

CAPCO

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DATA MANAGEMENT

The CFO of the future
BASH GOVENDER | AXEL MONTEIRO



DATA ANALYTICS

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DEAR READER,

Welcome to the milestone 50th edition of the Capco Institute Journal of Financial Transformation.

Launched in 2001, the Journal has covered topics which have charted the evolution of the financial services sector and recorded the fundamental transformation of the industry. Its pages have been filled with invaluable insights covering everything from risk, wealth, and pricing, to digitization, design thinking, automation, and much more.

The Journal has also been privileged to include contributions from some of the world's foremost thinkers from academia and the industry, including 20 Nobel Laureates, and over 200 senior financial executives and regulators, and has been co-published with some of the most prestigious business schools from around the world.

I am proud to celebrate reaching 50 editions of the Journal, and today, the underlying principle of the Journal remains unchanged: to deliver thinking to advance the field of applied finance, looking forward to how we can meet the important challenges of the future.

Data is playing a crucial role in informing decision-making to drive financial institutions forward, and organizations are unlocking hidden value through harvesting, analyzing and managing their data. The papers in this edition demonstrate a growing emphasis on this field, examining such topics as machine learning and AI, regulatory compliance, program implementation, and strategy.

As ever, you can expect the highest caliber of research and practical guidance from our distinguished contributors, and I trust that this will prove useful to your own thinking and decision making. I look forward to sharing future editions of the Journal with you.

A handwritten signature in black ink, appearing to read 'Lance Levy', with a stylized, flowing script.

Lance Levy, **Capco CEO**

FOREWORD

Since the launch of the Journal of Financial Transformation nearly 20 years ago, we have witnessed a global financial crisis, the re-emergence of regulation as a dominant engine of change, a monumental increase in computer processing power, the emergence of the cloud and other disruptive technologies, and a significant shift in consumer habits and expectations.

Throughout, there has been one constant: the immense volume of data that financial services institutions accumulate through their interactions with their clients and risk management activities. Today, the scale, processing power and opportunities to gather, analyze and deploy that data has grown beyond all recognition.

That is why we are dedicating the 50th issue of the Journal of Financial Transformation to the topic of data, which has the power to change the financial industry just as profoundly over the coming 20 years and 50 issues. The articles gathered in this issue cover a broad spectrum of data-related topics, ranging from the opportunities presented by data analytics to enhance business performance to the challenges inherent in wrestling with legacy information architectures. In many cases, achieving the former is held back by shortcomings around the quality of, and access to, data arising from the latter.

It is these twin pillars of opportunity and challenge that inform the current inflection point at which the financial industry now stands. Whilst there is opportunity to improve user experiences through better customer segmentation or artificial intelligence, for example, there are also fundamental challenges around how organizations achieve this – and if they can, whether they should.

The expanding field of data ethics will consume a great deal of senior executive time as organizations find their feet as they slowly progress forward into this new territory. In my view, it is critical that organizations use this time wisely, and do not just focus on short-term opportunities but rather ground themselves in the practical challenges they face. Financial institutions must invest in the core building blocks of data architecture and management, so that as they innovate, they are not held back, but set up for long-term success.

I hope that you enjoy reading this edition of the Journal and that it helps you in your endeavours to tackle the challenges of today's data environment.

Guest Editor
Chris Probert, **Partner, Capco**

THE CFO OF THE FUTURE

BASH GOVENDER | Managing Principal, Capco

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ABSTRACT

Finance departments of major financial services organizations (FSOs) have undergone dramatic changes since the great crash of 2008. They have had to cut costs severely while still supporting an expanding portfolio of new regulatory and business requirements. As a result, they have been unable to fully benefit from the innovation boom of the past decade. In order to get a better understanding of the perspectives of the Chief Financial Officers (CFOs) of major FSOs on the current and potential operating models of the finance department, we interviewed a number of CFOs and finance executives across Europe and North America. We found that while the past decade has been tough on these departments, the future can be bright should they be able to institute the necessary digital innovations that the other departments and organizations have benefited from.

1. HINDSIGHT

Prior to the crash of 2008, financial services organizations (FSOs) were basking in the glow of steady market growth, relatively high interest rates, and a rather promising outlook. CFOs and the finance departments within these organizations were doing their best to support growth, even though they were grappling with integrating legacy businesses' data, systems, and infrastructure from the many rounds of acquisitions and consolidations. Finance departments were well resourced, able to invest in technology that improved the status quo, and were able to use generous remuneration packages and growth opportunities to attract the brightest minds. It didn't seem so at the time, but they were indeed the good old days.

The financial crisis did three things that significantly shaped where CFOs and their finance departments find themselves today.

Firstly, it forced FSOs to rapidly cut costs. As a non-revenue generating department of the bank, the finance department came under enormous pressure to rapidly cut costs. Finance is your typical "iceberg" department, where 80-90% of the activity is done below the surface. While these activities are fundamental, they are not always visible, and other parts of the

organization struggle to understand the linkages to the cost of the finance department. To cut costs, finance departments had to adopt wage arbitrage/location strategy/offshoring strategies. Rapid offshoring, while simultaneously losing onshore institutional, process, and technical knowhow and senior leadership, saw finance departments barely treading water.

Secondly, it forced FSOs to comply with a decade or more of regulatory change. Adopting and complying with a raft of regulatory compliance become an activity that finance departments were fully consumed with. Cost restrictions meant fewer people were available to get the work done, and offshoring and redundancies had resulted in FSOs losing a large proportion of their institutional knowledge. The people that could "connect the dots" were often no longer around – and those were the people that were needed to help implement sometimes confusing and ambiguous regulatory reform directives (think Basel, Volker, MIFID, EMIR) in a sustainable and effective manner. Consequently, change was difficult and often done in a "fastest route to market" fashion, which resulted in siloed and non-strategic outcomes. These changes worked for the regulation but often broke other parts of the machine.

¹ The authors would like to thank John Ingold, Partner, Capco for his help with interviews in the North American region.

Finally, it prevented FSOs from fully benefiting from the exponential technological innovation of the past decade. When the financial crisis first began, the Apple iPad was still two years away from being released, cloud computing, as well as robotic process automation (RPA), were still in their infancy, and bitcoin would still be a year away. Looking back, technological innovation has fundamentally and aggressively disrupted almost every aspect of our lives more rapidly in the last decade than at any other point in history so far. FSOs, and in particular the finance departments, have not been able to fully take advantage of that. This is primarily because their focus and budgets were being spent on complying with regulations. Compliance with regulations was mandatory, while technology uplifts were a nice to have. Even as money has started to become more available in recent years, investments in technology have been prioritized within the revenue generating areas of the organization and primarily on enhancing the customer experience. As of 2019, it is a fair to say that most FSO finance departments are significantly behind the technological curve when compared to other departments or even other industries. Excel is still by far the most widely used piece of technology in these departments.

2. TAKING THE PULSE IN 2019

In order to get a better understanding of the impact of the crash of 2008, and the subsequent decade, on the finance departments of major FSOs, we interviewed a number of European and North America CFOs, or their senior deputies. The professionals interviewed work in capital markets, banking (investment, retail, commercial), wealth and asset management, and insurance.

What was striking is that an overwhelming majority of those interviewed concluded that finance teams spend too much time, money, and brain power on **building block activities** (processing, recording, correcting, and controlling) and not enough time on **value enhancing activities** (analysis, generation insight, and proactive business partnering).

Given what the industry has endured over the last decade it is not a surprising conclusion. Finance departments are spending too much time on building block activities because they are:

- **Compensating for process and system fragmentation:** vast amounts of “legacy” technology were already in existence before the 2008 crisis, as a result of the previous rounds of mergers and acquisitions. Well intentioned plans to terminate them and migrate to a strategic architecture had to be placed on hold in

order to support regulatory compliance. Off-shoring attempted to lift processes out of siloes and industrialize them in low-cost centers of excellence. However, efforts to make these processes more efficient, without the required understanding of how they fit into the big picture, resulted in other connected processes breaking down. Unfortunately, this created even more tactical processes in order to compensate. The result was that you had more processes being done on systems that were duplicative/inefficient/broken, by people who had limited experience or understanding of how the organization/industry/end-to-end process worked.

- **Fixing data quality issues:** finance departments have always suffered from data hygiene issues, ironically on data owned and created by other departments. Data required for new regulatory reporting (e.g., Basel III) exacerbated this issue. New regulatory risk reporting requirements meant that finance and risk data had to be merged, and this led to further contamination of the finance dataset. While BCBS 239 (Basel Committee on Banking Supervision) sought to strengthen risk data aggregation capabilities and internal risk reporting practices, finance departments are still spending a large proportion of their time correcting the consequences of poor data quality.
- **Compensating for knowledge drain:** cost cutting post-2008 resulted in vast experience and institutional knowledge exiting the industry. The remaining reduced workforce spend a large amount of their time supporting process execution teams offshore, to keep the ship afloat. This left very little time or resources to focus on continuous improvement and the backlog of issues keeps building.

3. A VISION OF THE FUTURE

To build the vision of the “future of finance”, we asked the executives to predict where they see the finance department in 10 years’ time, and what they are doing right now to get there. We distilled the key thematic findings, which are described below:

3.1 Finance “building block” activities will be done seamlessly in a sustainable and controlled manner, with very little need for human intervention

In the future, finance departments will spend minimal time and effort to process, record, and control information in order to produce the right set of reporting for statutory/regulatory compliance and management decision making. Specifically:

- Distributed ledger technology (DLT) will be at the heart of finance ecosystem, promoting singularity and consistency.
- All transactions will be done using smart instruments and smart contracts. They already contain metadata that allow these instruments to self-execute in real time. This metadata will be enriched to include the accounting and regulatory reporting rules for each transaction, as well as rules for market validation (e.g., marking to market).
- A comprehensive data dictionary, combined with logical and physical data lineage, will be maintained.
- The accounting and regulatory rules embedded at the point of transaction creation, along with data dictionary and lineage, will ensure that every single transaction or event that is recorded in the distributed ledger is valid, accurate, and complete, and that every single transaction or event that is recorded is instantly linked to all relevant data attributes needed to produce all required reporting and MI (management information).
- Predictive modeling will allow finance to fully automate accounting adjustments (e.g., accruals, amortization, etc.), removing the need for a dedicated close process.
- Cloud technology will be used to efficiently process, by optimizing processing power, data storage, and retrieval capability.
- Reporting and MI will be accessed by different stakeholders through self-service visualization portals that are customizable and enhanced by deep machine learning (ML) to offer proactive insights.
- Human intervention will only be needed at three points: (1) to define the accounting rules for each transaction/event type (this will occur only when a new transaction/event type is created, or accounting rules change), (2) to monitor the performance of, and troubleshoot any issues in the finance architectural ecosystem, and (3) to design and implement system changes when needed.
- Cybersecurity will be naturally baked into a distributed ledger ecosystem; however separate privacy data measures will need to be implemented.
- Regulators and other industry supervisors will be directly plugged into the ecosystem, and will be able to monitor in real time. In some instances, they may be able to enforce regulation via a layer in the DLT ecosystem (akin to the way anti-virus software works on computers).

“One day we will look back in amazement at the fact that we had whole floors of accountants, piecing together different sources of data to produce financial statements.”
 – **Senior Finance Change Lead, Global Investment Bank**

3.2 Finance will proactively drive the strategic direction of the firm, by spending more time and focus on “value enhancing” activities

Finance departments consist primarily of accountants, and the role of the accountant will be different in the future. Today, accountants’ efforts in financial services are consumed by some aspect of production of data and reports. In a future where all the production effort is done without human intervention, accountants/finance staff will spend most of their time extracting data driven insights and designing better ways to be even more insightful and predictive. Finance departments will be positioned to make the linkage between cause (business transactions and events) and effect (financial results) and, therefore, help the organization to predict the impacts of decisions. Where this is done in real time and in a scalable manner, FSOs can be extremely agile in pursuing new opportunities, offer increasingly better customer solutions, and certainly avoid trouble where it looms. Specifically:

- Staff at all levels will spend a lot more time gaining a deeper and more intimate understanding of the businesses that they support. This will be combined with the technical measurement and valuation rules, to more fully deeply understand the financial, regulatory, capital, liquidity, and cashflow impacts.
- Finance departments will constantly be evolving the predictive and analytical output of the finance ecosystem. While they may not necessarily write the code, they will provide the critical logical elements for data science analytics, deep ML models, and natural language processing applications.
- Finance departments will be doing a lot more communicating and influencing both within and outside of the organization. The finance department will evolve from being a business partner that reports on what has occurred to a partner that has developed data driven insights about the cause and effect of potential options – and as such will become a key influencer to a wider and more senior spectrum of internal stakeholders. They will also have meaningful and contextual insights about the organization’s various financial and regulatory results – this will make them the logical point of contact for regulators and other industry supervisors.
- Being a data aggregator armed with rich knowledge of the business will allow finance teams to (1) proactively identify emerging and existing risks and share that with the relevant departments to mitigate, (2) draw insights from across the organization to identify opportunities to increase revenue and/or lower costs, and (3) materially drive data

commercialization by adding enrichment and context to data universes maintained in the bank.

- Change management will become an important function, as all transaction and event type changes will need impact assessment by the finance department and subsequent tweaking. Given the transparent modularity of the ecosystem, the finance department will be able to contribute more meaningfully to the net investment decision of the change, rather than just analyzing the technical impact of system changes.
- Finance departments will continue to interpret accounting and regulatory rules to define how the organization will enact them. However, because of predictive scenario modeling capabilities they will be better equipped to respond quickly and strategically. This will decrease industry consultation and implementation periods and result in a faster regulatory change cycle.
- Finance departments that work with forward looking/predictive insights (like stress-testing and budgeting/forecasting) will have a very frequent cadence. Real time budget comparisons to actual spend, combined with strong predictive analytics, can have a high impact on procurement and cost management as well as help to refocus revenue building activities. This will result in a dramatic decrease in the time it takes for decision making that may be required as a result of these activities.

“The role of finance will swing from being mainly a guardian (ensuring the business remains compliant with regulations and meets commitment) to being a strategic value creator.”

– **Finance Innovation Lead, European Bank**

4. BEGINNING THE JOURNEY

Getting to a vision of the future finance department is a journey. The journey, however, only feels worthwhile if we can get some real tangible benefits in both the short- and medium-term, on our way to achieving nirvana. So, what can finance departments start to do now that makes a real measurable difference immediately, while still getting them closer to their ultimate vision of the future?

It should be stated from the onset that digital enablement is key. It is the singular lever that allows for both the reduction in time, cost, and effort that finance departments spend on building block activities, while simultaneously arming them with the tools and information to do more value enhancing activities at scale. The CFOs and senior finance leaders we spoke to all acknowledged that making the finance department more digital was critical to the future, but

organizations were at very different phases of the evolutionary journey. We can break up the journey into four different stages (the definitions for which are contained in Figure 1): (1) legacy dominated, (2) digitally enhanced, (3) digitally enabled, and (4) digitally optimized.

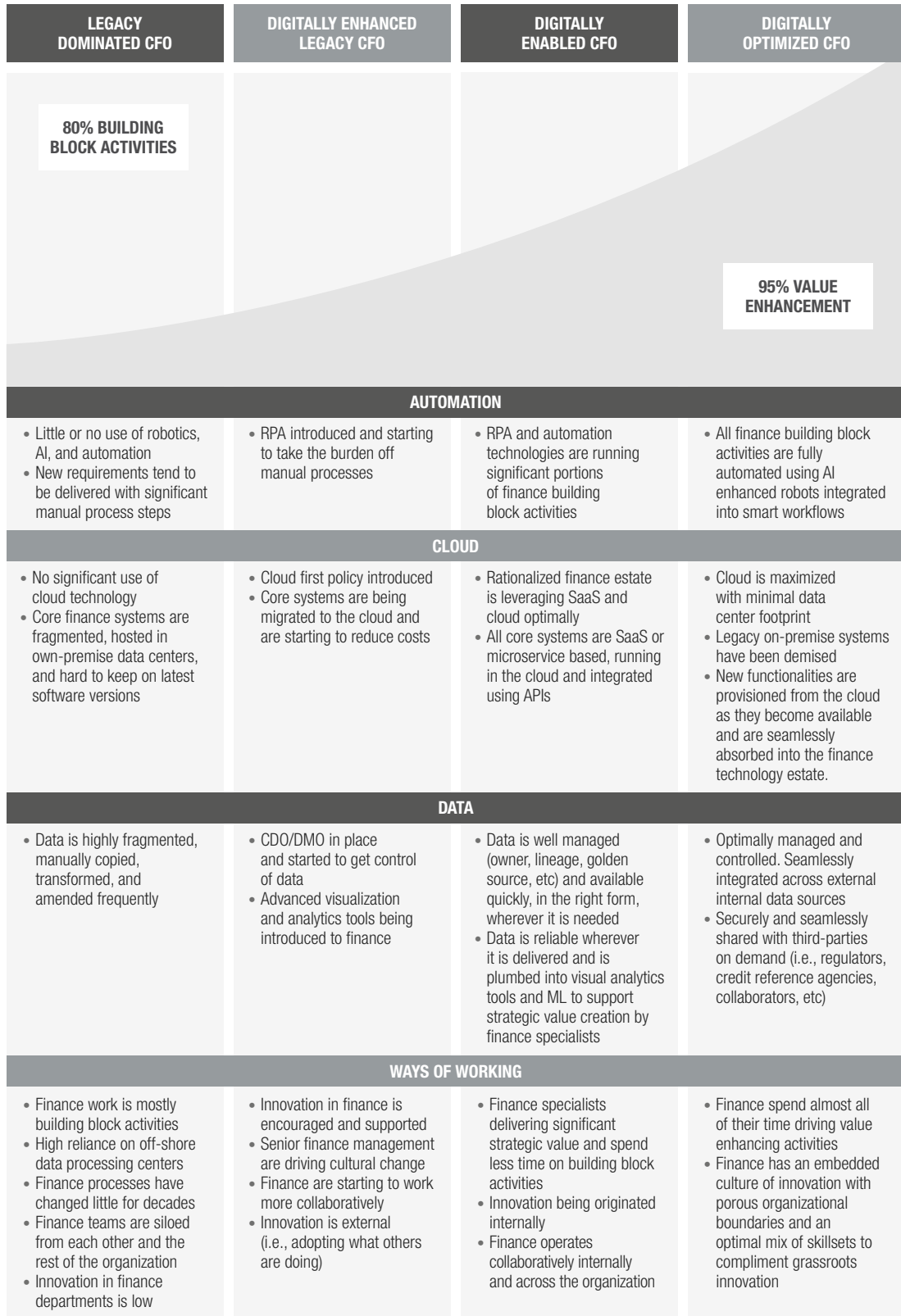
None of the executives we spoke to have reached stage 4 as yet. In fact, most organizations are somewhere between stages 1 and 2. There are, however, some leading organizations where CFOs are getting to the end of stage 2 and pushing into stage 3. They are all doing the following four things:

4.1 Automating, with intelligent robots

Ideally, finance departments would always get their technology architecture into its strategic state, by being singular, consistent, and entirely automated from input to output. This takes time and effort and does not pay off immediately – but while this should always be the long-term strategy, RPA is being used as a very effective strategy to help them deal with fragmented process and technology. The benefits are:

- **Easy to adopt:** finance departments have a great starting point for RPA. Most processes that have been offshored are primed for automation and should form the first prioritized phase. Additionally, RPA is not disruptive to the architecture as it requires little to no change to existing systems.
- **Low cost, immediate benefit:** RPA has a short quick payback period, allowing immediate realization of the upfront investment. A robot is a fraction of the cost of an onshore employee and much cheaper than an offshore employee. They can work 24/7 and do not get sick or take time off.
- **Control:** RPA is scalable and has 100% auditability because of control log and timestamp functionality. RPA has inherent control built-in because robots perform tasks consistently without deviation, until told to do so, thereby eliminating the risk of human error.
- **On critical path to strategic implementation:** Converting to RPA creates a collection of thematic root cause data that will help to prioritize the strategic end state. It is not wasted work, but rather think about it as a way to gather business requirements for your end-state technology while still getting the relief of automation before your end-state is delivered.
- **Exponential growth through modularity:** once created, a robot's components can be copied and used in other robots. This increases speed and reduces costs further for making subsequent robots.

Figure 1: Phases of the finance departments' evolutionary journeys



- **They get smarter:** robots can be paired with deep machine learning models to train itself to perform more complex process solutions requiring judgment and context. Chatbots and smart forms are other examples of “modular add-ons” that can extend the range of things that robots can do.

4.2 Detangling data

Despite regulations like BCBS 239 and the introduction of new organizational structures like the Chief Data Office raising the profile and organizational efforts to get data right, the CFOs still tell us that finance departments spend most of their time fixing data quality issues. Finance departments are the biggest data aggregators in the organization and need to be driving the data organizational effort. The benefits of developing an optimized data governance model for finance are:

- **Free up time:** the finance department will spend less time correcting the impact of poor data hygiene.
- **Access information quicker:** removing the latency in the “production” of data will allow usable information to get to finance (or other parts of the organization) in near real time.
- **Visualization:** be able to leverage better visualization tools to improve finance business partner activities and explain.
- **Analytics:** finance departments will be able to leverage analytics capability for control techniques (e.g., analytical review) and for forecasting and other predictive applications.
- **Self-service:** allow the creation of dynamic “click through” self-service dashboards and other MI tools.
- **Straight through processing (STP):** having the right data structure and governance remains a fundamental precursor to enable STP, or the fulfillment of any end state strategic technology architecture.

“The time it takes to get access to data and turn it into actionable business insight is reducing - the cycle is getting shorter and shorter.” – **Finance Innovation Lead, European Bank**

“Most financial service firms are starting to use their vast data sets in predictive analytical models and deep ML applications. Care must be taken to either cleanse that data set of any inherent biases (e.g. gender bias, or personal identifying data protected under data protection regulations) or to recalibrate the models to account for these biases.” – **Chief Financial Officer, European Insurer**

“

One day we will look back in amazement at the fact that we had whole floors of accountants, piecing together different sources of data to produce financial statements.

”

4.3 Getting in the cloud

Embracing and exploiting cloud technologies is vital to building and operating the finance function of the future. Public and hybrid clouds are now significantly more secure and more resilient than proprietary on-premise data centers, and they offer substantial cost, performance, and innovation benefits that will soon become the new norms for finance technology. Cloud is the key enabler for finance that unlocks:

- **Conversion of the cost of finance technology from capex to opex:** pay for IT as it is required, dynamically scaling compute and storage capacity up and down so that it matches usage patterns. No upfront IT investment required and no need to buy a fixed size IT estate that must be big enough to handle peak usage and will consequently be underutilized most of the time.
- **Elimination of operational risk from end of life hardware and infrastructure failures:** virtualized cloud servers abstract the real hardware, which is managed by the cloud provider. Failures, upgrades, and maintenance are handled seamlessly without any interruption to service.
- **Software-as-a-Service (SaaS) applications:** software that implements crowd-sourced best practice finance processes, delivered with cloud provisioning benefits. New features are continually and iteratively released as part of the SaaS subscription, typically on a monthly cycle, instead of requiring the purchase of major new software versions that then need big, high risk projects to implement.
- **Data optimization:** centralize data in cloud hosted golden source repositories that make it available wherever it's needed, quickly, reliably, and in the form required. No more need to copy data around (which requires continuous reconciliation back to the source), amend it in numerous places, or transform it using spreadsheets.

- **Global finance system access:** allow finance users to work from anywhere, with secure access to the cloud hosted apps and data. Create a flexible working and highly collaborative finance system environment.
- **Innovation in finance departments:** additional services and technologies are readily available via cloud providers, which integrate easily with each other without the need for specialist engineers. Finance department users can quickly and easily build proofs of concepts and experiment with new technologies, such as ML and blockchain, without needing support from IT development teams.
- **Highly productive ways of working:** dynamic provisioning of technology, controlled by finance user teams, powers truly agile working principles.
- **Highly secure systems:** the three largest cloud providers commit substantially higher investment budgets to cybersecurity than almost any other organizations. Their scale also allows them to detect threats from viruses early and implement countermeasures. Consequently, data stored in the cloud is typically many times more secure than proprietary data centers.
- **Skills mix:** finance needs to hire for the underlying skill set rather than for knowledge of a process. Apart from core accounting knowledge and controls understanding, skills like data science, analytical insight generation, communication, and ability to innovate should trump previous experience running a specific production process (e.g., producing a P&L or running a stress testing process).
- **Fail fast:** finance should strive to innovate, by failing fast in a safe environment and iterate to the next phase quickly. Finance need to fight the urge to get into “paralysis by analysis” and, therefore, scupper any chance of innovation inertia.
- **Shout from the rooftops:** finance must prioritize telling the rest of the organization about their key successes. This allows other departments to fully understand and appreciate the value that finance add and helps the organization to visualize the future potential contribution and support further finance innovation.

4.4 Prioritizing getting the culture right

Culture is the glue that holds all together. To be successful, the digital levers described above must be combined with a cultural change in the finance department. Cultural change must begin with the tone being set at the top. Some key considerations are:

- **Own new ways of working:** there is limited value in dedicating a large proportion of highly qualified accountant’s time to (1) running processes that compensate for fragmented systems/data, (2) performing onerous control techniques to ensure those process have been done properly, or (3) navigating complex architecture to retrieve information for reporting or decision making. There must be an acknowledgement in finance that as things get better the jobs that finance do will change.
- **No fear factor:** finance leadership needs to help to remove the fear that finance innovation will lead to job loss, and instead show their people how it can use their knowledge and expertise to add value to the organization while having sustained and rewarding careers.

5. FINAL THOUGHTS

Finance is a department that could be a powerhouse of the FSO, but consistently undersell both the value they add and more importantly the potential value they could unlock, should they be allowed. You get the distinct feeling that finance departments sometimes do not feel that they deserve a seat at the table where strategic organizational direction is being driven from. Digital enablers are a fantastic tool to enable finance departments to contribute meaningfully to driving strategic direction. However they are just tools, finance first needs to shift the current paradigm.

“There is a tendency to stick with how we’ve always done things, but the challenge is to adapt. For example, taking budget and forecasting – how do we move from a once per year exercise to continuous forecasting?” – **Finance Change Lead, European Bank**

Develop and bring in leaders that are emboldened to go for the long-term big wins and are savvy enough to sell this vision to the rest of the organization. Combine this with adopting some digital enablement that both realizes benefits in the short/medium term, while continuing to steer to the end state.

“We have implemented a formal Future Ready CFO Leadership program as a way to help coach the next generation of finance leaders in how to proactively advise business leaders, adapt to and drive change in the businesses and finance successfully, and continue to reinforce our leadership values and corporate priorities given the rapid and accelerating changes in the industry and bank’s market leading position.”

– **Chief Financial Officer, North American Bank**

Combine the conservative risk mitigator attitude with an entrepreneurial mindset. The ability to identify potential risks and problems should not lead to “paralysis by analysis”. Rather, finance departments should be encouraged to fail fast in a safe environment in order to promote the innovative and continuous improvement mindset that is required for growth.

“Senior finance leaders need to lead their teams in a way that avoids the detrimental impacts of change fatigue. Thought needs to be given to the concept of continuous improvement rather than starting from scratch each time. Giving teams a clear understanding of the volatile, uncertain, complex and ambiguous (VUCA) environment and helping them to manage through that is a key tool.” – **Product Control Head, Global Universal Bank**

CFOs need to show their people what the finance jobs of the future look like, and rather than being a threat they should define the path to get there. Finance professionals must not view change and innovation as a threat, but rather an opportunity to realize a more purposeful, creative, and intellectually stimulating career that is noticeably valued by the rest of the organization.

It is a pioneering step forward. Finance is at an inflection point that requires an evolution rather than revolution, and the digital enablement tools are there to help them seize the win, should they be brave enough to go for it.

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