



Contents

Digital Trends Impacting Finance	05
CFOs as Strategic Advisors	06
Building Blocks of Digital Finance	07
Congruence of “Construption”	10
The Fleet-Footer Advantage	13
Bibliography	14



Digital Trends Impacting Finance

It is almost clichéd these days to talk about a digital future –our daily life revolves inexorably around the trends and nuances of the digital world. The twin forces of “Digital” and “Millennial” are converging together – and the result is a socio-economic disruption of the likes not seen since the original Industrial Revolution. However, the pace of change in the corporate world in embracing the digital economy has been slower – and in many cases hesitant.

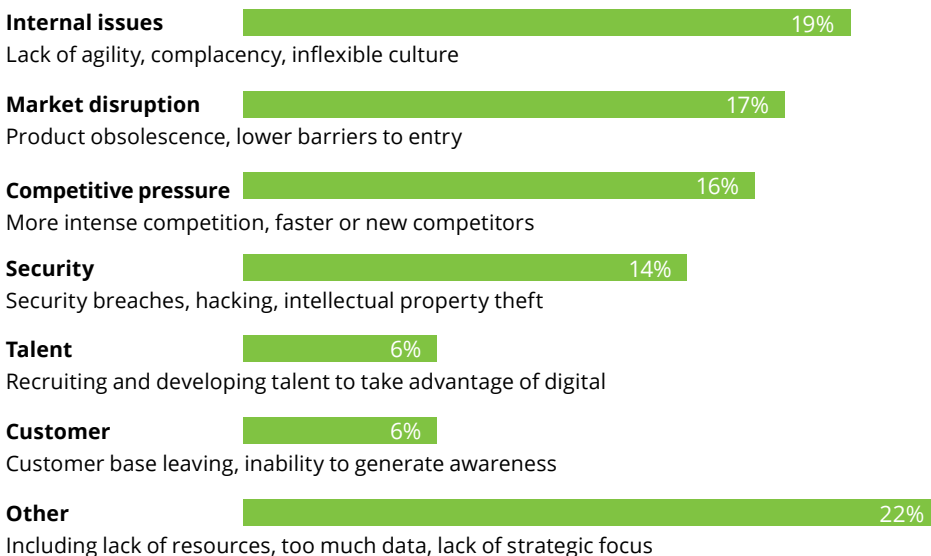
Deloitte, along with MIT Sloan Management, conducted a research recently, covering nearly 4,000 business executives across 131 countries. It states that 87% of the surveyed organizations

agreed that the digital technologies will overwhelmingly disrupt their industries, but only 44% believed that they are adequately prepared for this disruption.

According to the research, organizations listed the following three threats that they face as a result of digital trends:

- a. **Internal issues** – Lack of agility, complacency, inflexible culture, “digital is not a priority”
- b. **Market issues** – product obsolescence, lower barriers to entry, eroding competitive advantage
- c. **Competitive pressures** – more intense competition, faster and newer competitors

What is the biggest threat facing your company as a result of digital trends?



"Many business leaders still believe that if your products exist in the physical world, you can't be digitally disrupted. That is the wrong attitude. Any responsible company today should view digital technologies as a means to create a more efficient organization or a different form of customer engagement, irrespective of how physical the products could be".¹

Prof Arun Sundararajan
New York University

CFOs as Strategic Advisors

Over the years, the role of Finance has undergone a metamorphosis, with many CFOs assuming a strategic role as virtual co-pilots to the CEO. The traditional fiduciary responsibilities of CFOs continue to consume significant percentage of time, but there is an increasing appreciation that the evolution of the role would require CFOs to free up much more time to act as astute “Strategists” or indomitable “Catalysts”

for their organizations. Finance’s digital transformation is imperative to making this shift work, as routine processes get automated and exponential technologies usher in the power of unmatched computing to support the judgement and decision-making roles of the CFO. The 21st century CFO is getting ready to shift gears to the world of “Digital Finance” – and thus acting as a harbinger of the digital future of the organizations.

Themes that will drive the future of Digital Finance

What is Digital Finance is a question that many CFOs ponder. Having invested substantial money and efforts in automation initiatives already, there is often a force of fatigue that impedes the thought process to embrace one more change. They must realize that Digital Finance is far beyond incremental technology tweaks; it is an eco-system that brings together the forces of exponential computing power and the behavioral disruptions of socio-economic forces.

After reviewing global trends, innovations, and leading practices, we believe Digital Finance is likely to be underpinned by five key themes:



This evolution has already begun in many organizations. Finance leaders are discussing the need to change the talent structure and adopt “bold plays” to prepare

for the future. There is a general sense of appreciation of the urge to change – the question however remains, where to start. Through this whitepaper, we wish to

introduce the building blocks of this change and suggest a direction for Finance to prepare itself for the inescapably disruptive future.

Building Blocks of Digital Finance

Digital Finance is the next generation Finance ecosystem that utilizes disruptive technology, innovation, data, and people to elevate and differentiate the capabilities of the Finance function. Diagram 1 outlines the technology enablers for the Digital Age, as applicable not just to Finance but every organizational process.

Acknowledging a digitally connected ecosystem isn't enough. Finance must take advantage of break-through technologies to drive exponential benefits around economics, risk, and value to the stakeholder. We will discuss some of these possibilities in the subsequent sections.

Robotic Process Automation (RPA)

Software algorithms (BOTs) pre-programmed to perform repetitive finance processes can automate

MARKET TRENDS: ROBOTIC PROCESS AUTOMATION

Automation is a Priority:

Increasing automation is one of the top priorities for Global Business Services leaders over the next 10 years.

Spending on Robotics: Worldwide spending on robotics is estimated to reach \$40B by 2020.

Off-Shoring versus Robotic

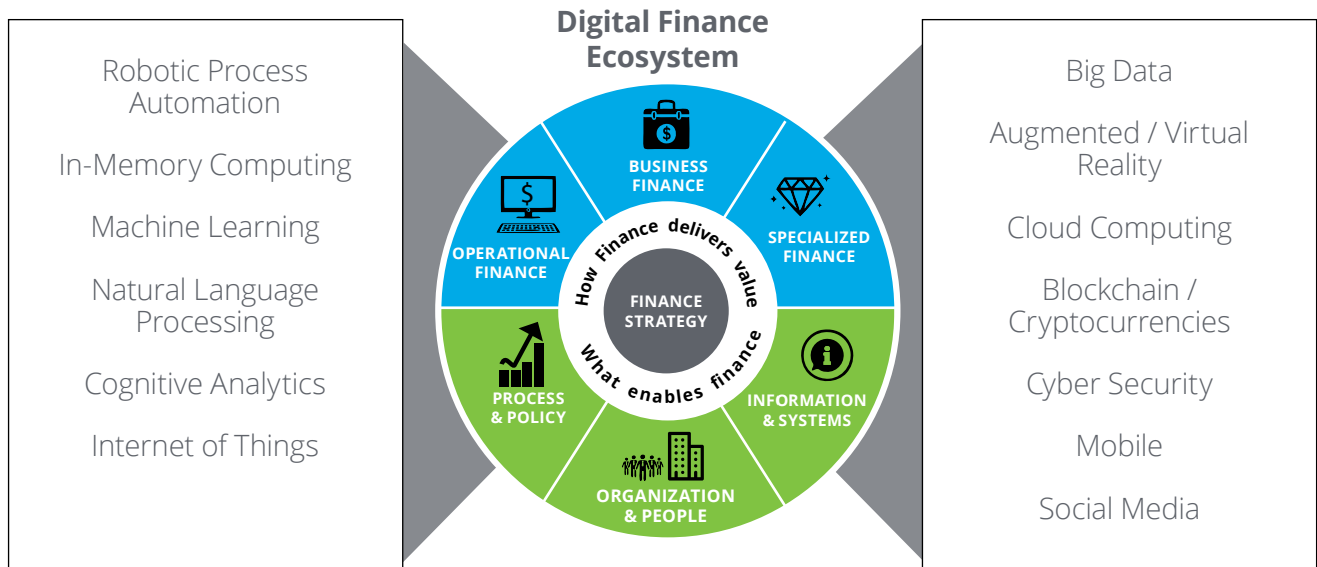
Automation: Robotics automation can increase cost savings beyond off-shoring. Forecasts indicate a potential impact on > 230 million knowledge workers (9% of the global workforce).

transactional processes in Finance. These BOTs are capable of taking the drudgery out of finance professionals and free up capacity for more analytics and business support. Typically RPA is deployed for transactional finance processes that do not require too much of judgement or application of mind. Costing a fraction of a full-time qualified finance professional, these software solutions bring about the benefits of costs, standardisation, and predictability in processes, while optimizing the quality of throughput.

Cognitive Analytics

Cognitive solutions simulate perceptual and cognitive skills to perform tasks that only human beings used to do. Here are some examples of Cognitive technologies in real life application:

Diagram 1





- a. **Hong Kong Subway** - It carries over 5 million passengers daily and boasts a 99.9% on-time record. To improve quality and efficiency, 2,600 weekly engineering works are performed by several people. A “genetic algorithm”, which pits many solutions to the same problem against each other to find the best one, produced an optimal engineering schedule automatically and saved two days of planning work per week in the subway.
- b. **Cincinnati Children’s Hospital** - Automatically identifying patients eligible for clinical trials using natural language processing to read free-form clinical notes and machine learning to refine the list of terms extracted from them, reduced the workload by 92% and increased efficiency by 450%.

Used in Finance, Cognitive technologies, working alongside Robotics, can upend operational finance function and bring about unprecedented speed, agility, and transparency to the processes. These processes have a deterministic way for exception handling (e.g., accounts payable,

MARKET TRENDS: COGNITIVE ANALYTICS

Job Automation: A University of Oxford study estimates 47% of total US employment is “at risk” due to the automation of cognitive tasks

Platform Investment: IBM has committed \$1 billion to commercializing Watson, its cognitive computing platform

Research & Development: Facebook has created an AI laboratory with the intent of advancing AI and cognitive computing

travel expenses reimbursement) and are ideal fit for cognitive automation, thus creating bandwidth at all levels in Finance.

Natural Language Processing (NLG)

NLG is the production of narratives and derivation of insights from large swathes of data to understand what is most important and interesting. Financial planning and business reporting are

ideal candidates for benefiting from NLG – wherein much of analysis and narratives can be digitized, based on past trends, and machine learning solutions and discernable patterns that can be harnessed for predictive outcomes. The ability of NLG to analyze huge volumes of internal and external sources of data (Big Data) and derive insights and associations that would have otherwise not been evident – makes this solution so appealing to classical Financial Planning and Analysis (FP&A) functions. Leveraged optimally, NLG solutions can:

- Produce an analysis and text automatically from data sources;
- Generate standardized text from the same domain knowledge base;
- Tailor the text to the user’s expertise level and context; and
- Drive actionable insights, and increase productivity and operational efficiency.

Internet of things (IOT)

IOT is the ecosystem of interconnected technology architectures that drive smarter actions by unravelling hidden insights through advanced analytics.

MARKET TRENDS: INTERNET OF THINGS

Increasing Connected Devices:

Gartner, Inc. forecasts that 6.4 billion connected things will be in use worldwide in 2016, up 30 percent from 2015, and that the number will reach 20.8 billion by 2020

Global Data Center Traffic:

Cisco forecasts that annual global data center IP traffic will reach 10.4 zettabytes by the end of 2019, up from 3.4 zettabytes (ZB) per year (287 EB per month) in 2014. Overall, data center IP traffic will grow at a compound annual growth rate (CAGR) of 25 percent from 2014 to 2019.

IOT-enabled processes can grow revenue, cut costs, and save time – and Finance may have a special interest in driving the organization strategy around IOT. While organizational priorities may drive the decision to embrace an IOT-enabled ecosystem, Finance can play a lead role in ensuring that the Analytics from IOT (AOT) is leveraged well, and insights are meaningful enough to drive robust commercial decisions.

For example, the CFO of a healthcare organization should particularly be interested in the patient monitoring of IOT-enabled devices (e.g., wearable monitors) – the signals from which will have a direct impact on the business dynamics. Not being able to read the signals or interpret the implications will result in lost opportunities and reputational risk. Finance can help set up the framework around analytics around IOT-generated Big Data that can drive meaningful insights into the value chain of patient care.

Blockchain

A Blockchain is a record of all transactions taken place with reference to an asset that is capable of being exchanged for a commercial consideration. It is similar to

a ledger that a bank would maintain to record all their customer transactions. However, the bank controls and manages the ledger. It has its own security and access system to secure the ledger and log transactions. In the Blockchain, a copy of the ledger file is distributed among thousands of participants globally, and any edits to a transactional record requires everyone's consensus. In a way, Blockchain technology can eliminate intermediaries (e.g., central banks), cut time and costs, and provide an unprecedented transactional transparency—all in a secure closed group network. Blockchain is the technology underlying crypto currencies, such as Bitcoins.

Financial accounting is based on a double-entry system, where each party records transactions in its respective books. Instead of keeping separate records based on transaction receipts, organizations can write their transactions directly into a joint register, creating an interlocking system of enduring accounting records. Since all entries are distributed and cryptographically sealed, falsifying or destroying them to conceal activity is practically impossible.

Blockchain potentially represents the most disruptive force in Finance for decades to come. Large global organizations, especially some of world's largest banks, are experimenting with

this technology and running pilots. Investments in Blockchain start-ups and alliances are the subject of regular news feeds. Finance can drive an organizational intent around Blockchain and also plug into the ecosystem and participate in the evolution of this incredibly powerful phenomenon.

In-Memory Computing

Businesses have been deriving significant benefits by leveraging enterprise systems over the last three decades. Along the way, they have also faced challenges in terms of high IT investment costs, long gestation periods to earn a decent ROI, and the perennial issue of clunky user interfaces. The defining feature of these systems was that they were transactional. Data analysis and presentation was never a key driver for selection and implementation.

The latest version of enterprise system released by ERP vendors is transformational, which means that it has been reinvented to address the business critical functions of new age organizations – real-time analysis and user-friendly interfaces for presenting data. For example, SAP S/4 HANA runs on an in-memory computing engine, where data sits in the main memory and can be fetched and analyzed from there rather than trying to access a separate database. This redesign has the potential to improve real-time analytical processing speeds significantly compared to traditional ERP systems. In addition, these speedy analytics are fed through mobile applications (called SAP Fiori apps) with user-friendly interfaces, delivering near real-time actionable information to business users.

MARKET TRENDS: BLOCKCHAIN

Broad Adoption in FSI: 80% of the world's largest banks will have initiated Blockchain projects by YE 2016.

Spending on Blockchain: VC investment has exceeded \$1B over the past three years.

Savings from Blockchain: \$20B in projected annual savings by 2022 for the banking industry alone.



Congruence of "Construction"

Diagram 2 is a depiction on how the forces of constructive disruption ("Construction") can be potentially harnessed by Finance to build a truly digital future.

As is evident, in the Digital Finance architecture all the forces come together to create a cohesive and convergent ecosystem, which requires a strong vision to conceive, skills to execute, and efforts to sustain. However, a successful Digital Finance framework will be predicated on a few underlying layers of dependencies:

a) **Data, data, data** – The biggest threat to any sustainable finance transformation initiative is the fidelity of the underlying data structure. As corporations have become more acquisitive and multi-country compliance requirements have become more arduous, maintaining a clean master data layer has been the largest casualty. Digital Finance will require a new approach to the protocols of data capture, often from sources that are external, unstructured, and auto

populated. It will also require rigorous stewardship overview to maintain a clean, uncomplicated master data layer that can be trusted for analysis and manoeuvred for generating insights in conjunction with external data sources.

b) **Talent paradigm** – Digital Finance will require talent that is digitally native. The importance of building the appropriate talent pool cannot be emphasized more, especially as the skills required in the future are going to be very different

Diagram 2

Cloud-based ERP

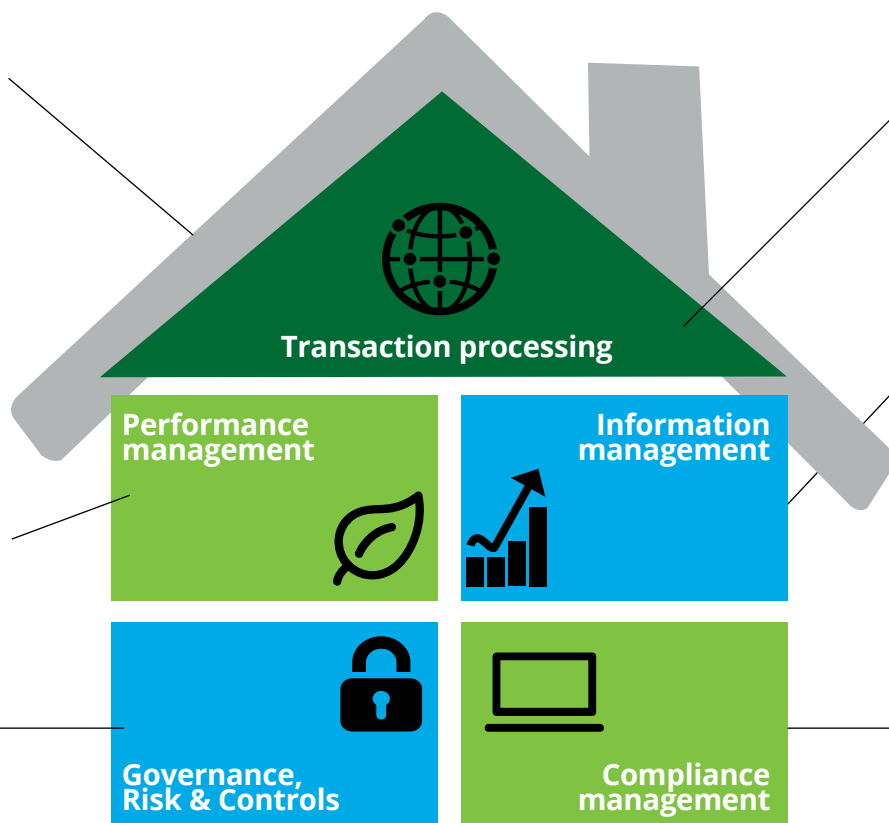
Inter-operable, **cloud-based ERPs** with in-built self checking reconciliation edit checks. **Block chain technology** complementing double entry book keeping compatible with **Crypto currency transactions**

Performance Management

Driver-based **Planning and Consolidation solutions** with near **real time BI reports**, simulation and insights based on **Cognitive Analytics** and **Natural Language Generation** for performance analysis

Governance, Risk & Controls

Cyber Security framework as the core foundation of controllership. **Analytics from IOT** alerts driving financial decisions – e.g. Capital WIP accounting



Robotics

Software robots for transactional routines, **electronic receipt/billing** for external interface. Use of **gamification** for staff performance optimization

Information Management

Analytics-based What-if simulations using structured and **Big data** (external and internal) with **smart dashboards** available on **Mobile devices**

Compliance Management

Digital regulatory compliance on encrypted networks. **Tax Technology and Tax Analytics solutions** for improved prediction and planning

and diverse. Data Scientists, Business Analysts, Cyber Security experts, Statisticians – these are all but a few skills that Finance will need to add to the ranks of Accountants, MBAs, and other traditional sources. Talent in the Digital Finance age will need to be comfortable to deal with lots of ambiguity and in a highly automated and real-time world. As Millennials join the workforce, fresh out of their academics, they will bring in a much required digital savviness to be merged with the organizational requirements for controls and security. Scouting and nurturing talent for the digital future, will be one of the key tasks for the CFO and the HR. Traditional finance roles with left brain obsession will need to be ready for a right brain supremacy in the digital world.

- c) **Cyber sentinel** – With increasing openness and inter-connectedness, organizations are already finding them

susceptible to cyber crimes in every shape and form. The digital world of future will only exacerbate this risk as machines talk to more machines and external data becomes a source of valuable corporate insights. Cyber crime is likely to be the most significant threat for the corporations of the future with unimaginable downsides on reputation and compliance. The Digital Finance leader needs to be a smart champion of cyber security and ensure that the mind-set of the finance team is wired to a future of regular real-time surveillance. Next generation controls (NGC) will be embedded into every aspect of Digital Finance, such that predictive alerts and deviant parameters are triggered at inception. This will also require a general appreciation that not all risks can be prevented; however mitigation parameters in a digital world need to be far more robust as the implications are likely to be more profound.

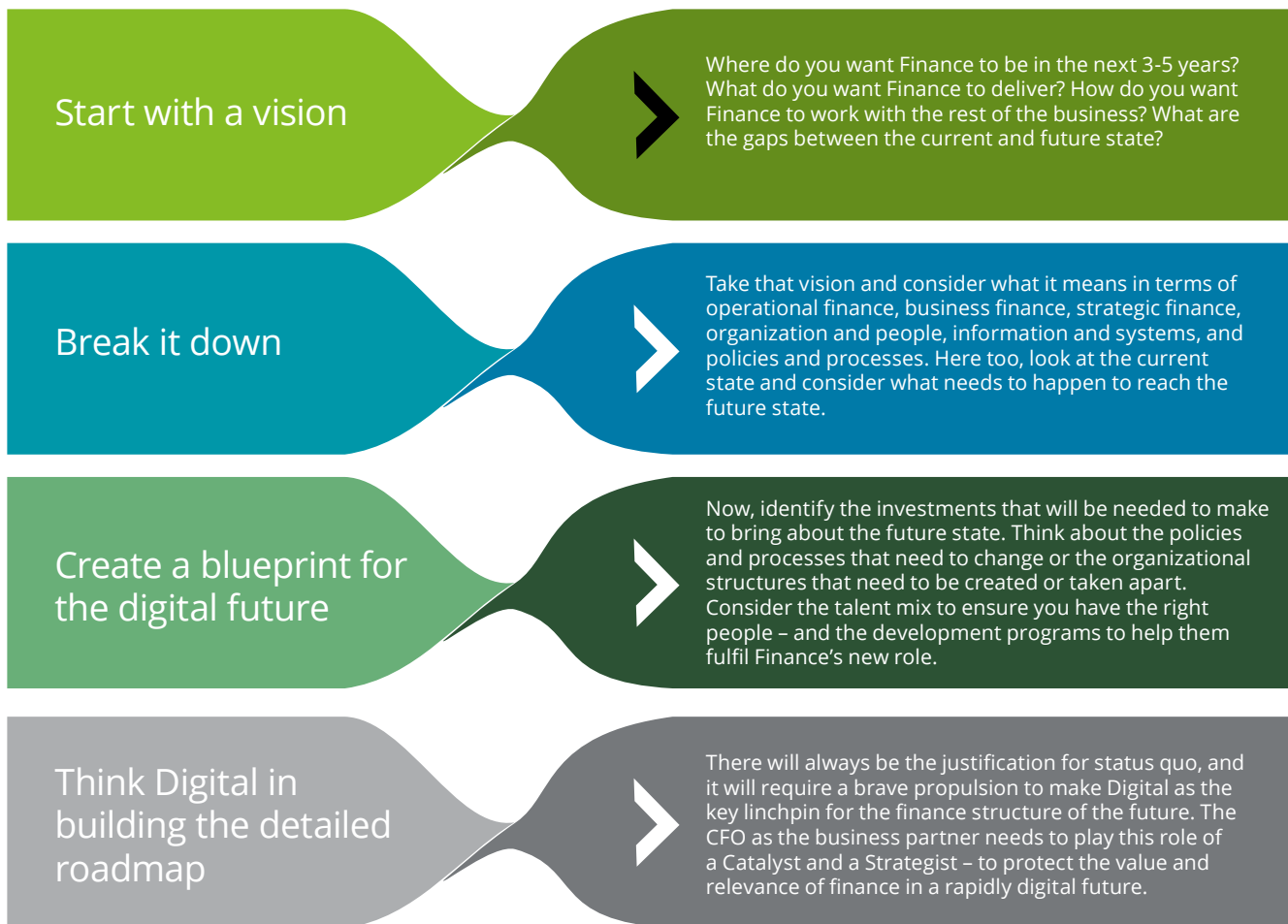
- d) **Obsession with business case** – The one attitude that can derail a digital transformation for any function is the obsession on business case and returns on investment. Digital solutions are not inexpensive, as is true for every technology in the discovery phase. Finance needs to adopt a long-term view on digital investments and not constrained by the short-term objectives on returns. Digital Finance is a profound cultural transformation, just as Internet was two decades ago. There is a need to reflect on the business case with a visionary lens and the fact that there is really no choice, but to transform! Finance has a unique opportunity to lead this change in an organizational mind-set and act as the harbinger of the digital change. Business case will be important always – opportunities for metamorphosis, however, do not wait for the perfect answer to a financial model exercise.

The Fleet-Footer Advantage

Getting started on a journey is always a binary moment – overcoming the force of inertia to move from static to dynamic. Most journeys also start with a destination in mind. The Digital Finance journey is one where the moment of start is overdue, yet the destination is not necessarily

defined. As the convergence of exponential technology solutions take the world by storm, a common theme of struggle for the finance leaders is where to start. There is really no generic answer here as the launching pad may vary with the organizational maturity and risk appetite.

However, the finance leaders may follow a paradigm to prepare the ground to begin:



The **“Fleet-footed-Finance of the Digital future” (F3DF)** will aspire for glory in making itself a voice of conscience and a force of change in the organization of the future. As the business environment gets more complex and globalized, the digital transformation of finance will be a sine qua non for its relevance and success in the “brave new world”.

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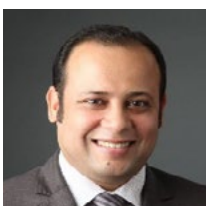
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