IT ALLY
institute

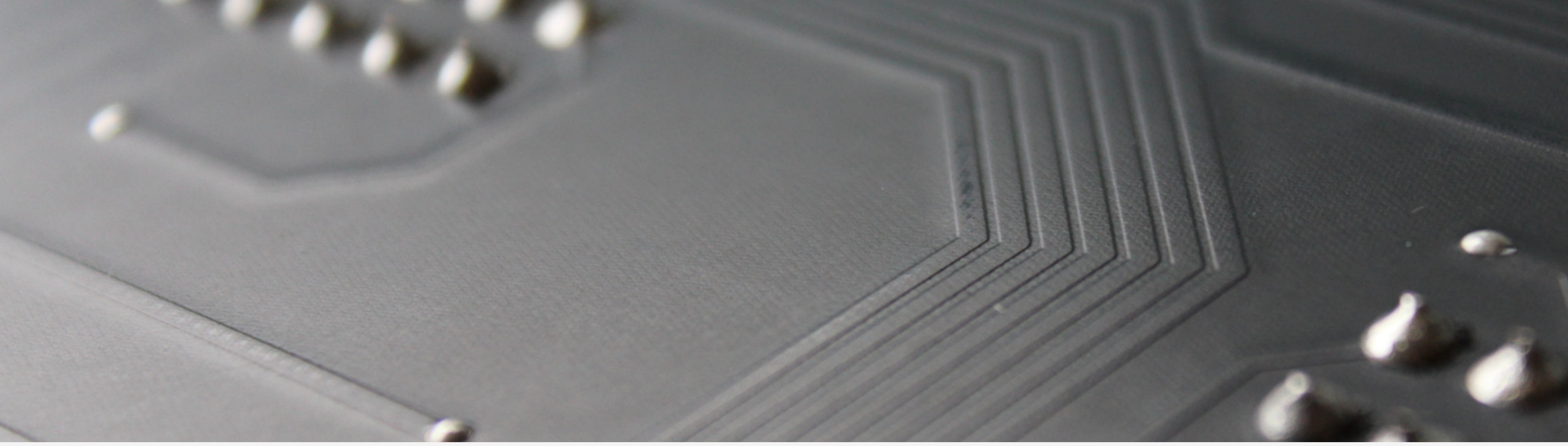
Four Years of Measuring Tech Debt 2.0 in SMBs

The Tech Debt 2.0 Diagnostic instrument was launched in October 2019 a few months prior to the publication of Tech Debt 2.0 How to Future Proof You Small Business and Improve your Bottom Line by Michael C. Fillios. In these past 3 years 135 owners, executives and managers have used the 9 category, 54 question instrument to self-assess Tech Debt 2.0 in their own organizations. Additionally, organizations have been independently assessed 23 times using this same instrument by IT Ally LLC consultants to aid in assessing current state and creation of an IT improvement road map for those organizations.

In this report we share findings from these assessments.

March 2023

Michael Swenson and Michael Fillios



Overall TD 2.0 Score

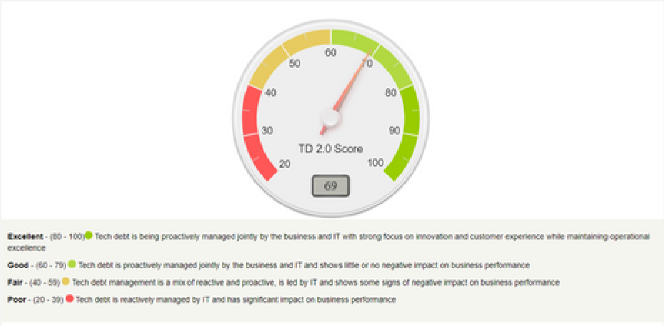
Measured across 158 respondents the average weighted score was 63. The 63 is just into the lower end of what we label the Good zone (60 to 79).

Importance weights are allocated between questions within a TD 2.0 category and then once more between the categories. The finalized weighted scores are normalized to top out at 100 and bottom out at 20 giving anyone who is willing to evaluate themselves at least a minimum of 20 for the very fact that they care enough to measure their own organization.

Each respondent / organization receives their own personalized report. Included here is an excerpt of the overall scoring section.

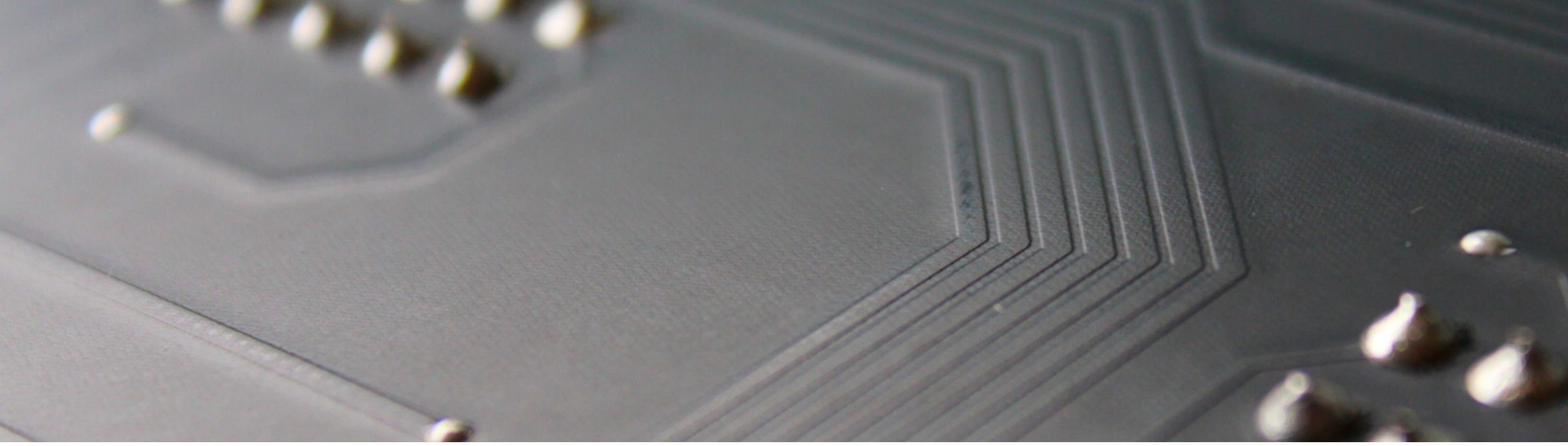
As seen in the snippet from the report we consider that organizations that score 80 to 100 are in the Excellent zone where “Tech debt is being proactively managed jointly by the businessand IT with strong focus on innovation and customer experience while maintaining operational excellence.”

We have had 17 (11%) respondents rate their own organization in this excellent zone.



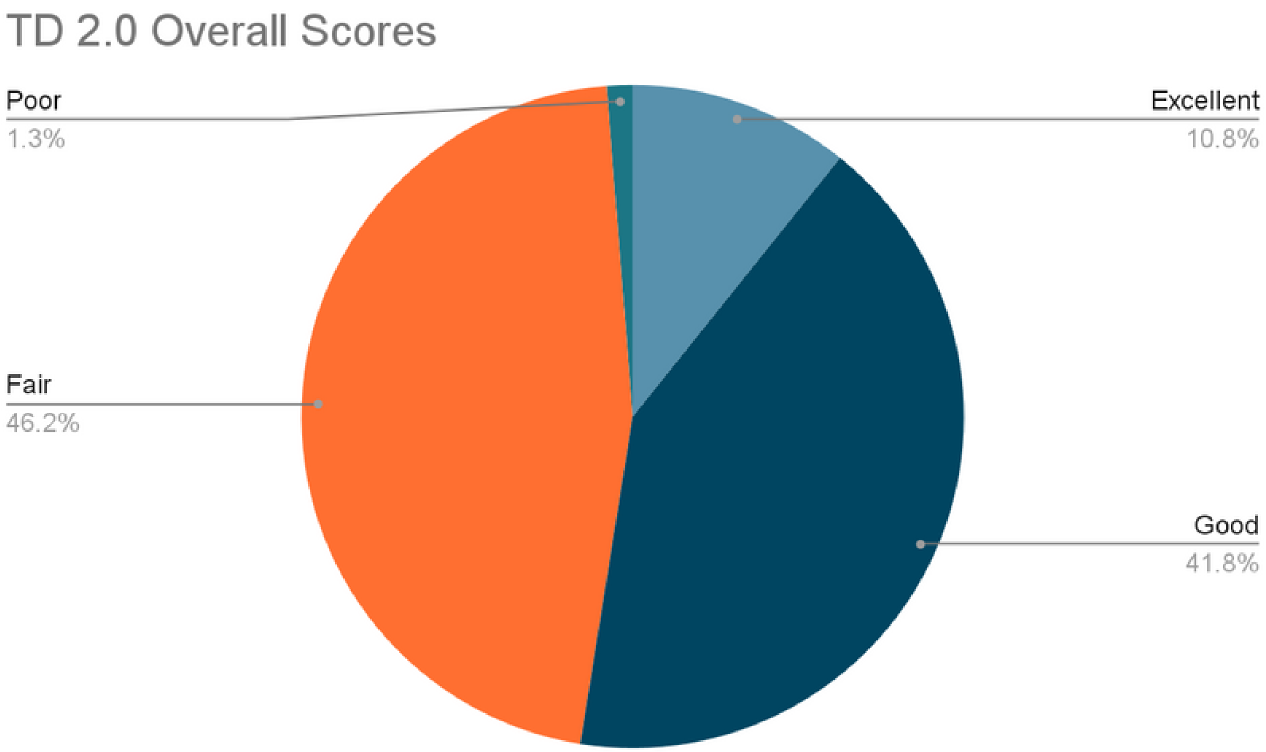
Another 66 (42%) of respondents rated their organization in the Good zone from 60 to 79 points. We describe Good as: “Tech debt is proactively managed jointly by the business and IT and shows little or no negative impact on business performance.”

We describe the zone from 40 to 59 points as Fair. “Tech debt management is a mix of reactive and proactive, is led by IT and shows some signs of negative impact on business performance.” And, 73 (46%) of respondents rated their organization within this zone.



The Poor zone from 20 to 39 points is characterized as “Tech debt is reactively managed by IT and has significant impact on business performance.” Organizations were very rarely rated this poorly with only 2 out of 158 (1%) respondents rating their organization this harshly.

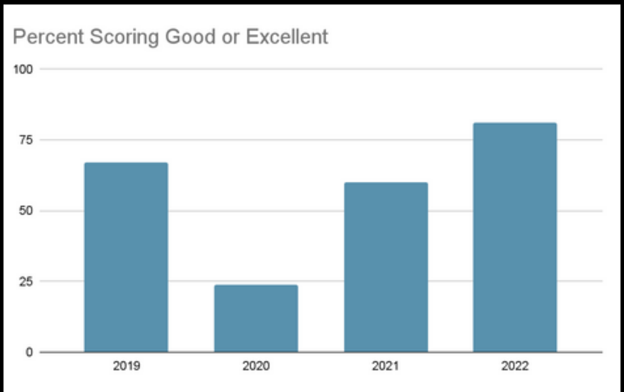
The reader should note that these scores are from SMBs that recognize that technical debt accumulates in organizations and have either read a book about the subject or have engaged a consultancy to conduct an assessment of their IT organization and technology stack. We expect these organizations are better than average among all SMBs. Many leaders of SMBs are largely unaware of the technical debt and risk they have accumulated and if assessed fairly would typically score lower than our current sample.



Changes Over Time: The WFH Wakeup Call

We have seen some changes in Tech Debt 2.0 Diagnostic scores across the 4 years in which we have collected data from 2019 through 2022. The COVID-19 pandemic and government mandated responses negatively impacted many businesses. We noticed a dip in scores in 2020 and subsequent recovery in 2021 and 2022. We believe that the pressure to rapidly come to terms with supporting widespread work from home (WFH) during the shut down of 2020 showed many SMBs the weaknesses in their IT infrastructure and applications. e to business pressure during this season of business disruption.

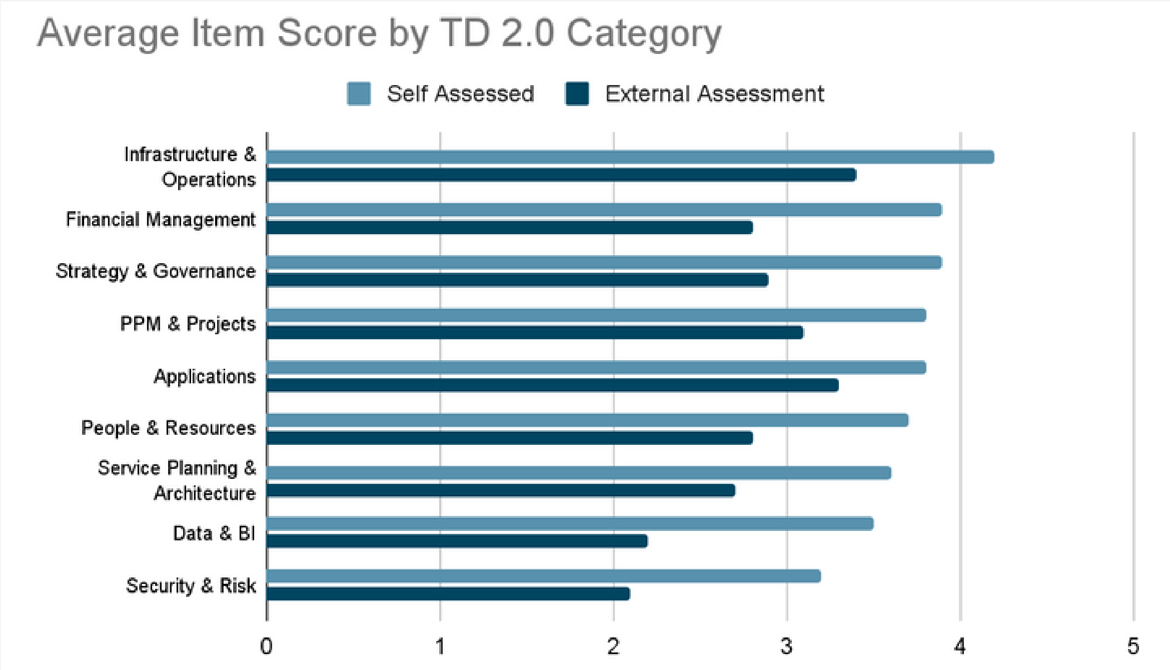
Those organizations that had more modern technology stacks with many applications supported through cloud technologies had a much easier time enabling WFH. SMBs with legacy applications on aging infrastructure had a wake up call on the real business cost of allowing technical debt of all types to accumulate. We have seen many organizations taking steps to remediate Tech Debt 2.0 as they emerge from the worst of the pandemic.



Digging Deeper By Category

Recall that the 54 questions of the Tech Debt 2.0 Diagnostic are organized into 9 categories. In this section we dig deeper by taking a look at each category.

the barchart below we show the average score for questions in each category as self-judged and externally assessed.



Comparing Categories of Tech Debt 2.0

Self-assessment is more optimistic about Tech Debt 2.0 across all categories as compared to the average external assessment. However, when ranking the categories according to their average question score, both internal and external assessors tend to agree, at least at the extremes of the leading and lagging categories. Individual questions are scored on a 1 to 5 scale where lower means accumulating more tech debt and higher means the organization is managing and preventing tech debt within that specific aspect of Tech Debt 2.0.

Leading the way with the least accumulated tech debt is the category of Infrastructure & Operations. Executives and eternal assessors both tend to agree that SMBs are typically carrying the least debt in this area and are scoring pretty well on things like system uptime, and keeping hardware such as servers, networks and client machines uptodate.

At the other end of the spectrum, both Data & BI and Security & Risk categories score the lowest in both self and external assessments.

In the following sections we dig a bit deeper into each of the categories highlighting more specifically where companies are typically executing better and where they are most often needing to take action to “pay down” their debt.

SECURITY & RISK

The Tech Debt 2.0 Diagnostic measures 7 distinct elements of security preparedness and capability. While Security & Risk ranks lowest as a category, SMBs feel like they are doing fairly well on “implemented security technologies to protect against third party risks” giving themselves an average score of 4.1 out of 5, while external assessment is only a 3.0 it is still the aspect of security that is rated highest. Protecting against third party risk typically includes network and server security products such as firewalls and anti-virus protection.

However, each of the following security best practices are typically rated poorly by external assessors.

- We budget for and track security investments separate from overall IT spend (1.7)
- We provide security metric reporting to our key stakeholders (1.7)
- We have knowledgeable executive oversight and maintain internal organizational talent assigned to cyber security (1.9)
- We can rapidly contain damages and mobilize a response team when a cyber incident occurs (1.9)

In his book Tech Debt 2.0 How to Future Proof You Small Business and Improve your Bottom Line (pg 29), Michael Fillios quotes Kiersten Todt, managing director of the Cyber Readiness Institute According to Kiersten Todt, managing director of the Cyber Readiness Institute (CRI), mindset may be part of the reason.

SECURITY & RISK

While many leaders of SMBs know cybersecurity is an important issue, they may not have an adequate strategy or even the bandwidth to deal with it.

“The challenge is, how do they fit cybersecurity into their missions,” Todt asks. “How do they fit it into their budgets? How do they fit it into their human resources, their financial resources? How do they translate their awareness and knowledge of the threats into action?” (Book pg 29)

IT Ally consultants continue to draw attention to the need for leadership in cybersecurity as articulated in the () From SMEs For SMEs: Cybersecurity Tips for Small and Medium-Sized Enterprises It’s important to have a designated person spearhead your company’s cyber efforts. Assigning a person with authority to be your “Cyber Leader” highlights your commitment to cybersecurity and provides an additional professional — and relevant — experience for the individual. In addition to ongoing cybersecurity management, the Cyber Leader can adopt and share best practices that employees can implement and be the point person when employees have questions or when cyber incidents occur.

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DATA & BI

Tech Debt 2.0 measures debt in 4 specific aspects within the Data & BI category.

The best rated of a rather mediocre set as assessed by external consultants are

- Data integration requires lots of manual intervention and cleaning by business users often using vlookup and matching in Excel (self 3.5, external 2.6)
- Much of our data seems trapped in its own silo (self 3.5, external 2.5)

So relatively speaking most of the SMBs evaluated are not trapped in the most rudimentary data silos with lots of manual integration using spreadsheets. However, that doesn't mean they are particularly advanced in their data management practices with

- We have strong data governance and quality control processes in place for data resources (self 3.3, external 1.7)

Assessments of Data & BI tech debt and capabilities represent some of the sharper differences between internal self-assessment and external 3rd party assessment.

MICHAEL SWENSON, EXECUTIVE DIRECTOR OF IT ALLY INSTITUTE SAYS

> We find that many SMB leaders mistake access for integration. It is one thing to be able to generate a report or export a spreadsheet from a customer management system but users are often left to vague hand-waving types of generalizations about how that data connects to other sources from demand monitoring to manufacturing. Real data integration is difficult, but often yields breakthrough insights that drive better business decisions.

SERVICE PLANNING & ARCHITECTURE

Tech Debt 2.0 is measured in Service Planning & Architecture using 7 questions. Overall, it ranks third worst as a category.

The aspect in which SMBs typically score best, both in self and external assessment is the basic control of business processes. They mostly disagree with “Our business processes feel ad hoc and chaotic” scoring an average of 4.0 in self and 3.3 in external assessments. This is suggestive that SMB leaders understand the value of well defined business processes.

However, when asked about the “faithful use of version control for applications and systems” they rate themselves much more poorly. The paradox is that while feeling that the processes themselves are sensible and controlled, they acknowledge low usage of the tools that enable the same control of processes and ability to implement change and secure rollbacks within IT that supports the business processes.

While external assessors largely agree that the use of version control is generally poor, they rate two other aspects even lower.
We apply agile development principles to IT services and development
Our IT services and architecture help the whole business be agile and respond to changes in the market or our customer base

This lack of agility can be a significant hindrance to business. Consider this excerpt from Michael Fillios’s Cart-Path-Only: Is your SMB Lacking Business Agility to Sense and Respond to Market Changes?

Agility has always been a hallmark of large successful, established companies. But with today’s levels of uncertainty, ambiguity, market volatility and globalization, agility is essential for any company. If you think you’re still in a corner where this doesn’t hold true, wait for the disruption to come. Tomorrow it will be relevant for you.

From a technology perspective, inflexible legacy IT systems, technical debt, antiquated infrastructure, insufficient skills and resource constraints, budgetary challenges, a short-term planning perspective, an ineffective governance process and data quality issues, could be the “cart-path-only” placards constraining your game.

It’s easy to envision how these limitations cause a competitive disadvantage. It results in the inability to meet changing customer needs, to address regulatory and compliance requirements, increased exposure to security risk and ultimately an inefficient and costly operating model.

PEOPLE AND RESOURCES

Tech Debt 2.0 measures People and Resources across 6 specific aspects. Overall this category scores in the middle of the spectrum, ranking 5th in 9 categories.

Within the category, both self external assessors agree regarding where these SMBs are rated best. Largely disagreeing with the following:

- “The accumulation of legacy systems often interferes with the ability to recruit talented personnel for the IT team.” (avg self assessment 4.4, external 3.7)

Within People and Resources the aspect which scores the lowest is taking a deliberate approach to technical debt reduction by assigning personnel. They largely disagree with the following:
Our IT organization and job descriptions explicitly assign responsibility for managing and remediating technical debt (avg. external assessment 1.9)

- Our company rewards personnel who successfully retire or migrate systems (avg external assessment 2.2)

One of the challenges is finding and rewarding people for remediating technical debt and retiring legacy systems. This specific challenge sits within a broader challenge as explained in our Human Resource Management
In other words, actually acquiring and retaining employees with the technical skills and ability needed to transform an organization and prepare it for a digital future isn’t happening. This is particularly challenging for small to medium sized businesses at a time when unemployment is the lowest in decades.

DON'T OVERLOOK THE HUMAN DIMENSION OF TECHNOLOGY!

Applications
Tech Debt 2.0 measures debt within applications across 5 specific aspects ranging from documentation to customizations and ease of maintenance.

The aspect that self assessors rated most highly was budget growth committed to maintaining applications. They largely disagreed with the following:
It seems that more and more of our budget and personnel are consumed with maintaining applications (avg self-assessed score 4.3)

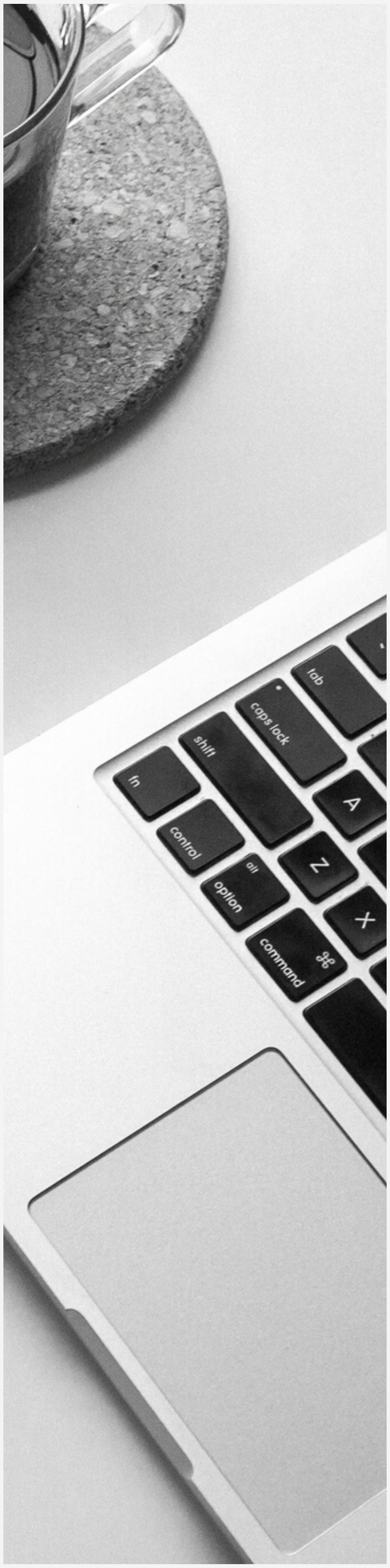
he aspect of application health where external assessors rated the SMBs most highly was largely disagreeing with
Our key business applications are really showing their age (avg external-assessed score 3.9)

The aspect that self assessors scored their organizations the lowest on was dependence on customized applications
Our company is highly dependent on custom (or customized) applications (self 3.3)

External assessors focus somewhat differently when thinking about where improvements need to be made scoring the following lowest within applications
Our applications are robust and easy to modify in response to changing requirements (external 2.6

While we often focus on reducing technical debt of all types, applications is one space where technology focused SMBs often take on Intentional Tech Debt, explained in our Enterprise Architecture and Tech Debt.

Changes in market dynamics as the customer base struggles to understand their new needs, constraints and opportunities invite architects and product developers to consider incurring Intentional Tech Debt. By releasing prototypes and minimal viable products (MVPs) customers become partners in product development, helping to build the plane even as it reaches cruising altitude. Architects know this will entail false starts as perceived requirements morph or fade away and require rework as the product matures. But the approach may buy competitive advantage as all players scramble to find their way in the new market space.



PROJECT PORTFOLIO MANAGEMENT (PPM) & PROJECTS

Within PPM & Projects Tech Debt 2.0 measures 6 specific aspects from planning and prioritization to project process and typical outcomes. As a category this ranked 4th best out of the 9 categories. Within PPM & Projects, self-assessment and external assessment both agreed about the best and worst scoring aspects.

On the positive side there is general confidence in prioritization.

- IT projects are prioritized in collaboration with stakeholders to ensure buy-in (self 4.2, external 3.6)

The weakest aspect was in consistency of process

- IT projects are managed with a consistent structured process (self 3.4, external 2.5)

In our 8 Techniques to Identify Requirements for Your Projects we expand on the challenge of consistent project management in SMBs
For SMBs delivering successful projects is a major challenge. Wrike, the collaborative work management company says barely half IT project managers have any certification. That is quite often the case for small and medium size businesses. One key to meeting this challenge is to begin projects with a robust requirements gathering plan and process.

STRATEGY & GOVERNANCE

In Tech Debt 2.0 we measure 8 aspects of strategy & governance ranging from perception among executives to strategic alignment and ongoing performance monitoring.

Self-assessors are most confident that they are actually retiring legacy systems by typically disagreeing with the following:

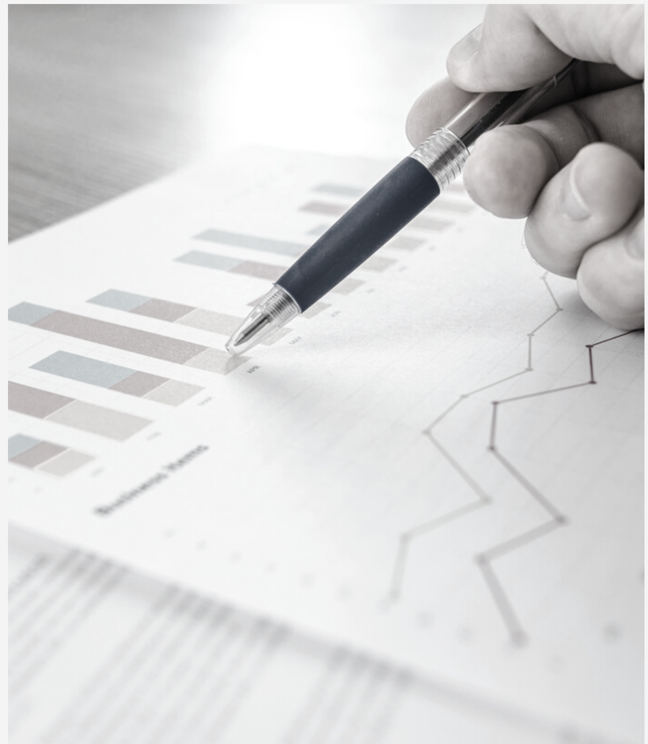
- Our company rarely retires legacy systems we just layer on new overlapping systems (self 4.3)

External assessors rate organizations strongest on their ability to avoid hurried decisions by disagreeing with the following:

- Significant technology decision are often hurried and chasing trends or hype (external 3.7)

On the other end both self and external assessors converge on what is weakest by disagreeing with the following:

- Our company has clear tracking of IT performance on multiple dimensions (self 3.4, external 1.9)



As we assert in our Why Strategic Technology Management is Essential for SMBs

Technology Management is as important as the technology itself
Compared to other disciplines such as finance and accounting, technology management is in its infancy. As we have seen in the industry, there are new roles evolving that were not even in existence three or five years ago; roles such as data scientist, cloud architect, agile developer, and chief digital officer to name a few.

As IT leaders, we should never fall in love with the hottest current trend or technology, rather we should be thinking about how it will be used to solve a real business challenge. Technology for technology's sake is never a good thing. This mindset and style of leadership is crucial, as the business/technology convergence becomes the norm regardless of the size of company, industry or geography.

FINANCIAL MANAGEMENT

ech Debt 2.0 measures financial management across 5 specific aspects ranging from budgeting, to project prioritization and vendor management.

Self assessors rated budget alignment with strategy highest typically agreeing with the following:
Our IT investments are clearly supportive of our corporate priorities and strategy (self 4.2)

External assessors rated the allocation of budget to projects as strongest by tending to disagree with:
Project budgets are largely a first come first serve or squeaky wheel gets the grease process (external 3.1)

This view is reinforced in our IT Financial Management: Master it to Create Endurance for your Small or Mid-Size Business

Everything IT provides must have real business value. IT provides value by maintaining the benefit of existing services and functions it provides, eliminating services that no longer provide benefit, and by creating new value. This is true whether IT operates as a background utility, a broad enabler of business value closer to the user experience, or incorporating the entire chain of value from end to end.

INFRASTRUCTURE & OPERATIONS

Infrastructure & Operations is the category that both self and external assessors rated SMBs most highly and least likely to be accumulating technical debt. Tech Debt 2.0 measures 6 different aspects of infrastructure and operations.

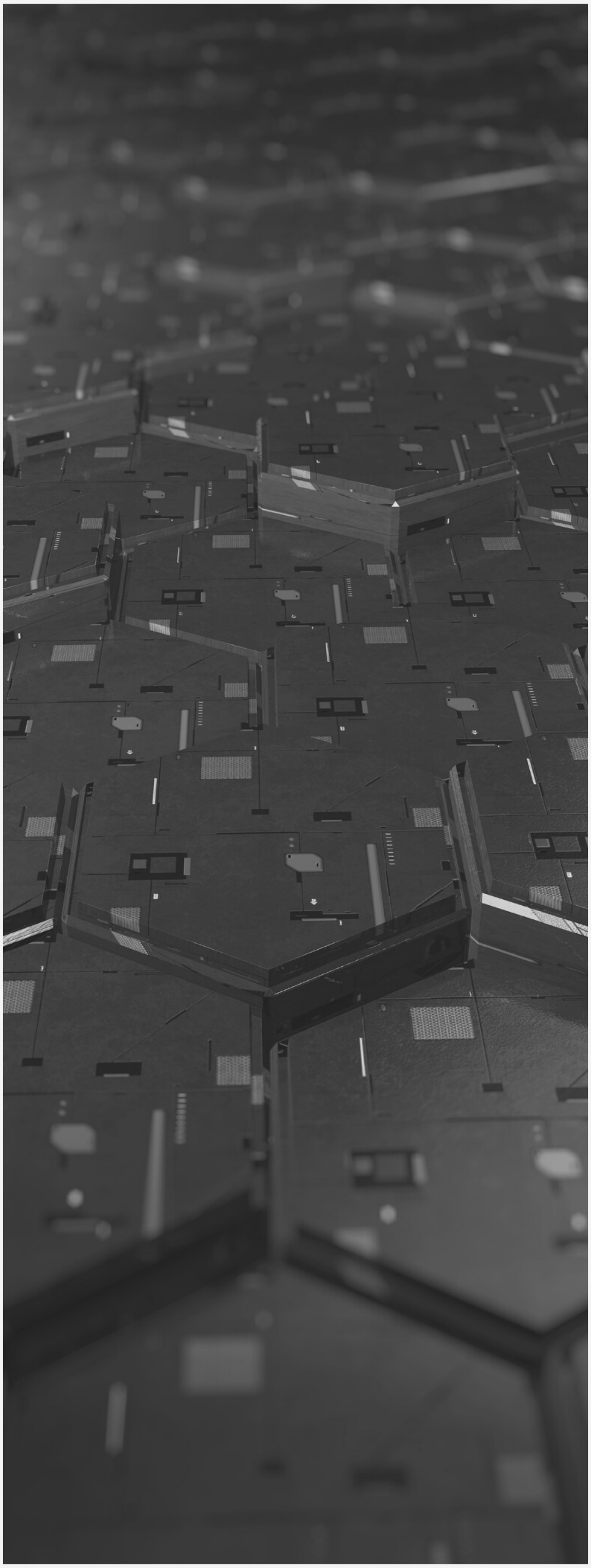
Both self and external assessors agree that system uptime is largely a solved problem by mostly agreeing with:
System downtime is very rare (self 4.7, external 4.0)

While downtime is rare there is less confidence in problem management with both self and external assessors agreeing less strongly with

- Incident and problem management is very efficient and effective (self 3.8, external 2.6)

While many organizations score well in this category there are still opportunities to improve as we explain in our Enterprise Architecture and Tech Debt.
There is opportunity to walk away from legacy technology containing Unplanned Tech Debt that has never been corrected, the result of poor practices or poorly communicated requirements.

The move to remote workspace may present the option to discontinue the use of equipment or applications that have become instances of Creeping Tech Debt where features become obsolete, replaced by the better, faster, more capable upgrades. Or, the applications and operating systems are no longer supported, causing security vulnerabilities.



NEXT STEPS
IF YOU HAVE READ THIS FAR…
HERE ARE 5 THINGS TO DO:

01 TAKE THE ASSESSMENT FOR YOUR OWN ORGANIZATION. AVAILABLE .

02 GET YOUR OWN COPY OF TECH DEBT 2.0

03 ENGAGE A THIRD PARTY LIKE TO CONDUCT AN INDEPENDENT ASSESSMENT OF TECH DEBT 2.0 IN YOUR ORGANIZATION AND DEVELOP A ROAD MAP FOR IMPROVEMENT.

04 HAVE A SESSION WITH YOUR OWN EXECUTIVE TEAM TO RAISE AWARENESS AND MAKE PLANS TO BECOME MORE PROACTIVE ABOUT MANAGING TECH DEBT AND RISK WITHIN YOUR OWN ORGANIZATION.

05 GET STARTED! ANY PROGRESS IS BETTER THAN DELAYING FURTHER!