CIO Challenges:
Mounting Technical Debt with an Unclear Roadmap

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What are the main concerns facing Chief Information Officers today? Orbus Software have identified 8 major issues that every enterprise is likely to struggle with when it comes to meeting the demands of the digital age.

The concept of technical debt has been well understood in software development for decades, but it applies just as well to a firm's overall technology infrastructure. Enterprises will often maintain legacy systems well beyond their useful life, or cut corners to meet project deadlines and then fail to adjust or update the technology workarounds used. As these old and low quality systems proliferate, costs rise and it becomes increasingly difficult to enact changes. This eBook will look at how technical debt will mount for businesses and the difficulties of addressing this problem without a clear and sensible roadmap.

OrbusSoftware

CIOs estimated that tech debt amounts to 20% - 40% of the value of their entire technology estate

KEY STATS

1. A Deloitte study found that 30% of Infrastructure components were at end of support across enterprises

2. Gartner estimate the total global IT debt to be around US$1trillion

3. 79% of IT Leaders agree that Technical Debt makes the IT function less responsive to change

4. 83% of leaders state that technical debt greatly increases costs

5. Research by Google found that respondents with high technical debt were 1.6 times less productive

Technical Debt Challenges

Originally, 'tech debt' described the issue of short-term development decisions that would at some point need to be 'paid back', or problems would begin to mount. A simple example would be a choice of programming language: a project is coded in PHP because it will enable an MVP to be released sooner. As more features are added, developers will be forced to use this difficult language and in the long run production will slow down. Eventually, everything will need to be refactored and the size of the tech debt will determine how large of a refactor this will be.

Technical Debt is a balancing act. At some point, the costs of change and disruption will outweigh the initial gains, but that doesn't mean it is wrong to take on tech debt. Enterprises just need to have to a clear plan to address debt so that they come out on top, whether in software development or the creation of the entire technology landscape.

Businesses prioritize speed too much. Despite this need for balance, many enterprises find themselves unprepared to deal with legacy technologies and other aspects of tech debt. The size of debt keeps mounting, placing more and more pressure on the firm. One factor in this is the need for speed. The pace of change, internally and externally, is very high, and enterprises simply do not have the luxury of spending time on perfect solutions, instead of just aiming for good solutions.

Similarly, the average enterprise will be oriented towards the short term. Stakeholders want progress, and they want it now. Going back to redesign a database simply isn't flashy enough compared to building new sets of big data analytics.
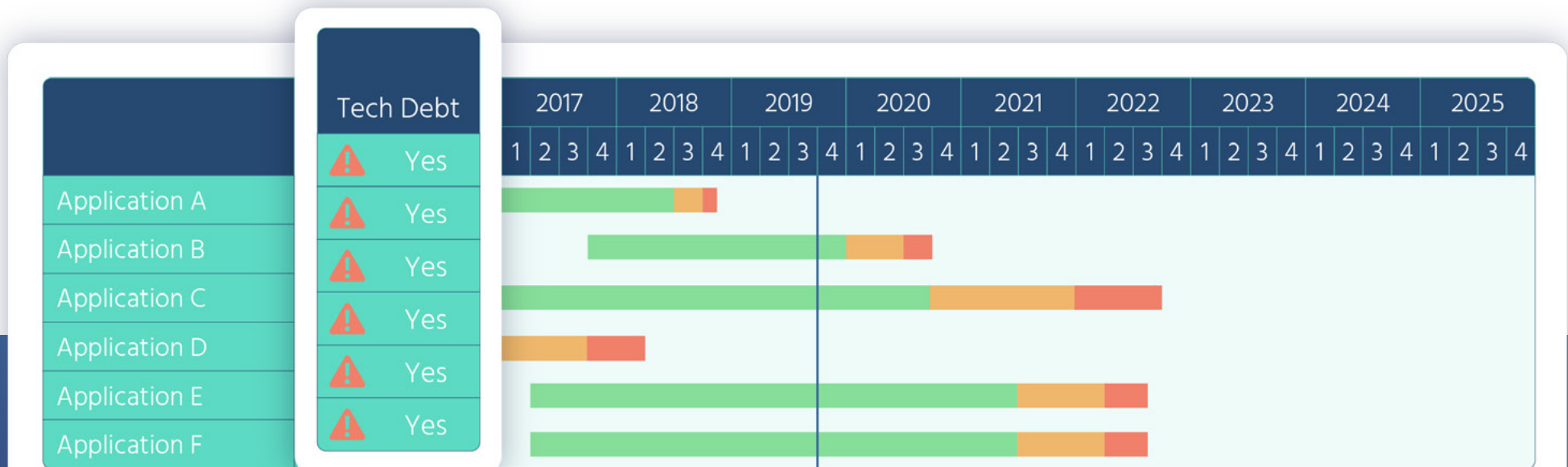
No Room in the Budget

Even if technology leaders focused on eliminating or preventing the build-up of technical debt, there are constraints they have to work around. One is their budget. Even a CTO cannot unilaterally increase the funding available to them, meaning at some point choices will have to be made. And given we already know that speed and progress are important, the likelihood is that addressing technical debt will fall by the wayside.

Unclear Future

A much larger issue than finding the resources necessary is understanding what aspects will create or preserve technical debt, and what will be strong foundations. In the long term, no one would expect a firm to get every investment decision correct, but even in the short and medium terms, business strategies and priorities can change wildly, while external trends are subject to constant turbulence. In a way, accruing technical debt can be seen as a hedge against uncertainty, since simpler, lower cost implementations may be abandoned in the future.

	Tech Debt	2017				2018				2019				2020				2021				2022				2023				2024				2025			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Application A	⚠ Yes																																				
Application B	⚠ Yes																																				
Application C	⚠ Yes																																				
Application D	⚠ Yes																																				
Application E	⚠ Yes																																				
Application F	⚠ Yes																																				

Identifying Technical Debt is Difficult

We have identified several factors contributing to mounting technical debt, but that is only one part of the issue. Companies also face problems removing technical debt once it has accrued. How do you determine what is contributing to technical debt?

It is hard enough for companies to retire old applications on time. Every application and technology will have stakeholders interested in maintaining its use and able to describe the benefits that it brings. Sunk Cost Fallacy can also be a powerful influence, preventing managers from taking the painful choice to eliminate a long supported technology.

End of Life in the next 12 months

End of Life overran

End of Life unknown

Many technologies and applications will have unclear or untracked lifecycle dates, while understanding which new apps or technologies replace which predecessors can be difficult. It is not uncommon for a business to have multiple versions of the same application in use at the same time across the business.

Further, calculating the financial cost is not easy. The core maintenance cost for legacy technologies is clear, but the more relevant costs will be opportunity costs, or the 'interest' on the tech debt, which are far harder to determine.

KEY STATS

1. A leading software firm went from 75% of engineer time spent on tech debt to 25% through debt management

2. A Financial Services firm 58% additional hidden costs in their IT total cost of ownership

3. Gartner state that I&O leaders who actively manage technical debt will achieve 50% faster service delivery times to the business

Technical Debt Solutions

Though mounting technical debt is a problem arising from many factors, it should be easy to solve: making use of application and technology roadmaps to plan and manage the removal of technical debt. Roadmaps communicate and influence change, earning buy-in from key stakeholders and providing a plan of action to achieve goals – in this case, the removal of redundant technologies and data. However, there are barriers to effective roadmapping which prevent their easy deployment in organizations.
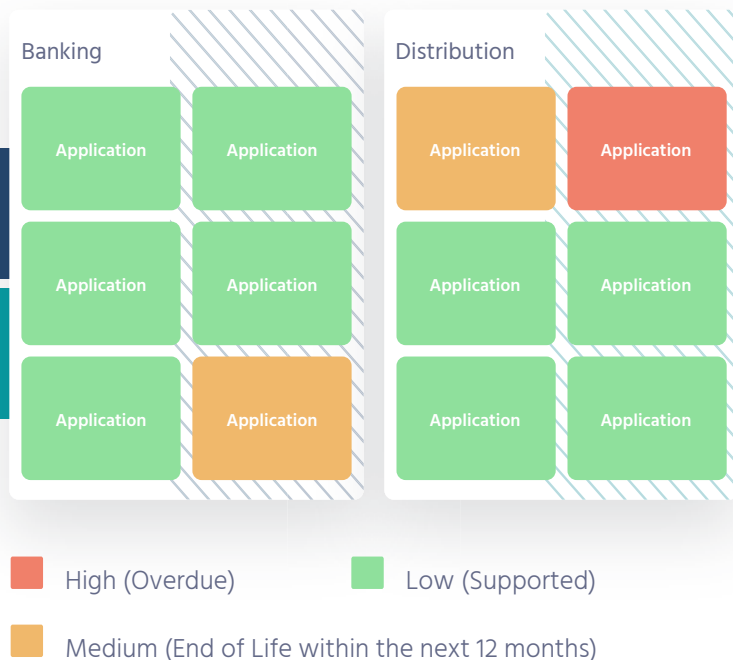
The Need for Architecture

In order to construct a technology roadmap, one needs to know the current state of technology, and the target state. Establishing a target state several years in the future is not easy, but many roadmaps are actually held up by a lack of understanding of what technologies and applications a business already uses. Businesses need to maintain views of their technology and application portfolios that can illuminate legacy technologies and other forms of technical debt. To do this, the best practice is enterprise architecture, providing a blueprint of the business and a single source of truth for applications, technologies, data flows and their lifecycles.

Continually Rationalize the Application Portfolio

The uncontrolled growth of applications at most businesses should not be considered technical debt, but it does contribute to difficulties managing it. When legacy infrastructure seems to be supporting many applications, it can be difficult to convince stakeholders to remove or change it. However, if many of those applications are unnecessary or unused, it can be much easier to persuade stakeholders to remove infrastructure contributing to technical debt.

Application Landscape by Technical Debt:

Banking

Distribution

Application	Application
Application	Application
Application	Application

Application	Application
Application	Application
Application	Application

■ High (Overdue)   ■ Low (Supported)

■ Medium (End of Life within the next 12 months)

Leverage Cloud Solutions

One method that can prevent technical debt from accruing is to rely on SaaS products and other cloud-based services. As the cloud enables service providers to continually and seamlessly update their products, the risks of certain services or applications becoming outdated is lessened. The need for cloud migration does pose a "chicken and egg" problem in some cases, as technical debt is often what prevents cloud migrations in the first place, and firms are faced with the need to reduce tech debt to enable migrations that can reduce tech debt.

The iServer Suite for Enterprise Architecture:
Manage the Removal of Redundant Technologies and Data

Technology Roadmapping, Application Rationalization and Cloud Migration provide the organization with the necessary tools to establish a modern, efficient technology landscape. As mentioned above, there are often barriers to effective roadmaps or cloud migrations which can prevent firms from fully utilizing these methods. A specialist tool, such as the iServer Suite, is required.

The iServer Suite has won Gartner's Peer Insights Customers' Choice for EA Tools for 5 years running, and was named a Leader in the EA Tool space by Forrester. **Here's how the iServer Suite can provide the tools needed to remove redundant technologies:**

Understand the Current Landscape through a Single Source of Truth
A web-based, central repository manages all enterprise content, creating a single source of truth for your application and technology portfolios. Bring clarity to the infrastructure landscape to establish current states quickly and easily.

Insights for Smarter, Faster Decisions
Deliver rapid decisions on technical debt with iServer365's dynamic heatmaps, data-driven graphics and roadmapping capabilities. Deliver clear, engaging roadmaps that gain buy-in from key stakeholders.

Retire Redundant Applications
iServer365 application portfolio management capabilities drastically simplify the process of rationalizing old and unnecessary applications, clearing the way for redundant technologies and data to be removed.

Migrate Old Technologies to the Cloud
Evergreen Cloud solutions can negate the problem of legacy tech debt, and iServer365 is a powerful tool for guiding your cloud migration journey. With a detailed understanding of data flows and of application integration, the migration process is simplified and disruptions minimized.

See for Yourself How to Remove Technical Debt

Book a tailored demo today to find out how the iServer Suite helps address mounting technical debt through managed removal of redundant technologies and data:

Book a Demo

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