The Business Value of the Connected Mainframe for Digital Transformation

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EXECUTIVE SUMMARY

After several years of relentless hardware and software innovation, the mainframe is at an inflection point from being a supporting platform of transaction revenue to becoming a source of revenue growth and innovation. Organizations are evolving toward what IDC calls the "connected mainframe." The platform is transforming from a revenue-supporting machine into a revenue-generating machine and is increasingly playing a central role in organizations' digital transformation (DX) journey. Key steps in achieving the connected mainframe require organizations to modernize and integrate the platform with their internal and external environments. IDC finds that these modernization and integration initiatives lead to new business innovations, which in turn are driving revenue growth and improving organizational operational efficiency.

Business Value Highlights

300%+
five-year ROI

10 months
to breakeven

An average of almost
$200 million
in additional revenue per year

27%
lower mainframe licensing costs

52%
more efficient mainframe management

47%
lower overall cost of operations over five years than distributed environments

Adopters of a connected mainframe strategy can achieve more than **300% return** on investment (ROI) over five years in their quest for digital transformation.

According to IDC's research, connected mainframe adopters are generating an average of almost **$200 million in additional revenue per year** while improving business and IT staff productivity and cutting operational costs. **Over 50% of the benefit** value came from business productivity gains, realized from higher transaction volumes, new services, and/or business expansion. Furthermore, these organizations would experience **47% lower cost** of operations over five years than if they had migrated off the mainframe to a distributed infrastructure.

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Value Generation from the Connected Mainframe

A healthcare provider noted:

"Our membership in one line of business has gone from about 250,000 members to about 800,000 members because of the technological enhancements we've done to modernize on the mainframe."

IDC's findings are based on extensive interviews with executives at nine organizations that have historically run significant mainframe operations. The goal of this study was to understand how and to what extent these organizations are leveraging the platform to support their DX initiatives and share those best practices so that other IT leaders can make informed business decisions as they evaluate their mainframe plans and strategies.

This study reveals key attributes and examines how faster versus slower adopters accrue the benefits at much different rates. The research also looks at how organizational and cultural stances toward the mainframe platform impacted the speed at which organizations made progress on their digital transformation efforts. In summary, we found the following:

1. **Organizations with a business-first approach accrued much greater value generation.** By business first versus platform first, we mean organizations that are committed to finding the fit-for-purpose platform to fulfill business objectives first and as such are evolving IT as a coherent team that utilizes infrastructure resources in the most optimized way.

2. **Companies that look to extend the mainframe see much larger business value benefits versus organizations that are looking to migrate or starting afresh.** Many participants noted that reusing mainframe assets to deliver new services was easy and cost effective. Conversely, at least one organization that attempted migration reported experiencing buyers' remorse.

3. **Participants that had a higher cultural acceptance of the mainframe as an integral part of a connected ecosystem also returned greater benefits.** Most participants considered the ability to integrate the mainframe with other components of the datacenter as a mantle of IT agility and as a competitive differentiator.

4. **There is a growing realization that innovation on mainframe is actually feasible.** Study participants realized that the capabilities have matured significantly and are seeing results by adopting just a few capabilities such as Java, internal APIs, or Linux. As a result, the participants are realizing that they can deliver innovation at a pace comparable to the rest of the IT organization.

That said, even with the compelling economic benefits, the biggest reason for slow adoption of the connected mainframe is inertia. Cultural notions about the platform have been slow to change. Many of the participants expressed frustration with outdated perceptions in the organization that are not considering future potential. IDC believes that the mainframe has a central role in digital transformation; businesses that do not take advantage of its broad range of capabilities are giving up value and, potentially, competitive advantage.

Study Demographics

IDC interviewed nine organizations with significant mainframe operations to inform this study's analysis as well as three additional organizations that provided qualitative feedback. These enterprises were of various sizes and included multinational organizations in the financial services, insurance, and healthcare sectors. These organizations rely on their mainframe platforms to run their most critical internal and customer-facing operations that generate billions of dollars of revenue each year. For specific information about these organizations' mainframe environments, see the Appendix.

Situation Overview

The Connected Mainframe

This IDC study has determined that organizations with mainframes that are pursuing what IDC has labeled a "connected mainframe" strategy are engaged in two broad sets of initiatives — modernization and integration with the mainframe — that drive business innovation. Figure 1 shows varying degrees of adoption of a variety of technologies and practices within the connected mainframe strategy.

FIGURE 1

Connected Mainframe Adoption Among Study Participants

- Modernization Initiatives
- Integration Initiatives

Innovators | Early Adopters | Early Majority | Late Majority | Laggards
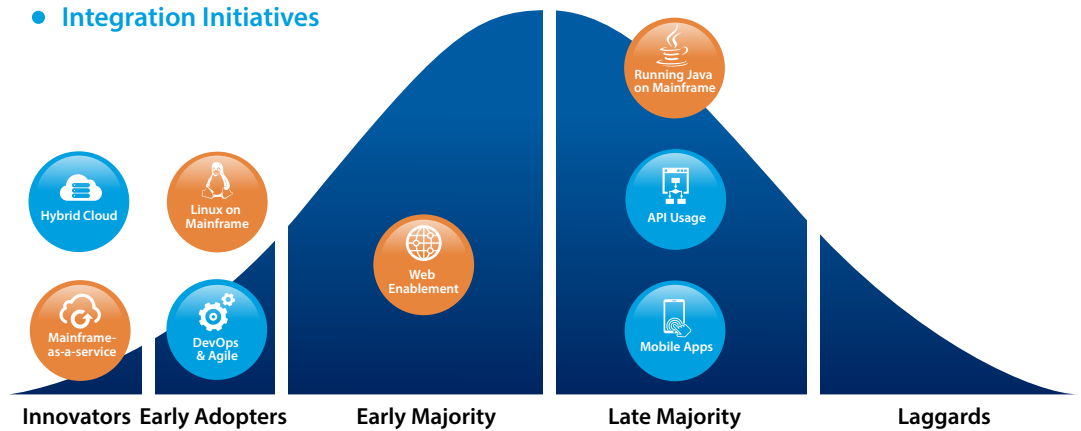
Note: The adoption categories are adapted from Everett M. Rogers' Diffusion of Innovation.
Source: IDC, 2016

Modernization

Modernizing on the mainframe means creating a platform that is integration ready within the datacenter and with the outside world and subsequent business innovation.

Adoption: Late majority

Benefits: Ease of integration - Increased capacity and computational volume, skill management

RUNNING JAVA ON THE MAINFRAME

An important aspect of modernizing on the mainframe is the use of Java, which most organizations in the study say they support — some aggressively with Java on Linux, while others in a limited fashion running Java inside Customer Information Control System (CICS).

Adoption: Early majority

Benefits: Deliver new revenue-generating services quickly

WEB ENABLEMENT

A second component of modernization is enabling the mainframe to communicate with other parts of the infrastructure using web services and service-oriented architectures (SOAs) to deliver new revenue-generating services. Web services can deliver the trove of data and functionalities within the mainframe to other applications seamlessly and securely while leveraging the platform's inherent reliability and scalability. *"We have 600 or 700 mainframe-based services in production right now."*

Adoption: Early adopter

Benefits: Lower infrastructure cost, greater operational efficiency

LINUX ON THE MAINFRAME

The primary factor driving Linux on mainframe is cost. One participant said that it moved departmental workloads to Linux both in the distributed and the mainframe environments because of the cost advantages. Another participant stated: "We used to MQ service loads on distributed [environments]; now we are moving that to Linux on the mainframe." In addition, by integrating Linux workloads using the mainframe's fast internal communications, organizations can:

» Colocate systems of record on z/OS with systems of engagement on Linux, allowing seamless extension of core business systems rather than proliferating data to other servers

» Protect more workloads inside the mainframe and keep interacting applications closer together for analytics

However, confusion about pricing is slowing adoption; Linux processors are actually cheaper, but there is disagreement whether Linux should remain on the distributed side. More market awareness about the benefits of Integrated Facility for Linux (IFL) will help organizations build the case.

MAINFRAME AS A SERVICE

Adoption: Innovators

Benefits: Improved cost predictability with pay as you go

The next aspect of modernization on the mainframe is around cloud computing, which typically consists of on-demand self-service, broad network access, resource pooling, rapid elasticity (ideally automatically), and measured services, meaning pay per use. The mainframe delivers increasingly on these cloud aspects. For example, infrastructure as a service (IaaS) can be achieved with z/VM and Linux on IBM Z; platform as a service (PaaS) and software as a service (SaaS) can be delivered with middleware and z/OS. One study participant stated: "We use the mainframe for DB as a service, file as a service, and MQ as a service." However, most businesses are in the very early stages, given that self-service, billing, and tooling are expected in forthcoming versions of z/OS.

Integration

Integration with the mainframe means connecting the mainframe with the rest of the datacenter infrastructure and IT processes as well as opening the platform up to the outside world.

MOBILE APPS WITH THE MAINFRAME

Adoption: Late majority

Benefits: Faster time to value with reuse of existing capabilities

Exposing services and capabilities on the mainframe to mobile apps is the most common among the study participants, given the cost advantages and the ability to simply extend and connect and reuse mainframe applications:

» *"When you look at all the mobile capabilities, you could make a case; why go to the distributed environment when you can run this on the mainframe right now — because you can do it cheaper and faster. The z13s are opening up a whole new world for us."*

» *"Mobile apps run on the mobile and connect to the 'old' service capabilities [on the mainframe] for payment and such. You don't have to rebuild payment to connect to a mobile app."*

» A healthcare organization noted that it is moving to the next step with IoT and Big Data as follows: *"We have partnered with vendors around remote devices, diabetes devices. We're positioning for IoT and Big Data that are tied to our mainframe development."*

LEVERAGING INTERNAL AND EXTERNAL APIS

Adoption: Late majority

Benefits: Accelerated innovation

A second aspect of integration is the use of internal and external APIs on the mainframe, which is widespread among the participating organizations. For mobile enablement, the use of API is standard. A participating organization stated: *"We are participating in business ecosystems, and the best way to interact with different parties in ecosystems is through APIs. [These ecosystems] provide revenue now. We expect revenue-generating opportunities from public APIs to grow."*

Adoption: Early adopter

Benefits: Business and IT agility

DEVOPS AND AGILE ON THE MAINFRAME

The goal of DevOps is to release applications faster and more frequently. In fact, the mainframe supports many tools identical to those for other platforms for every stage of the application life cycle:

» *"We routinely run both agile projects and scaled agile projects, and if there's a mainframe component, it certainly participates."*

» *"All our services on the mainframe are versioned so that we can bring in a new service version without any impact."*

» A major European bank stated: "... *with this more agile approach and also all this flexibility, you can call all the services from a web browser. This opens up completely new fields."*

Adoption: Innovator

Benefits: Augment computational capacity at lower cost, skill management

HYBRID CLOUD AND MODERN APPLICATION DEVELOPMENT

Last, IDC noted that it is still very early days for hybrid cloud and modern app development in spite of the inherent platform advantages and tool maturity:

» Security is the barrier with hybrid cloud. On the one hand, mainframe "was the cloud in a box" — highly suitable for hybrid cloud–like deployment where enterprises must maintain a secure on-premise cloud for back–end systems of record and core data but then connect with systems of engagement. That said, data privacy and security concerns are holding organizations back, and the most IDC sees is private cloud deployments with the mainframe.

» Adoption of modern app development using open source runtime frameworks, microservices, and popular languages should be a best practice for a connected mainframe but is still nascent. A few organizations are starting to adopt Eclipse-based IDEs for "developers, who don't even know that the mainframe is there," but many continue to develop on COBOL citing skills and culture.

IDC's analysis puts the annual value for study participants of these connected mainframe initiatives at an average of $181,900 per application ($56 million per organization) per year over five years.

Business Value Summary

Study participants reported significant impacts on business results while gaining operational efficiencies with their connected mainframe initiatives. While specific use cases and benefits differed by participant, they drew a common link between increased mainframe agility and performance to improved business results. Meanwhile, almost all organizations are realizing value in the form of reduced costs and more efficient operations.

IDC's analysis puts the annual value for study participants of these connected mainframe initiatives at an average of $181,900 per application ($56 million per organization) per year over five years. This value is accrued to the following three key areas (see Figure 2):
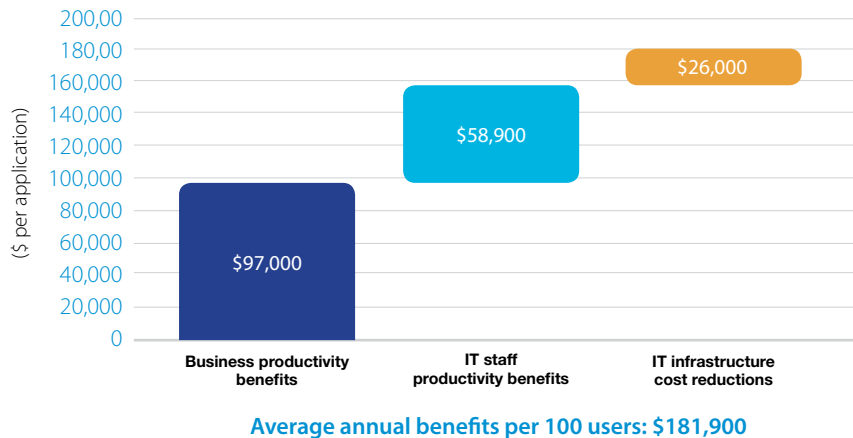
» **Business productivity benefits.** By supporting business expansion, higher transaction volumes, and new services, these organizations will capture additional revenue of $646,500 per application ($198.5 million per organization) per year over five years, which is recognized in IDC's model with a 15% assumed operating margin worth an average of $97,000 per application ($30 million per organization) per year over five years. Higher revenue is being achieved by both better meeting business demand through more effective delivery of applications and services and providing a cost-effective platform for expanding business operations.

» **IT staff productivity benefits.** Requiring less IT staff time for day-to-day mainframe support activities and enabling application developers to be more effective and efficient translate into productivity benefits and time efficiencies worth an average of $58,900 per application ($18 million per organization) per year over five years.

» **IT infrastructure cost reductions.** IDC projects that by reducing licensing and power costs, interviewed organizations will achieve cost savings at an average of $26,000 per application ($8 million per organization) per year over five years.

Organizations could run workloads on their connected mainframes at an average of 47% lower cost over five years than by moving to a more distributed environment they have considered (refer to Figure 4).

"By breaking up fixed deployment windows, a lot of features are much quicker to production, and people can use it. Now, we need about one to two weeks to build for a new service, a new capability."

FIGURE 2

Average Annual Benefits per Application

Average annual benefits per 100 users: $181,900

Source: IDC, 2016

Business Productivity Benefits

Business productivity benefits ultimately come down to revenue generation and competitive advantage. The mainframe is now poised to serve as a platform that supports business expansion and forays into new types of services. Business growth is increasingly predicated on delivering services to new user interfaces — especially mobile — and leveraging huge amounts of data without impacting performance. In addition, time to delivery is becoming an increasingly important competitive differentiator.

One organization explained: *"Our investment in hardware and software will help to reduce the costs, but in the end, it's smart and clever business application that provides the value to the business. And when you have a set of good processes that helps to deliver fast, then it's even a bigger value-add for the business."*

Additional examples of mainframe innovation paying off through additional revenue are as follows:

» **Supporting business growth and new types of services.** *"The new environment, the modernization, [and] the new applications [on the mainframe] have contributed to the firm's overall revenue. Also, the scalability of the platform really helps — for example, we introduced new ebanking, and we've had growth of four times more traffic without any cost impact."*

» **API-enabled growth.** *"The business is well aware of the fact that there is a competitive advantage in having the ability to build a hybrid platform with our mainframe. It means our ability to stitch together a hybrid business platform is based on an API's entry architecture."*

Organizations that have adopted new approaches and tools to enhance their mainframe development efforts delivered more value through increased business agility and faster time to market. They are using APIs to integrate their mainframe and other IT environments, leveraging tools for efficiencies, and adopting new languages. These approaches discussed in the The Connected Mainframe section have dissolved barriers to development efficacy and spurred more vibrant development ecosystems:

» **Improved developer productivity:** The interviewed organizations' mainframe developers — who number in the hundreds on average — have become 15% more productive on average (value is attributed to the "IT staff productivity benefits" category in Figure 2).

» **Shortened application development life cycles:** Speeding up mainframe application development life cycles benefits both internal users and end customers. *"By breaking up fixed deployment windows, a lot of features are much quicker to production, and people can use it. Now, we need about one to two weeks to build for a new service, a new capability."*

These organizations are supporting services that generate revenue into the billions of dollars, but as a result of their connected mainframe initiatives, the organizations are reporting a significant revenue increase of an average of almost $200 million per year (see Table 1).

TABLE 1

Business Impact With Connected Mainframe Initiatives

	Per Organization	Per Application
Revenue Impact		
Additional average revenue per year	~$200 million	$646,500
Assumed operating margin	15%	15%
Revenue recognized for study results (higher operating margin per year)	$30 million	$97,000

Note: This table measures the average impact on study participants from their unique connected mainframe initiatives (i.e., from a before-and-after perspective).

Source: IDC, 2016

Cost of Operations Efficiencies

In addition to supporting business growth, interviewed organizations are extending their mainframe use cost effectively in terms of licensing, operational expenses such as power, and staff management time cost. A participant that has made a substantial investment in modernization and integration noted: "Our mainframe TCO has gone down by half in the last eight years, even as transaction volumes doubled." These operational efficiencies are found through improvements in both IT infrastructure cost reductions and IT staff productivity (see Figure 3).

FIGURE 3

Annual Costs of Operations With Connected Mainframe
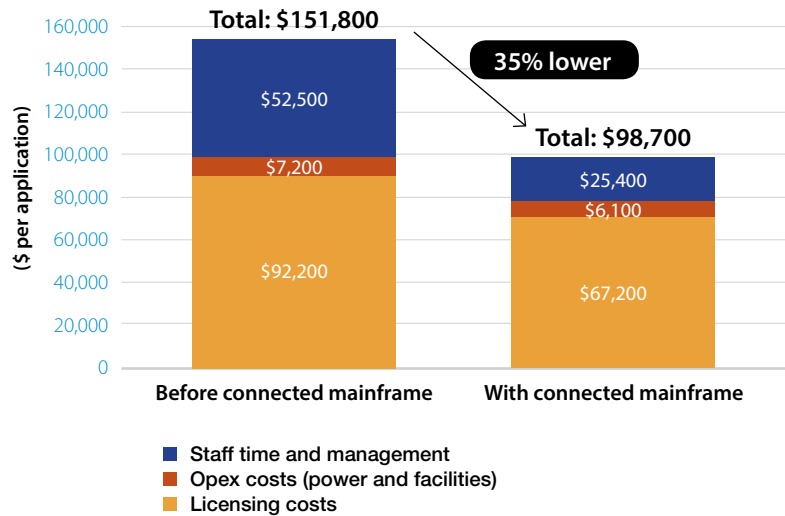
Note: This figure measures the average impact on study participants from their unique connected mainframe initiatives
(i.e., from a before-and-after perspective, with licensing costs reflecting ongoing hardware and software licensing costs).
Source: IDC, 2016

IT Infrastructure Cost Reductions

New mainframe hardware such as the z13 as well as mainframe software and tools enable efficiencies in terms of both software licensing use and power consumption. These efficiencies are of particular importance as organizations continue to make greater use of their mainframes. Several organizations reported reducing mainframe licensing costs even as they grew their transaction volumes, with one participant noting: "[O]ur licensing costs have gone down with the use of specialty engines and the efficiencies of new mainframes — at least [by] 10%." One organization said: *"We've reduced our setup by two machines by making consumption more efficient, which will reduce power and cooling costs."*

"We've reduced our setup by two machines by making consumption more efficient, which will reduce power and cooling costs."

> "Our mainframe is growing in that we have more legal entities on the same machines, but we've still been able to reduce staff resources for operating the whole system because there is a lot of automation, and it is really standardized."

IT Staff Productivity Benefits

IT teams responsible for administering their organizations' mainframe environments have benefited from hardware upgrades and new software. As a result, less staff support time is required on a per-mainframe or a per-application basis. More importantly, these efficiencies can free up staff time to work on higher-value initiatives such as the deployment of new services. Examples include:

» **Automation:** *"Our mainframe is growing in that we have more legal entities on the same machines, but we've still been able to reduce staff resources for operating the whole system because there is a lot of automation, and it is really standardized."*

» **Efficient growth:** *"[I]t seems to be really hard to get a good financial business case [to migrate] because the target environments sometimes come out to be very complex and costly to manage, just from a people's standpoint, let alone a technology where on the mainframe we can grow that technology by leaps and bounds and really add no people."*

ROI Analysis

IDC used the following three-step method for conducting the ROI analysis:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of modernization and integration initiatives.** The benefits included staff time savings and productivity benefits, increased revenue, and IT-related infrastructure cost reductions.

2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments include costs related to new mainframe hardware and tools, along with associated ongoing maintenance costs.

3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments related to the organizations' mainframe platforms over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

IDC's results of the benefits and costs of interviewed organizations investing in a connected mainframe present a compelling summary of the value these organizations are achieving (see Table 2).

TABLE 2

Five-Year ROI Analysis

	Per Organization	Per Application
Benefit (discounted)	$201 million	$655,800
Investment (discounted)	$46 million	$148,500
Net present value (NPV)	$155 million	$507,300
Return on investment (ROI)	300%+	300%+
Payback period	10 months	10 months
Discount rate	12%	12%

Source: IDC, 2016

Investing in the Mainframe Rather than Migrating

"The irony is that it's exactly the ease with which the costs of running workloads on mainframes can be determined that leads to questions about its cost and value."

Despite the tangible benefits for organizations of investing in and modernizing their mainframe platform, as can be expected, organizations do reassess the value of their mainframe platforms and consider using more distributed infrastructure. However, this study as well as multiple organizations' internal analyses have demonstrated that remaining on and investing in their mainframe platform is more cost effective and delivers greater business value than migrating to more distributed architectures.

The granularity with which software licensing costs can be attributed to lines of business can itself lead to cost analyses of potential migrations. One organization explained: *"The irony is that it's exactly the ease with which the costs of running workloads on mainframes can be determined that leads to questions about its cost and value."* Nevertheless, interviewed organizations consistently reported struggling to find a business case for moving workloads off of the mainframe. In fact, the potential licensing savings from moving to a more distributed infrastructure platform were more than counteracted by cost and staff inefficiencies in building out a substantial distributed environment, without even taking into account factors such as the staff effort of migrating workloads and increased operational risk. The following challenges were noted:

» **Prolonged and expensive migrations:** *"The majority of potential big migrations we've looked at end up with the transition costs being very high without a great business case or an ROI."*

» **Significant investment in hardware:** *"To do the mainframe applications on distributed servers, we'd need another 5,000 servers in addition to what we have now."*

» **IT staff requirements:** *"We would probably need two times as many staff for managing a distributed environment. It's a lot of effort, and it creates a lot more breakage because there's a lot more moving parts."*

One study participant that moved to distributed infrastructure described "buyers' remorse for some of the application pieces," especially because of the significant additional staff time costs involved with managing and patching a significantly larger distributed environment.

Organizations that made the cost-effective choice to remain on their mainframe platforms are realizing five-year cost of operations that are 47% lower on average, taking into account hardware, maintenance, licensing, power, facilities, IT staff management time, operational impact from system and application downtime, and staff time costs for migration (see Figure 4).

FIGURE 4

Five-Year Cost of Operations per Application
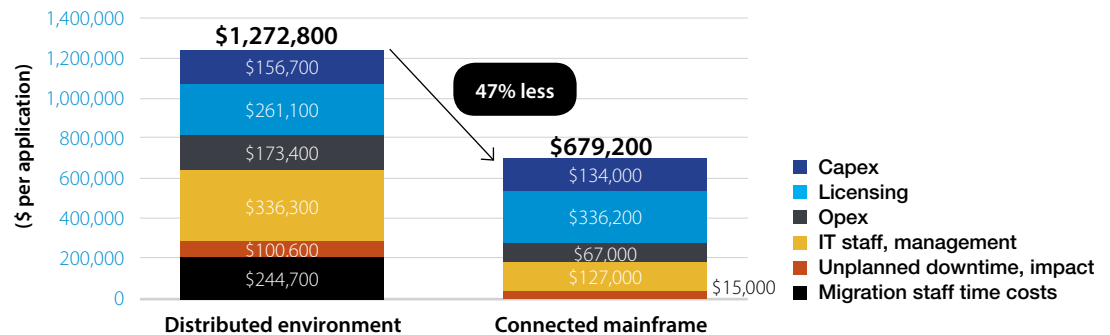
	Distributed environment	Connected mainframe	Difference	% Difference
Capex	$156,700	$134,000	$22,700	14
Licensing	$261,100	$336,200	-$75,100	-29
Opex	$173,400	$67,000	$106,400	61
IT staff, management	$336,300	$127,000	$209,300	62
Unplanned downtime, impact	$100,600	$15,000	$85,600	85
Migration staff time costs	$244,700	$–	$244,700	100
Total	$1,272,800	$679,200	$593,600	47

Notes: This figure compares the five-year average cost of operations for study participants versus the average cost of operations for a more distributed environment based on their experiences and analyses. See the Methodology for assumptions.

Source: IDC, 2016

> At the end of the day, our mainframe platform is very highly capable, so it's [about] looking at how can we leverage that capability and the manageability because we're much more efficiently managing the amount of resources we have on the mainframe than we do on the distributed environment."

One participant stated: *"At the end of the day, our mainframe platform is very highly capable, so it's [about] looking at how can we leverage that capability and the manageability because we're much more efficiently managing the amount of resources we have on the mainframe than we do on the distributed environment."*

Challenges/Opportunities

The dramatic regeneration of the mainframe has led to a complex mix of technological and cultural dilemmas that businesses are still trying to sort out. Businesses that see mainframe as an integral part of their entire infrastructure are well ahead, if they have executive support for their vision. The business executives who would like to achieve the same, but are fighting a cultural war with their colleagues on the distributed side or with executives who have an outdated opinion of the mainframe as "legacy" or who relegate the mainframe to the trusted purposes it was built for decades ago, will have a difficult time realizing the vision of the connected mainframe.

The greatest challenge for businesses with mainframes is justifying their future vision for the platform in terms of costs and benefits, disentangling not only the years of value that the mainframe has delivered but also the business benefits that new innovations can provide. IDC believes that this is a tall order. What can be said, and this is where the opportunity lies, is that businesses that embrace modernization, integration, and business innovation on the mainframe have reported not only new revenue and reduced cost, as this study shows, but also a more coherent future vision for how the business will benefit from a connected ecosystem.

Conclusion and IDC's Recommendations

IDC finds that organizations can and do successfully drive DX with their mainframe and achieve a compelling ROI. Adopters of connected mainframe strategy invested an average of $46 million in new mainframe hardware, software, and tools to realize five-year discounted benefits of $201 million per organization and a five-year ROI of more than 300% with an average breakeven period of 10 months. In addition, a few participants that considered or attempted migrations off the platform ended up paying higher costs or even regretting their decision.

For the nine participants, the mainframe is an integral part of their hybrid IT environment. They are demonstrating that the question is not whether or not the mainframe is part of the future of IT, it is really about the fit-for-purpose of platforms. The mainframe excels at certain tasks, and given proper transformation, organizations can realize the full potential the mainframe can offer. Today, all nine participants are forging ahead in making the mainframe a highly efficient, revenue-generating part of an open IT ecosystem.

IDC believes that for organizations looking to pursue a connected mainframe strategy, the technical, business, risk, and cultural aspects must work in concert:

» The initiatives categorized as "modernization" and "integration" in this white paper and industry adoption can serve as a guideline for the mainframe evolution.

» The organizations should foster knowledge sharing across their IT organization beyond the core mainframe team.

» The organizations should focus their teams on the business outcome to gain stakeholder buy-in. No platform in today's datacenter represents the "secret sauce" for digital transformation. Rather, each platform has its own role to play. IT's task is to maximize the business impact of the entire infrastructure, with disregard for old-fashioned cultural differences.

In conclusion, we believe that the time to pursue a connected mainframe strategy is now. Businesses can tap into a broad range of new capabilities to potentially earn a strong return on investment and competitive advantage.

Appendix

Demographics and Mainframe Environments of Interviewed Organizations

The demographics of the interviewed organizations are highlighted in Table 3.

TABLE 3

Firmographics of Interviewed Organizations		
	Average	**Median**
Number of employees	91,225	31,250
Number of IT staff	8,321	1,850
Number of IT users	89,444	31,250
Total number of business applications	3,595	1,400
Revenue per year	$27.6 billion	$11.4 billion
Countries	United States, Germany, and Switzerland	

n = 9
Source: IDC, 2016

Table 4 reflects the scale of interviewed organizations' mainframe environments and operations. On average, the organizations have 14 mainframes running more than 300 business applications. All interviewed organizations use their mainframes for significant transactional and batch operations and are increasingly leveraging their mainframes to support web, mobile, analytics, and user-facing workloads.

TABLE 4

Mainframe Environments of Interviewed Organizations

	Average	Median
Number of mainframes	14	7
Number of terabytes	2,095	873
Number of applications	307	250
Number of MIPS	136,500	70,000
Utilization rate	73%	82%

n=9
Source: IDC, 2016

Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations maintaining significant mainframe operations as the foundation for the model. Based on interviews, conducted in 2016, with nine organizations that are running important workloads on the mainframe, IDC performs a three-step process to calculate the ROI and payback period:

» Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support) and business impact (revenue) over the term of the investment compared.

» Ascertain the investment made in initiatives intended to modernize their mainframe platforms.

» Project the costs and savings over a five-year period and calculate the ROI and payback for the investment in their mainframe platforms.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

» Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.

» Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.

» The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.

» Lost productivity is a product of downtime multiplied by burdened salary.

» The net present value of the five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.

Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

IDC's analysis of the benefits and costs associated with interviewed organizations' connected mainframe initiatives, which informs the results shown in Figures 1 and 2 and Tables 2 and 3, includes the following:

» Investment costs in connected mainframe initiatives include incremental costs, including the cost of new mainframe hardware and associated software and tools, and annual maintenance fees.

» Benefits from connected mainframe initiatives include higher revenue (which is recognized for the purposes of IDC's model with a 15% operating margin assumption), higher IT infrastructure and application developer productivity, and cost savings related to mainframe licensing and power consumption.

IDC's analysis of the benefits and costs associated with interviewed organizations' use of connected mainframe platforms instead of more distributed alternatives, which informs the results shown in Figure 3, includes the following:

» Mainframe costs include the total cost of mainframe hardware with a five-year assumed life cycle, annual maintenance fees for the fourth and fifth years, annual licensing costs, power and facilities costs, IT staff time to manage and support the mainframe environment, and the cost of unplanned outages in terms of lost employee productivity and lost revenue.

» More distributed infrastructure costs include the total cost of more distributed server hardware with a five-year assumed life cycle, annual maintenance fees, licensing costs, power and facilities costs, IT staff time to manage and support the more distributed environment, the cost of unplanned outages in terms of lost employee productivity and lost revenue, and the staff time cost involved with potentially migrating applications to a more distributed environment.

Note: All numbers in this document may not be exact due to rounding.

Additional Customer Quotes

» *"Reaching new customers is the benefit that the business gets from all the new things that we're trying on the mainframe."*

» *"We introduced new ebanking and we had growth of four times more traffic without any cost impact (...). The new environment, the modernization, the new applications [on the mainframe] have contributed to the firm's overall revenue."*

» *"The mainframe is core to our strategy for developing our core applications. We believe that it will continue to be where we develop or extend any of our core applications to support our business."*

» *"From a pure business perspective, our mainframe is generating a lot more revenue than it used to. We just completed an acquisition, and their mainframe platform is coming over to us and be[ing] a huge revenue generator with those applications on the mainframe."*

» *"The mainframe is still the most cost-effective platform we have both in terms of overall reliability as well as the expense to run it."*

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