medium-sized, or midsize, businesses as those with 100–999 employees) in the United States. There are many more midsize businesses worldwide, nearly 500,000, inclusive of those in the Americas; Europe, Middle East, and Africa (EMEA); and Asia/Pacific, including Japan.

Although midsize companies provide more jobs than large companies worldwide, they typically are squeezed when it comes to IT — in terms of both IT budget and IT staffing. Typically, these companies have high rates of revenue growth and high rates of employee growth compared with large companies with more than 1,000 employees. These attributes create strong demand for computing resources, but in many cases, these companies have fewer in-house IT skill sets to keep pace with that growth — or with the growing need to manage more compute resources.

For these reasons, medium-sized, or midsize, businesses often work with channel partners, including systems integrators and value-added resellers in the hardware distribution channel. These companies have the ability to configure systems to meet the specific requirements of these midsize companies — and to tailor the business solutions to the vertical market in which the companies participate and the geographic region in which they are located.

This paper focuses on the IT and business needs of midsize organizations across geographic regions and vertical market segments. The business model for IT within these midsize organizations is to use off-the-shelf application solutions, wherever possible, to reduce IT staffing costs associated with programming and ongoing maintenance of business applications. In this way, midsize organizations work with systems vendors, channel partners, and ISVs, leveraging their experience and capabilities to supplement the in-house, on-premises IT staff.

With respect to IT, midsize businesses typically have the following attributes:

- Frequently understaffed IT groups
- Less complex systems
- Lack of skill sets and resources for system deployment/support
- Lack of a formal datacenter infrastructure
- High rates of revenue and employee growth

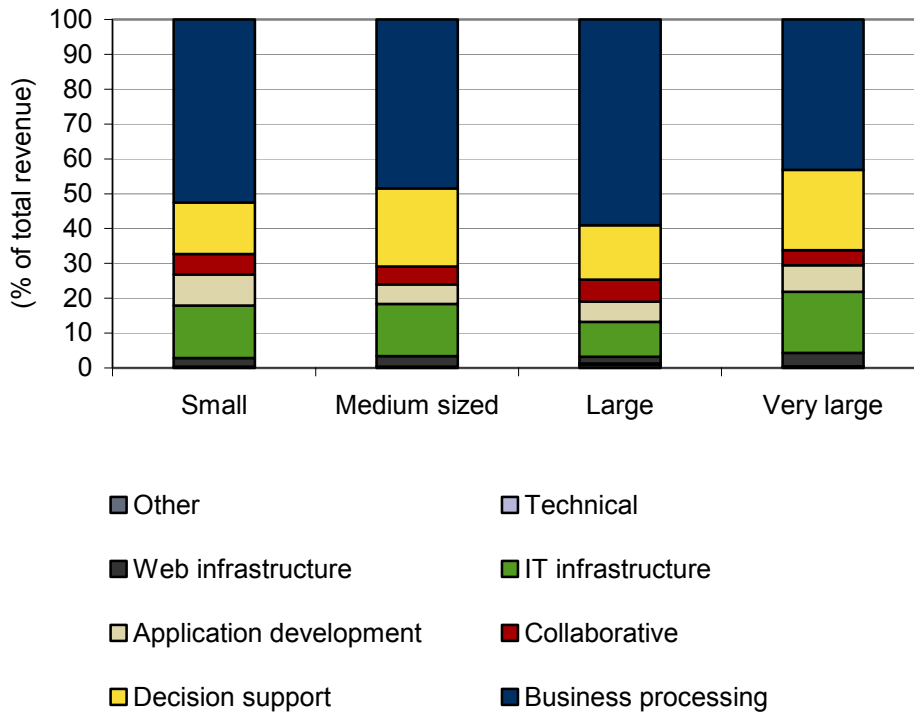
IDC workloads data, collected each year at 1,000 sites, shows that midsize businesses participate in a very wide array of vertical markets, including financial services, manufacturing, healthcare, communications, retail/wholesale, professional services, government, and education. Within these broad categories, there are finer-grained segments — each with its own business solutions and each with a geographic awareness, such as support for local languages (e.g., Spanish, Portuguese, French, Italian, Japanese, Chinese).

Based on the workloads data, IDC estimates that midsize companies accounted for about \$15 billion of the \$55 billion spent on servers worldwide in 2006. Of this \$15 billion in enterprise IT spending for servers, IT infrastructure (e.g., support for network protocols, support for file/print) accounted for nearly 30% of the total, business processing accounted for about 20% of the total, nearly 15% went to decision support, nearly 15% went to collaborative workloads (e.g., email and groupware), about 10% went to Web infrastructure (e.g., support for Web serving, proxy, cache), and the balance went to technical computing and all other types of workloads. Business processing includes line-of-business (LOB) applications, such as ERP, CRM, and HR, and transactional workloads (OLTP), while decision support includes business intelligence (BI) and analysis of data that is stored in databases, data warehouses, or data marts on the server platforms.

As Figure 1 shows, the IBM i5/OS typically supports a variety of business processing workloads; IT infrastructure and Web infrastructure are part of the mix, but they are slices in the overall workload "pie" that features business processing, decision support, and data-based workloads as well as LOB applications and workloads. For these reasons, IBM System i is seen as a platform for business workloads within the enterprise, according to customer-based data gathered from midsize enterprises.

FIGURE 1

IBM i5/OS Workloads by Company Size, 2005



Source: IDC, 2006

Key SMB Pain Points in IT Deployments

IDC studied SMB attitudes toward IT acquisition in a 2006 study entitled *SMB Attitudes Toward Investing in Technology, 2007* (IDC #204566, December 2006). This study of more than 600 small businesses and more than 400 midsize businesses located in the United States found that small businesses and midsize businesses show many attitude similarities regarding the acquisition and use of advanced technology, although they often differ in degree. Midsize firms have more formal budget structures in place and are more likely to agree that financial analysis, including ROI discussions, are important. Small businesses are likely to be less formal in budget and financial analysis, although they are looking for the same assurances of value provided in their technology investments as midsize firms.

Based on IDC research, firms with fewer than 50 employees typically do not have full-time IT staff, and the owner/manager is almost always the technology decision maker. That means that purchase decisions are made by one person rather than by a committee of IT managers and business managers, which is the typical pattern in large and very large companies. Midsize businesses more closely resemble large businesses in terms of their IT practices. They generally prefer centralized, rather than decentralized, management, and they prefer to make centralized decisions regarding technology acquisitions.

Why is this the case? Although midsize businesses have 100 to 1,000 employees, and top-line revenues can range from hundreds of millions of dollars to \$1 billion, they cannot afford to have decentralized technology acquisitions. To do so would be to promote a "siloed" approach to IT, allowing each business unit to make its own decisions in isolation and introducing interoperability problems that would cause IT headaches rather than solve business problems.

The pain points seen by many midsize companies with respect to IT include the following:

- ☒ Lack of specific IT skill sets among smaller IT staff for high-value business applications and often understaffed IT organizations due to limited budget
- ☒ Need for ease of IT system scalability in rapidly growing enterprises
- ☒ Dealing with IT complexity, which causes operational costs to rise and which requires a simplified, consolidated infrastructure
- ☒ Ongoing concerns about addressing internal and external security
- ☒ Concerns that an IT focus on managing infrastructure sidetracks budget and attention from high-value business application implementations

SYSTEM I SOLUTIONS FOR MIDSIZE BUSINESSES

In April 2007, IBM announced two System i servers: 515 Express and 525 Express. Both servers are based on IBM's POWER processors, run the IBM i5/OS, and support IBM's AIX Unix operating system and Linux distributions. The 515 Express is priced below \$8,000, placing it in the lower price bands of the volume server segment (defined as servers that are priced less than \$25,000). The 525 Express is priced from \$34,900.

By reducing the entry prices, IBM intends to create more SMB market momentum behind its POWER processor-based System i servers. In July 2007, IBM introduced new IBM System i 570 models that run IBM's i5/OS on POWER6 processors as well as Linux and IBM's AIX Unix operating systems.

With an expanded focus on midsize customer sites, IBM is taking the hardware price discussion "off the table" by offering competitive prices within the volume server price range (servers priced less than \$25,000). Instead, it is moving the discussion to business solutions, including system hardware and software provided by IBM, packaged software from ISV partners, and services generally provided by IBM channel partners. In these new systems targeted at midsize companies, customers pay for the i5/OS operating environment on the basis of the total number of concurrent users rather than the per-processor basis that is used for large enterprises. Importantly, both traditional and Web-based workloads (such as Java, PHP, and IBM WebSphere Application Server) can run on the POWER5+ and POWER6 processors, thereby leveraging the improved performance of these processors, which can be added through in-field upgrades.

To become more price-competitive, IBM is adjusting the price/performance metric (providing more performance at a lower price than that of earlier System i models) and it is changing the way that customers pay for the capacity they acquire on entry System i servers. At the same time, IBM is emphasizing the system's system management, security software, and ease-of-use features as factors that will reduce operational costs, over time, following acquisition. IDC demand-side research data illustrates the business value of these system management features when it comes to saving on IT staff costs and preserving uptime.

A key component of the overall integrated system solution is the IBM i5/OS operating system that supports a software stack including an integrated database, a Web-services environment, system management software, and virtualization tools that aid in consolidating multiple workloads onto the System i server platform and associated, virtualized storage.

IBM's go-to-market strategy is also changing: The company plans to leverage its relationships with ISVs and channel partners on a worldwide basis — and across geographic regions — to ensure that i5/OS installations will grow in net-new customer sites. By working with channel partners and ISVs focused on specific vertical-market segments, IBM can "think globally and act locally," providing solutions that precisely match a wider range of market segments than was possible before.

IDC RESEARCH ON BUSINESS VALUE IN IBM SYSTEM I DEPLOYMENTS

IDC conducted two studies, in 2003 and 2006, to determine the business value associated with IBM System i servers (*The ROI of Windows and Linux Server Consolidation on IBM eServer iSeries: Analysis and Case Studies of Small and Medium-Sized Businesses, 2003* and *IBM iSeries: A Platform for Technology Consolidation, 2006*). These studies took an intensive look at fewer than 20 sites to capture all of the capital costs and operational costs associated with deployments of System i (first introduced in the year 2000) and the iSeries systems that preceded them. The 2006 study evaluated the ROI for companies that had consolidated Linux and Windows workloads on System i and iSeries systems.

IDC Methodology

The methodology that was used to conduct these IDC studies is defined as follows: IDC studied 12 organizations in 2005 and 2006, each of which was a medium-sized, or midsize, company with fewer than 1,000 end users, on average, and less than \$1 billion in annual revenue, on average. An organization of this size typically has its own IT staff, but its resources can be stretched thin because IT staff must support all the business units across multiple locations. In general, they were not rapidly growing companies but rather mature organizations with modest growth characteristics.

The companies were geographically dispersed, with seven sites from North America, four from Europe, and one from Asia. Participants represented the healthcare, retail, art museum, manufacturing, and telecommunications industries.

The respondents reported that their companies were consolidating their server resources onto the IBM iSeries platform. They were reducing the number of server systems by an average of 62% per year. Nine of the twelve companies were consolidating their Linux and/or Windows servers; three of the companies were also consolidating the workloads from multiple Unix servers. IDC notes that two of the companies were consolidating older versions of IBM AS/400 servers in addition to Windows servers. In all cases, these midsize companies were running significant business applications. The costs that were reported by the IT staffs of these organizations include the costs of hardware, software, services, and IT staff associated with deploying and maintaining the solutions over time — usually three to five years.

Key Findings in the Data

When considering the data specifically related to midsize business sites, as reported by respondents, IDC found the following key points:

- System i and iSeries servers required less IT staff time to manage than the systems they replaced.
- System i servers had significantly better uptime than other servers deployed at the respondents' sites.
- System i servers generally supported more workloads than other servers in the respondents' sites.
- System i systems supported more end users, on average, than other servers deployed into the same midsize sites.

The combination of these factors, including IT staff time, the cost of downtime, and ongoing maintenance costs, is considered when calculating operational costs. These factors can all contribute to operational expenses, even as they impact the ability of end users, end customers, and business partners to make use of the IT servers they have installed.

The types of features offered as part of the System i server product line have traditionally been priced within the midrange enterprise price bands (servers priced from \$25,000 to \$499,999) or within the high-end enterprise price bands (servers priced at \$500,000 or more). These ranges of systems would be out of the reach of most midsize companies.

The price of acquisition of x86 servers, which traditionally is lower than that of System i servers, has accelerated their adoption for a wide range of workloads in recent years. Today, x86 servers (servers based on x86 architecture and on microprocessors made by Intel or AMD) account for more than 90% of all server units shipped worldwide and for more than 50% of the worldwide server market revenue. In 2006, worldwide server market revenue was \$55 billion, and more than 7 million units were sold worldwide. A wide range of systems vendors sell x86 servers, including HP, Dell, IBM, Sun, and many others, across all geographic regions. It is the expectation of volume server pricing in the marketplace that has led to the introduction of System i entry servers priced well within the volume server price range.

The introduction of new System i Express models reduces capex while preserving the features and capabilities that contribute to reductions in opex on an ongoing basis. Given midsize sites' limited IT budgets and restricted IT staffing, the use of System i should support midsize business operations in a cost-effective, and operationally efficient, manner. In previous studies in which IDC explored the benefits of consolidating multiple x86 systems onto one or two System i systems, we found that following installation, the operational costs for System i servers were lower than those for the distributed volume systems in those suites, given the 16% overall higher availability and 40% lower IT staffing costs.

IDC Demand-Side Data for IBM System i Midsize Business Sites

In 2005 and 2006, IDC conducted two demand-side studies based on customer data regarding System i deployments. In this paper, IDC summarizes the midsize business findings in several data tables, each of which focuses on a different aspect of business value. The methodology for these two IDC studies is included in this section, describing the way in which data was collected and how the findings from the respondent surveys have been reported. Tables 1–3 provide a snapshot of the key findings from those two IDC research studies.

As Table 1 shows, the number of end users in midsize business deployments is consistent across the sample of respondents — in the range of 100 to 500 users per site. Typically, more x86 servers were deployed than System i servers (or iSeries servers) at each of these sites. These findings suggest that both types of servers are deployed into similar business environments, often supporting business units within those companies or filling the role of primary platforms for business applications for the midsize business sites.

TABLE 1		
Demographics		
	System i	x86
Number of users in organization (average)	167	383
Number of users (range)	108–500	100–500
Number of servers (average)	1.67	23
Number of servers (range)	1–3	16–38
Number of sites with servers (average)	1	5.3
Number of sites with users (average)	5.3	4.5

Source: IDC, 2006

Interestingly, IDC demand-side research finds that IBM System i and IBM iSeries servers are often installed in the same sites in which many x86 servers are deployed. This means that customers are finding that both kinds of servers can be platforms for packaged business solutions acquired from third-party ISVs. The use of packaged applications for both System i and x86 servers places a focus on business solutions — and reduces the amount of customized IT programming, or scripting, that would otherwise be needed to meet emerging, or changing, business requirements.

Indeed, packaged solutions are deployed to support business processes without requiring complex and costly custom development of business-specific or industry-specific application code. By focusing on business solutions, midsize business customers are avoiding high programming costs while ensuring that ISVs and system vendors and channel partners will be available to support the application functionality, when needed. This approach speaks to the business model of midsize business organizations, which seeks to keep IT costs low and to leverage off-the-shelf software, as outlined at the beginning of this white paper.

Next, IDC looked at the costs, as recorded by IT managers, at the midsize business sites, regarding acquisition and ongoing maintenance of IBM System i and IBM iSeries systems. Table 2 shows the key data findings regarding operational costs associated with System i and x86 server deployments at midsize business sites, as reported by study respondents. The table shows that System i systems required fewer IT staff members to manage each server — and each System i server supported multiple workloads, making it an efficient platform that enhances IT productivity per server installed.

TABLE 2

Operational Cost Metrics

	System i	x86
% of users per server	69	19
IT staff per server	0.30	0.40
Users per server	111.05	59.75
IT staff (supporting servers) per user	0.003	0.007
Workloads per server	5.86	1.21

Source: IDC, 2006

Finally, IDC looked at the service levels afforded by the servers located at midsize business sites. All of the servers covered in the research supported packaged ISV business applications. As seen in Table 3, respondents reported that the IBM System i and IBM iSeries servers supported high uptime levels and, consequently, low amounts of downtime and a resilience when it comes to resisting the effects of viruses that are often found in association with Web-enabled computing and Internet-style workloads.

TABLE 3

Service-Level Metrics

	System i	x86
Downtime hours per server per year	0.58	15.50
Time spent per user annually responding to virus attacks (hours)	0.05	0.21

Source: IDC, 2006

The respondents in these studies found that System i was able to deliver higher uptime due to a number of integrated hardware and software features that work together to optimize daily operations, reducing downtime and supporting business processes and business resilience. IDC notes that high-availability failover software from ISVs is available on both System i and x86 servers to further improve uptime results for daily operations.

IBM System i and i5/OS Features That Support Business Value

IBM System i is an integrated system design that combines virtualized hardware resources, virtualized storage resources, and the advanced system management features of the i5/OS operating environment to optimize availability for business applications running on the system. When downtime is reduced and steps have been taken to ensure the security of mission-critical data, then IT staff can focus on tasks related to supporting the business, such as help desk for end users and deploying new applications.

System characteristics aimed at improving availability have a business result, which is efficient use of IT staff — with fewer IT staff required to manage servers and with fewer servers required to support all of the workloads and all of the end users within an organization.

Importantly, System i servers have a number of interoperability features that allow them to exchange data with x86 servers running Microsoft Windows and Linux. These features include support for access from .NET from Microsoft and the ODBC and JDBC standards-based applications accessing databases, such as IBM DB2 and Microsoft SQL Server running on Windows servers, as well as providing hosted storage for Windows and Linux servers.

Support for workload consolidation on System i is another option for deployment, with the ability for a single System i server to support multiple virtualized workloads that have been running on Windows, Unix, or Linux servers. IDC demand-side research has shown that consolidation, coupled with virtualization, can increase IT operational efficiency and reduce operational costs.

CHALLENGES AND OPPORTUNITIES

The IBM System i has a strong presence in midsize companies worldwide, but it is one of a wide range of servers available to midsize firms today. There is intense competition in the marketplace, and price competition is just as important to these cost-conscious companies as competition on a technical level.

Familiarity with a variety of small servers, typically x86 servers running Microsoft Windows or Linux, is often a factor in IT consideration of the types of servers on which to run business applications. Often, customer preferences and customer familiarity with x86 platforms and the operating systems they support lead to repeated acquisition, even in cases where operational costs rise, over time, due to ongoing maintenance costs associated with deploying high numbers of volume x86 servers.

IBM System i has many features that are attractive to midsize companies, including the ability to run a broad variety of packaged business applications and the ability to consolidate workloads onto the systems' scalable hardware resources. Virtualization, which is gaining popularity in the x86 world, has been integrated into the i5/OS workload management design since its inception, and logical partitioning has been an integral part of the System i design for more than 10 years.

The price range of System i traditionally has been centered more in the midrange enterprise price bands (servers priced from \$25,000 to \$499,999) than in the volume price bands (servers priced less than \$25,000). That alone has reduced evaluation of System i (and formerly iSeries servers) in the midsize business market space — and that is a challenge for IBM when competing in the midsize business space, where it has been a system provider since the launch of the IBM AS/400 in the late 1980s. Those earlier AS/400 servers, which were designed to run business applications from the launch of the first models, were succeeded by the iSeries systems, and later by System i models. All are based on the same hardware and operating system architecture, with the server design evolving over time while preserving binary compatibility for the applications that run on these servers and preserving the value of previous IT investments in these IBM systems.

IBM's announcement of two servers in the lower price ranges is reducing the barriers to entry for deployment of System i systems in sites where budgetary considerations would not allow the purchase of servers in the midrange enterprise price range. This pricing, coupled with RAS features and support for business continuity, makes System i servers a more attractive platform on which to run packaged business applications for customers with strict budgetary limits for IT.

CONCLUSION

IBM has changed the entry pricing for System i servers, making them more affordable for SMB companies in general — and for midsize companies, in particular. The operational benefits of System i, including system management across multiple workloads, support for RAS features and high-availability features, and ability to consolidate many workloads onto an integrated platform with built-in virtualization, present business with a computing style that leverages IT staff and IT assets in an efficient way.

"Doing more with less" has become a mantra of computing in recent years, especially in midsize businesses with restricted IT budgets. When capital costs are viewed along with operational costs, the full range of System i systems provides a wide range of options for IT infrastructure deployments and unified management of multiple computing tasks. The models in the System i product line can be acquired in a modular fashion, matching server size to the workloads being supported. IBM is working to address the "price" element of the price/performance ratio while improving performance with new hardware systems in 2007.

As reported by customers who have deployed System i and iSeries servers, midsize companies have found that System i supports IT staff productivity through avoidance of downtime and through automation of software functionality that affects ongoing maintenance costs. By reducing capital costs for system acquisition while continuing to optimize system features that reduce operational costs, IBM is addressing TCO and is improving ROI for customers who acquired System i and iSeries servers in recent years. Both metrics, measured in 2005 and 2006 at customer sites, demonstrate a continuing improvement in the business value that is provided by System i servers.

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