Bot or Not?

A guide for NZ financial services firms entering the Digital Advice age

A Mosaic Financial Services Infrastructure 'White Paper'

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Their system of oppression
(What did it lead to?)
Global robo-depression
(Robots ruled by people)
They had so much aggression
That we just had to kill them
Had to shut their systems down

Flight of the Conchords – 'Robots'

Introduction: never mind the robots, here come the digital advisers

Robots generally skew to the downside in popular culture: if not cast as patently evil, then dangerously incompetent.

But while fictional robo-dramas might serve as a risk-free arena for humans to indulge both their hopes and (mainly) fears of technological progress, off-stage the recent real advances in so-called 'artificial intelligence' (AI) has sparked a new round of angst about the future of work – a threat that this time extends to the once-immune upper echelons of the professional classes including financial advisers.

The rise of AI-enhanced 'robo-advice' – soon to be legal in New Zealand for the first time following an exemption issued by the Financial Markets Authority (FMA) – has certainly grabbed the imagination of headline-writers globally (who may themselves be mere algorithmic hacks in the machine).

In its June 2017 consultation document outlining the case for the exemption from the current Financial Advisers Act requirement for personalised financial advice to be delivered by a 'natural person', the FMA says: "Although robo-advice services are usually directed at consumers not currently served by existing providers, we recognise nevertheless that robo-advice could cause disruption to existing financial advisers with traditional business models."

The implication that the financial planning profession could soon be usurped by an army of humanoid advice-bots might be a little chilling... if there was any truth to it. In fact, offshore experience suggests new digital technology – depending on how it is implemented – can both enhance existing advisory businesses *and* expand the service into the previously non-advised territory.

Perhaps now would be a good time to ditch the 'robo' pre-fix, which denotes a sole (and possibly evil) machine interface devoid of human agency: to date, science fiction has yet to deliver a blockbuster framed around a robot skilled in risk-profiling; the next Terminator sequel is unlikely to

feature Arnold Schwarzenegger sent by SkyNet from the future to sort out Sarah Connor's life insurance claim.

The hybrid human/machine process is perhaps better-described by the label Digital Advice (or DA) – the preferred term in this paper.

Ultimately, DA has the potential to provide the nirvana of low-cost personalised advice coupled with customer-driven engagement across the spectrum of machine to human interaction. Current technology already promises to deliver industrial scale tailored advice to mass-market consumers – for example, the more than 570,000 KiwiSaver default members – while simultaneously streamlining the processes of more bespoke advisory firms.

It is difficult to see the DA downside for anyone apart from those involved in commoditised activities across the value chain.

Executed properly – as always a key requirement - DA promises to remove the ambiguity and risk of on-boarding, matching risk profiles to clients, and all the basic day-to-day admin that separates a financial adviser from the task of delivering advice.

Institutions, meanwhile, have to opportunity to roll out customised advice – with back-end product sales – across their client-bases.

For clients, DA offers an unprecedented 24/7 access to personally relevant financial guidance as well as the freedom to engage with a real person once they are comfortable with both the adviser in question and their own understanding of what is at stake.

Research shows us that engagement increases with knowledge (rather than interactions driven by fear and uncertainty), which DA is uniquely positioned to provide: it lets customers anonymously accumulate knowledge and, in the most extreme cases, avoid being judged for the unseaworthy state their finances may be in before they seek help to right the ship.

Of course, DA providers, whose remuneration is typically tied to product placement, may struggle to include 'holistic' advice – such as the benefit of paying off a mortgage above buying an exchange-traded fund (ETF) – in their automated models. But then product-free advice doesn't cost anything either while building valuable goodwill with both the customer and, arguably, the regulator.

With the FMA on the brink of fast-tracking DA into being, all NZ advice providers will have to consider their response. There is now an abundance of digital advice platforms and components, from ad hoc in-house creations, to off-the-shelf big brand solutions, to dinky products from 'fintech' start-ups – the latter a breed that FMA chief, Rob Everett, recently described as "evangelists rather than snake-oil sellers. (Or perhaps both)…".

This Mosaic Financial Services Infrastructure paper (produced in association with Investment News NZ) lays out a framework to help New Zealand clients, advisers, wealth managers and institutions understand their real DA choices within a local context, including:

- a definition of digital advice;
- a brief historical overview;
- latest offshore DA market data;
- a look at the drivers for change across the advice value chain;

- back-end product opportunities; and,
- suggested entity-appropriate strategic approaches to meeting the DA challenge.

Rather than the slightly malevolent fictional world of 'robo-advice', Mosaic presents DA as a real-life business opportunity with a history, a present and a future.

DA definition: what's inside the box

Despite the plethora of automated advice-like options already in existence (and the undoubted influx of new entrants post the FMA exemption), there is, as yet, no standard definition of what a true DA system should offer.

Importantly, as distinct from the multitude of online financial calculators populating the internet, DA systems need to be functionally robust and geared to delivering highly-personalised (and by definition holistic some might argue) advice rather than sweeping generalisations.

From the client perspective, DA should as a minimum provide the following features, all fully-automated and accessible online:

- A public view of the core functionality, available for prospective investors to trial and run scenarios;
- A significantly lower cost structure than purchasing advice and financial products via traditional intermediaries;
- Seamless client on-boarding processes conducted via internet – including anti-money laundering (AML) verification and secure personal data management;
- Tools to help clients determine an appropriate risk profile. More sophisticated DA systems would include the ability to enter client investment goals with the logical extension to a live account being extraction of other relevant financial information (for example, bank accounts, KiwiSaver balances, and shareholdings) to establish an all-of-wealth view. An industry standard DA should also allow clients to simulate investment returns across different risk profiles and time horizons;
- A set of algorithms which match the client-selected risk profile against an appropriate asset allocation;
- Access to forecast performance data for each asset allocation offered with clear and upfront disclosure of the underlying assumptions;
- A means of routing initial orders to market as well as periodic rebalancing of portfolios to keep investments in line with risk profiles. Order-routing will generally be through existing wealth management infrastructure linked to the DA application via automated programming interfaces (API);
- Reporting capability detailing transactions, positions, performance relative to a given set of parameters (such as date range and benchmarks) and tax; and,
- Additional financial literacy resources.

The above description represents the core features of an investment-focused DA as we know it today but it is by no means exhaustive. For example, other systems may be targeted to selling risk insurance or target a narrow product set such as KiwiSaver.

As detailed below, while DA is relatively young (dating back, perhaps, just 10 years), it is developing fast with providers extending capabilities from simple investment offerings to more 'holistic' financial advice covering all assets and a broad range of lifestyle goals.

From backwater to the mainstream

DA emerged primarily out of the UK and US where digital disruptors exploited a niche with no-frills online portfolio management services offered at a significant discount to traditional investment channels.

Typically, this first wave of DA pioneers – or DA 0.1 in the tech-infused language of today – touted portfolio options (often flowing into ETFs) with annual fees of about 30-40 basis points versus the traditional investment advice levy of 1% or more.

DA 0.1 entrepreneurs sought to lower the absolute cost of advice and bring it to the uneconomic (or unwilling) 'tail' either as a target cohort in its own right or as an incubation play whereby wealth is built though an online service to the point where face-to-face advice was viable.

Start-ups such as US firms Betterment and Wealthfront (both founded in 2008) dominated the early DA phase, offering a range of low-cost ETFs matched to risk profile and investment goals.

Over time, increasingly sophisticated and comprehensive solutions have come to market – the exact demarcation from 0.1 to 0.4 is academic but the features progressively launched have included:

- Direct assets;
- Goals-based investment;
- Gamification features;
- More complex model portfolios;
- Extension of hybrid models with a handover point to a human adviser; and,
- Bundling of other financial services products.

The bundling trend is an interesting one – we have seen disruptors enter the market and wrest a modest yet growing market-share away from incumbent providers. From here these disruptors have then begun to add additional services such as Betterment's 'tax loss harvesting' option introduced in 2014 or its socially responsible investment (SRI) fund released this year.

Hot on the heels of Betterment and Wealthfront (and Nutmeg in the UK) increasing numbers of start-ups entered the DA race, closely followed by established financial institutions.

Incumbent financial services firms have sought to either develop their own capability or partner with (or take a stake in) specialist technology providers – the relative merits of these approaches are discussed later in this paper.

In the space of less than 10 years the DA industry – at least in the US - has evolved from a start-up community to the point where large established wealth and brokerage houses have the upper hand: notably, Charles Schwab and Vanguard, which dominate the US market.

After nine years in business, Betterment now reports about US$10 billion under management. By contrast, Vanguard has accumulated roughly US$90 billion since launching its DA program just three years ago.

Clearly, DA is not a game that favours first-movers.

On the other hand, the rapid growth trajectory DA appears to be on - with 60% plus annual increases in market size the norm in recent years – should accommodate healthy biodiversity in the sector.

Sizing up the market: hybrids to set the pace

DA has undoubtedly entered the mainstream - very rapidly going from an outlier to a must-have integrated service for any respectable wealth manager and increasingly, advisory firm.

Nonetheless, sourcing reliable data on the size of the DA market remains problematic in such a youthful and bubbly sector.

Based mainly on US data, there are widely-varying estimates about DA growth trends ranging from predictions the market will account for between US$2 trillion to US$8 trillion by 2020.

According to a report published by Deloitte in October 2017, DA assets under management could hit $16 trillion by 2025, taking the industry above the world's single-biggest fund manager, BlackRock.

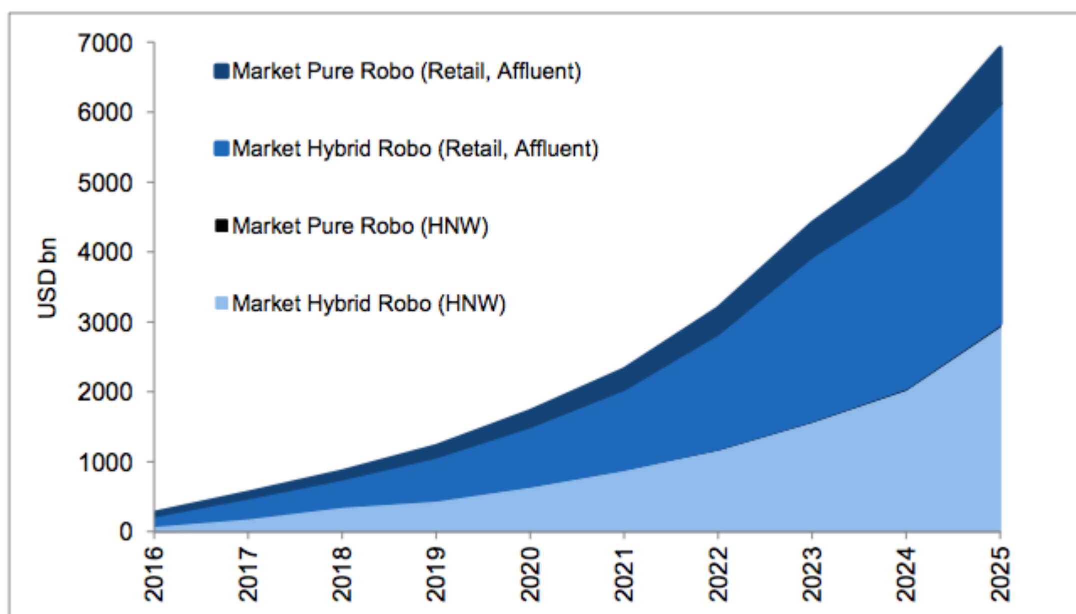
However, headlines like 'Robo advice will be bigger than BlackRock' don't provide much insight into the current structure and likely development of the DA market – other than confirming a general upward trend.

Despite the data disparities, it is possible to discern the following trends:

- The rate of DA growth is high – various sources concur that we are running at least 60-65% per annum;
- This growth rate is likely to remain high or increase as DA components become market standard across the wealth management industry;
- Three underlying trends are likely to fuel the DA expansion:
    - Relatively new market-entrant purpose-built DA products;
    - Existing money relocating from non-DA providers/products to DA or DA hybrid products (that incorporate traditional advice options) driven by customers shifting to tech-reliant 'millennial behaviour'; and,
    - New money from market entrants, the previously uneconomic/unwilling tail, or customers shifting to millennial behaviour.

Headline market metrics tend to obscure the bifurcation of the DA sector between 'pure' offers – with no access to humans – and 'hybrid' versions that include traditional financial advice options as part of the package.

Indeed, as the graph below from researcher MyPrivateBanking shows, hybrid DA platforms already outrank the robo-purists and are on track to dominate the market.



North America: Market Prognosis for Hybrid and Pure Robos

Source – MyPrivateBanking

The October 2017 MyPrivateBanking study of 31 DA services across 11 countries tipped the market would grow to US$4 trillion by 2020.

"But despite this strong growth, the digital platforms of most robo-advisors have not developed to a point where they can meet the comprehensive needs of their investor and wealth management clients," the report says, indicating humans will be needed to bridge the quality advice gap for some time until AI is at a level it can take over.

It's clear that hybrid solutions are likely to be the engine of growth, particularly as incumbent solutions come online. The point where DA morphs into face-to-face advice is likely to vary across platforms but will be determined both by providers – based on viability of servicing underlying assets – and clients, who can choose when to engage with a human adviser.

Once critical mass is attained, the hybrid DA process offers consumers a truly customised approach to accessing advice across the spectrum of needs.

On the menu today: simple fare but product range increasing

The DA voyage must ultimately end at a product destination. And, depending on the selected route, the final investment product portfolio choice offered by DAs can include virtually any traded security.

(Insurance products, too, may be included in a DA process, either as part of a bundled holistic offer or a standalone risk advice platform.)

But while the product range is potentially enormous, DA providers must find a balance between choice and confusion with most settling for limited solutions: the aim to offer the best risk-appropriate performance targeting for the lowest, or at least a reasonable, cost.

The spectrum from simple-and-cheap to complex-and-expensive runs from ETFs through to comprehensive model portfolios with multiple asset classes, jurisdictions and risk management tools. As always, exposure to fixed income products at lower scale is generally still best done with collective investment vehicles.

At the flash end of the market clients have the option to manage exceptions to their portfolio by asset.

Of course, pricy and complicated DA offerings may not necessarily equate to better outcomes with pared-down ETF portfolios possibly good enough for their respective target customers.

Although DA is a relatively recent arrival and longer-run performance differentials between strategies and providers are still forming, some nascent empirical evidence is emerging.

A brief performance interlude

The core promise of the first batch of DA engines, of course, is of better after-fees investment performance than their clunky, paper-based, error-prone human rivals.

From the client perspective, though, DA will necessarily exclude the potential benefits offered by bespoke face-to-face advice – that takes into account numerous, sometimes subtle, individual factors. Instead, DA tends to lump investors into a limited range of standard portfolios – this may represent a vast improvement for the previously non-advised but could see existing advice clients 'dumbing down' exposures.

While the DA value gap will depend on individual circumstances, the overarching influence of asset allocation on returns can be measured more transparently.

And offshore research suggests that performance across broad DA risk classes vary in the same way as traditional products.

In January 2016 Condor Capital – a US advisory firm ran an experiment across 13 popular DA offerings with a 60/40 equity bond mix for an equivalent given risk-weighting, albeit over a short eight-month period. Returns varied from approximately 4.5 % to 9 % post fees. In the short term at least, this indicates a significant impact of human-driven portfolio construction assumptions underpinning the DA algorithms.

In short, the data confirms that certainly in the rising market we've been experiencing, DA products are generally performing in line with the predictive return-to-risk profile customers signed up for.

DA tools have not, however, had to deal yet with a significant market shock. How the mainly passive, ETF-based strategies cope with a slump will no doubt offer a true test of DA durability and client patience.

All change: why everyone wants DA

Unusually for the financial services industry, the impetus for DA is coming from multiple parties rather than being driven by top-down product-pushing agendas.

Although it would be naive to discount completely the commercial objectives of institutions as an influencing factor, DA has potential benefits for all market participants, including:

Investors

The convenience of a 24/7, personalised service with discretion over the point of engagement with a human adviser provides a compelling selling point for DA consumers.

As well as streamlining the entry point for clients, DA offers the 'low net worth' – previously excluded from the professional advice market – access to functional, personalised guidance and access to low-cost, diversified investment products.

Technological convergence is also pushing investors down the DA route.

At the FST Media conference in November 2017, Maria Jose Jorda Garcia, head of customer experience for Spanish bank BBVA, cited research showing that 'millennial' no longer simply refers to membership of a self-obsessed age cohort.

Garcia said the research indicates we are all becoming 'millennial' through the use of smart devices and the growing expectation of personalised customer experiences. This is a compelling concept supported by the massive growth in high net worth DA products: it turns out the 'millennials' do have money and they need accommodating right now.

Wealth managers

DA platforms allow wealth managers a cheap way to serve the previously uneconomic tail of consumers with cost-effective product solutions. At the same time, wealth management firms can lift the financial literacy levels of DA clients via online tools, which promotes further engagement and, in time, perhaps transition to a higher value face-to-face advice relationship.

Offering DA options also enables wealth managers to personalise and differentiate their products, deploying user-facing tools - subject to the caveat that these are rapidly-copied and soon commoditised.

Financial advisers

Financial advisory firms can garner similar benefits from DA as wealth managers, with the proviso that scale will be a limiting factor.

For advisers, DA tools streamline the on-boarding and management of clients under a set of uniform procedures and auditable algorithms. This means that by the time the client wants to interact with an adviser they are already fully vetted – with the subjectivity removed from the process the compliance risk must be significantly reduced.

Service providers

Service providers such as KiwiSaver schemes can use DA to more easily meet regulatory expectations around investor literacy and education, particularly where personalised advice is expected for investors around moving providers, changing risk profiles and response to market volatility.

Regulators

Generally, DA has three significant advantages for governments and regulators:

- It largely standardises the advice being offered to market entrants or previously non-advised investors. In principle, this should result in an overall lift in advice quality – particularly at the possibly more vulnerable bottom end;
- The underlying algorithms generating the advice are discoverable and can be monitored; and,
- DA is a critical part of the toolbox to raise financial literacy and capability standards, with consequent benefits for both individuals and society.

In the finest traditions of principles-based regulation, the FMA has indicated they will be more scrutinising the calibre of persons developing and deploying DA than policing the underlying algorithms: an approach that works well... until it doesn't.

Recently, DA algorithms have been slammed in a number of offshore media outlets for creating a mis-match with investor-stated goals – particularly for clients on the conservative end of the risk spectrum.

In the worst cases, media has highlighted fears that DA algorithms are simply shovelling investors into favoured products. Any algorithm is only as good as the intent of the specification being coded and its likely that over time regulators will have to delve into the back-end wiring of DA systems.

The upside of course is that code is discoverable and auditable. However, regulators will probably have to increase budgets to acquire the necessary technical expertise to decode the algorithmic strategies of DA programmers: or delegate these tasks onto frontline supervisors.

Playing catch-up: how NZ firms can fast-track a DA solution

NZ has lagged behind the global DA trends, governed by legislation mandating personalised financial advice be delivered in-person.

With the FMA now about to remove that handicap by regulation (pre-empting a law change set to take force in 2019), NZ wealth managers, financial advisers and other providers (including direct-to-consumer fund platforms) have been given a chance to catch up to the rest of the world.

In fact, the NZ DA developmental delay could be seen as an advantage: the industry here can learn from the offshore experience to accelerate up to speed.

As this paper has demonstrated, the global DA market is evolving into a multi-provider affair, spanning cheap-and-cheerful ETF portfolio-making machines to sophisticated systems designed for the high-net worth end of town.

NZ providers, then, must ask themselves a few key questions about where and how they want to play in the DA space, including:

- **Target customers** – should your DA be aimed at existing clients, or go after a new previously uneconomic tail end, for instance? Or both?
- **Operating model** – who provides the technology and support? What internal capability do we need to support the new DA product?
- **Technology** - Where do we sit on the tech curve? Will the product be differentiated by the DA platform? Or is DA part of the investment trinity – right performance, right risk point with the right user interface and user experience (UI,UX) and customer service proposition?
- **Timing** – do you potentially loss-lead with a first-to-market offering to attract/retain the growing millennial cohort? Or are your clients “sticky” enough to allow you to develop a ‘best of breed’ DA solution at a slower pace, learning from the trials of competitors.

Tools: off-the-shelf, outsourced, in-house (but maybe not DIY)

As NZ wealth and advisory businesses grapple with the DA challenge, the question of which technology to adopt quickly comes to the fore.

There are some strategic conversations to be had at a senior level that don’t involve Kevin from IT telling you he can have a crack at it with some string and wire.

The frantic pace of technological development globally has seen the functionality required to provide DA platforms rapidly becoming commoditised. Features such as gamification, goal based investing, risk/return simulations are now standard.

This rate of change suggests one of the more productive approaches is to partner with tool providers and/or firms who know the market, the full range of available solutions, and how to integrate the various components.

From a New Zealand perspective there are numerous options, data sovereignty issues notwithstanding. These include specialist adviser-centric DA system providers - some as close as Australia through to global enterprise standard white-label tool providers out of the UK, US and Europe. These can normally be deployed as cloud or on-premises solutions.

The suites of APIs now available allow a wide range of data flows including third-party collaboration – the most obvious example being Yoodlee as used by Xero to hook into bank feeds: these tools underpin whole-of-wealth solutions.

Importantly, NZ firms looking to launch a DA solution should take care to select fit-for-purpose APIs that plumb directly into the underlying system, enabling a smooth flow of services from both the client and business perspectives.

Not all APIs are created equal, requiring a good implementation partner or strong internal capability to avoid such technology details polluting a beautiful DA vision. This is where you need Kevin from IT.

Conclusion: the truth is out there

As this paper goes to press the FMA is putting the finishing touches on its exemption to let loose the robots on financial advice in NZ.

We should not be afraid.

This report argues that conflation of digital advice with killer robots under the 'robo-advice' label is not helpful in understanding what is a more nuanced technological development that inevitably includes a large human element.

While a latecomer to the DA party, NZ is well-placed to learn from the global experience and quickly come up to speed.

Certainly, the NZ industry and society stands to benefit from DA - if nothing else to support the government's oft-stated drive for better retirement outcomes in the Kiwisaver/mass market retail sector. As well as efficiently-dispensing standardised portfolios, DA holds the promise of lifting financial literacy levels and helping New Zealanders deal with volatility and changing market conditions.

While DA is often cast as primarily a solution for the battlers and hipsters – neither traditional targets of wealth management firms – behavioural trends suggest we are all becoming 'millennialised' with the demand for instantaneous tech-driven solutions crossing all demographic barriers.

The diverse bunch of DA providers – ranging from clever start-ups to financial advisory firms to status quo institutions – set to enter the NZ market on the back of the FMA exemption need to carefully consider their strategies.

Those strategies will in turn determine the most appropriate technological solution for each respective provider.

As with all technology change there are many options to develop capability. Offshore-developed DA solutions should be relatively easy to adapt for NZ conditions – barring tough regulatory requirements around forecasting post tax returns.

But successful product differentiation is as much about the orchestration of the components and underlying products they deliver as the whizz-bang technology that the client sees: most firms would benefit by working with the right partners to assemble the DA parts into a coherent whole.

As the technology rapidly develops, more DA pieces will become available, offering some exciting, but challenging, construction projects for providers. Already many DA features are being

commoditised with the trend set to continue as providers bundle further wealth and insurance solutions in the technological package.

Despite entering the DA market in the rear-guard, incumbent financial institutions – epitomised by Vanguard, the biggest player in the sector after launching its 'robo-adviser' just three years ago – look set to dominate the ground broken by innovative start-ups such as Betterment.

Institutions that are well-resourced, agile and trusted can likely turn a well thought-out DA strategy into a winning business model.

The challenge for established financial services players, particularly those tarnished by the global financial crisis, is that they may meet only one of these criteria: being well-resourced.

Advisory firms, sceptical of the DA promise, will also have to re-examine their prejudices: automated advice has the potential to both bolster traditional face-to-face strengths and expand their market footprint.

Eventually, DA will become simply just another tool for delivering better financial outcomes for consumers rather than an 'out there' threat from our new robo-overlords.

About Mosaic Financial Services Infrastructure

Mosaic Financial Services Infrastructure (Mosaic) is a niche consulting firm providing advice and project delivery services to the Australasian financial services industry.

Mosaic focuses on dissecting strategic, regulatory and operational challenges, and resolving these with the best mix of people, process and technology changes. As such Mosaic do not advocate any particular solution or provider – rather they with clients to find the right solution to fit their specific requirements.

Based in Auckland, the Mosaic team of three principals and over 10 permanent staff (as well as a robust outsourced panel of experts) deliver the strategically-aligned, sustainable solutions financial services firms need to succeed in today's inherently dynamic and increasingly competitive market.

Mosaic helps financial services firms assemble their multi-faceted businesses into a logical, coherent whole by realising cost efficiencies, improving processes, lowering costs, and building better customer connections.

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