



# Intellyx White Paper

## Mainframe: Driver of Digital Transformation Success

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### Guiding Principles for New Development

In today's technology-fueled digital world, it's easy to lose sight of the importance of existing technology assets that run the business. Especially in large organizations, understanding the value of existing systems of record and incorporating those systems into digital efforts is a critical success factor for achieving the customer-focused goals of the business.

When systems of record are mainframes, it's especially important to leverage modern tooling from a company like Compuware. They have years of experience working with customers, and based upon those conversations, have developed a set of guiding principles for new development.

Compuware's guiding principles include:

- *Application Understanding* – Visualize the application portfolio and how to use it. Understand application logic, data and relationships.
- *Elegant Simplicity in Design and Usability* – Empower an emerging workforce through collaboration and communication, with role-aware views that unify people and platforms, across IT and the business.
- *Intellectual Property Preservation* – Safeguard back-end processing while optimizing business applications.
- *Intellectual Property Advancement* – Enable the mainframe for the digital economy by extending existing business logic to support new projects.
- *Cost/Performance Optimization* – Control legacy costs while investing in the future. Establish meaningful metrics to measure success.

## Mainframes are Here to Stay

Today's technology world – even in large organizations – could not be more exciting. Cloud computing, big data, Internet of things, digital technologies of all sorts and sizes. So many possibilities, so much potential value ready for the next winning idea.

When you peruse the portfolio of even the most cutting edge of enterprises, one piece of technology stands alone. Modern. Powerful. Blisteringly fast. And so reliable, our global financial system depends upon it every day, 24 x 7.

What is this leader among enterprise technologies?

*The mainframe.*

The mainframe, seriously? When people think of mainframes, they typically envision ancient, obsolete technology running arcane spaghetti code – systems that IT management would love to retire if only they could free themselves from the clutches of legacy.

While there is an element of truth in this perspective, mainframes remain to this day the workhorse of core transaction processing within many industries. In many cases the technology in these systems is modern or even surprisingly cutting edge.

Furthermore, retiring mainframes may not even appear on the long-term roadmap.

However, while mainframes aren't going anywhere any time soon, mainframe experts are. As this critical workforce retires, many enterprises are experiencing a skills crunch, requiring creative human resource and technology solutions.

Once again, human challenges trump technology issues in enterprise IT – but enterprises that can maintain the workforce for their mainframe systems will find these stalwarts of IT can serve as the transactional backbone for their digital initiatives.

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## The Value of Mainframe Data

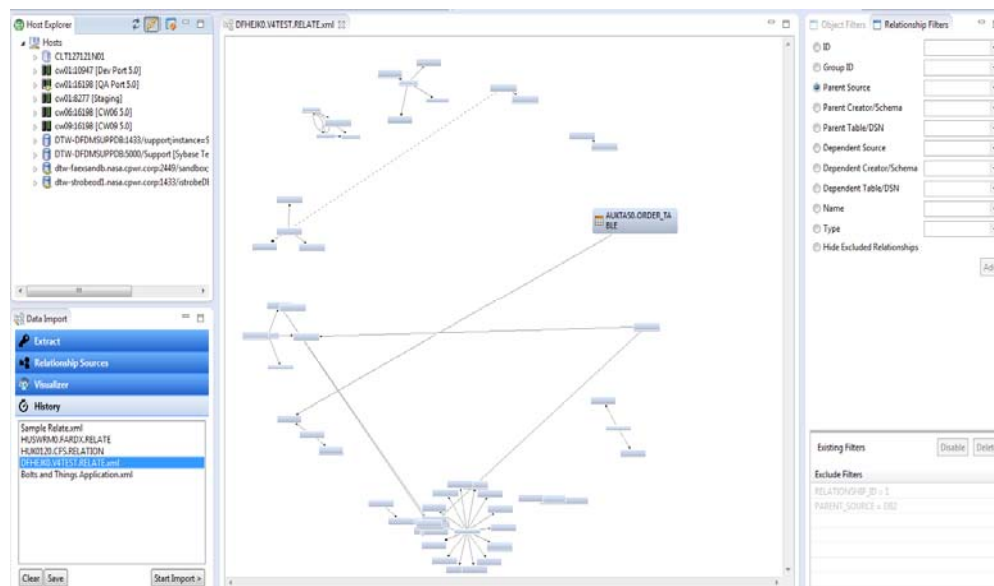
One of the reasons mainframes get such a bad rap is that in many cases – although not all – the application code on these systems is quite old, and may have various issues: missing source code, layers of “spaghetti” code, obsolete programming languages, etc.

However, even when the code on the mainframe has problems, the data on such host systems are typically quite valuable to the organization. In such cases, the mainframes serve as critically important systems of record – even as those enterprises undergo digital transformations. Enterprise digital efforts focus on customer preferences and behaviors, but critical information about those customers' transactions and everything else the enterprise knows about them are on mainframe systems of record.

As a result, digital efforts must repurpose mainframe data in mobile apps, analyze such data with Big Data analytics, and otherwise incorporate mainframe data into the full range of digital deliverables so important to maintaining strong customer relationships.

To understand such data on the mainframe, it is essential to understand the context for those data – the applications that generate and interact with mainframe-based information, and the established governance around those data. Even when business needs do not require any changes to existing mainframe applications, today's developers must be able to visualize the application portfolio in the context of how the organization uses those applications.

The goal of such visualization is to help developers understand mainframe-based application logic, data, and the relationships among them. The illustration below shows the Compuware Topaz Relationship Visualizer, revealing the relationships among mainframe-based data in a format today's developers will find familiar and easy to use.



**Compuware Topaz Relationship Visualizer (Source: Compuware)**

## Dealing with Mainframe Applications

Even though mainframe-based applications may be difficult to work with, they represent essential intellectual property of the organization. In many cases, how the enterprise does business at its most fundamental level depends upon the logic locked away in such applications. It is a business priority, therefore, to preserve such intellectual property and to safeguard the corresponding back-end processing that takes place on the mainframe.

Sometimes, of course, business needs require changes to mainframe applications. In other situations, developers can satisfy new application requirements for mainframe logic without having to change the code on the mainframe itself. Visualization of the mainframe application portfolio is essential for making

such calls, as the optimization of business applications may involve updating mainframe applications or integrating existing applications with new ones.

The call for legacy modernization, therefore, is not a black or white decision. Sometimes business needs drive dramatic changes on the mainframe – or in some cases, replacement of the mainframe altogether – but such drastic modernization efforts are rarer than people might think. Mainframes are simply too powerful and useful a platform to jump to any conclusions about how modernization requirements will impact them.

In fact, even in organizations that have undertaken substantial digital transformation, the systems of record may not have been substantially effected. In such situations, the IT organization is still responsible for maintaining such systems until their end of life.

However, organizations who have successfully navigated the rapids of digital transformation may favor a lighter weight, iterative approach to legacy modernization over high-risk, big bang projects.

## The Challenge of a Changing Workforce

Perhaps the greatest challenge many organizations' mainframe efforts face is the aging workforce. The mainframe is a 50-year-old technology, and some professionals have been working in this space for over forty years. Replacing them can be very difficult. As experienced mainframe professionals retire, the burden of leveraging high-value mainframe data falls to a new generation of developers and data architects who are unfamiliar with such systems.

Mainframe software vendor Compuware is also working with companies to address the skills issue. In a [recent white paper](#), they point out several market forces working to counteract the skills squeeze. For example, “shrinking supply relative to demand will increase the earning potential of younger tech professionals” who choose to build their mainframe skills, especially in contrast to “the commodification of other more commonly pursued disciplines such as Java programming,” according to the white paper.

Compuware considers taking proactive steps to maintain a qualified mainframe workforce an aspect of mainframe stewardship in enterprises that rely upon such systems. “We believe that the time to start acting on these stewardship issues is now,” [says](#) Chris O'Malley, CEO and President at Compuware. “With the right strategy, next-generation CIOs can leverage their mainframe application portfolios in ways that generate transformative business value and sustainable competitive advantage.”

Compuware uniquely addresses this critical issue by empowering mainframe-inexperienced IT pros to discover, understand and work with both mainframe and non-mainframe data in a common, intuitive manner.

Mainframe tools like the ones that Compuware provides are essential for addressing the skills challenge. Today's technical workforce expects high levels of usability from their tools – usability that older

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mainframe tools traditionally haven't offered. Such tooling must provide a consistent user experience that the next generation workforce is already familiar with from open systems distributed environments.

It's also important for today's mainframe tools to empower the emerging mainframe-savvy workforce through collaboration and communication to help transfer the skills and knowledge from the older, retiring staff. Modern mainframe tools must therefore support role-aware views that unify people and platforms – both within the IT organization and also between IT and business users, many of whom are driving the digital effort.

Making mainframes an integral part of an enterprise's digital efforts can even help address the skills shortage. "Because mainframe systems of record are becoming so intimately associated with web/mobile systems of engagement, the mainframe workforce is likely to become less segregated from the rest of IT," according to the Compuware paper. "This will help attract younger tech professionals who want to stay at the forefront of web/mobile innovation."

Careers for mainframe-savvy millennials promising lucrative salaries and many years of robust demand for their skills won't hurt either. The old guard may be retiring, but the mainframe remains well-positioned to be the digital workhorse for the new millennium.

## The Significance of Digital Transformation


In spite of the seemingly endless list of digital technology buzzwords, digital transformation isn't about the technology. It's about the *customer*. Today's customers – both consumers and business-to-business – demand multiple technology touchpoints with the companies they buy from and work for.

This digital technology story is not all about the user interface. Enterprises must connect the user experience to existing systems of record in a complex, distributed, cloud-based world. Every element of this elaborate end-to-end dance must perform at top speed, every time. Customers demand nothing less.

For enterprises with systems of record, trying to achieve the benefits of digital transformation without dealing with existing mainframe assets is a fool's errand. Many organizations think of their legacy IT as a single Gordian knot of complexity, where the only way to fix it is to somehow fix or replace the whole thing – an impossible task that would never come close to justifying its expense.

But remember, legacy is not monolithic. It's heterogeneous and multifaceted. Core business agility drivers from transformation initiatives must connect to specific goals while moving systems of record toward agility, not away from it.

However, today's digital strategies face a potentially crippling trend: the separation of the digital transformation effort from the day-to-day running of the IT shop. The lure of this bifurcation is unmistakable. CIOs have their hands full simply keeping older systems of record up and running, while the digital effort is entrepreneurial, fast-moving, and deals with customer-facing systems of engagement.



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It's as though they are two separate worlds, with different priorities and different ways of operating. Don't fall into this trap. Remember, mainframes run the business, as they have for years. They contain invaluable data, institutional knowledge, and support for the core business processes that drive the bottom line. Only those organizations that properly leverage their deep IT assets will prevail with their digital strategies long term.

The good news: the digital transformation effort can – and should – drive modernization in IT. The secret is to take a flexible, business-driven approach that takes modernization one step at a time, and focuses on what's important.

In many cases, existing mainframe business logic still provides value, but the team must extend it to support new projects. This intellectual property advancement can help organizations enable their mainframe for the digital economy. In particular, mobile transactions – as well as other even more progressive digital offerings – are driving innovation, and the mainframe remains at the center of such efforts.

### Why Change at All?

The fundamental driving force behind all digital transformation initiatives is a renewed focus on the customer. Today's customer behaviors and preferences, however, are constantly in flux, driving a need for business agility at the businesses that meet the needs of today's digital customers.

To achieve such agility, organizations themselves must transform – the *transformation* part of digital transformation. Such change means building a more resilient organization that can drive innovation using modern approaches like DevOps and Agile software development.

Nevertheless, such organizational change must always fall within the boundaries of the enterprise's business priorities. Executives must keep an eye on their cost/performance optimization tradeoffs, controlling legacy costs while investing in the future. And they must establish meaningful metrics to measure the success of their digital transformation initiatives.

Transformation, after all, isn't a goal for its own sake. Change only when the business requires change. Remember, the digital efforts are likely to be more in touch with customer-driven change than the IT department. As a result, disruptive change actually encourages collaboration end-to-end across the organization.

After all, change is always difficult and often expensive. For existing, "traditional" IT, an important maxim is that *if it ain't broke, don't fix it*. Remember, traditional isn't a bad thing in and of itself if the system in question meets the business need. For most enterprises who have been relying on mainframe systems of record, such systems promise to continue to provide value well into the digital future.

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