navigating the future:

acceleration frameworks applied to accounting and finance roles reveals a glimpse into what's next

INTRODUCTION

In early 2019, CPA.com launched an experiential program called 'Navigating the Future[1].' Designed to communicate the scale and pace of technological change, the multipart initiative is based on future-proofing resources that help reveal new opportunities and business models for CPA firms. Done in partnership with innovation expert, futurist, and Singularity University chair for Entrepreneurship and Open Innovation Pascal Finette, the program provides a deep-dive into how emerging technologies and new models of thinking will radically transform not just accounting but the entire business landscape.

PROGRAM OVERVIEW

Through a combination of thought leadership, interactive exercises, and rapid prototyping sessions, Navigating the Future's goals include:

- Clearly communicating the current, unprecedented pace of technological advancements
- Illustrating specific changes that artificial intelligence, machine learning, Internet-of-Things (IoT), and blockchain, among other technologies, are bringing to the profession
- Helping firms anticipate and understand the scale of these disruptions
- Providing firms with tools for predicting and preparing for the future, both within their own organization and on behalf of clients

- Relaying the shifting economics of the profession more broadly

A central component of Navigating the Future is the Disruption Map, an exercise that allows organizations to strategically predict what the future will look like. Over the course of the program, CPA.com, in conjunction with Finette, ran disruption map exercises hundreds of times, helping firms uncover not just how technology impacts the future but how these changes will affect their business, both in the short and long-term. "What's useful about this is it uncovers potential threats as well as new opportunities far sooner than an ordinary status quo assessment," said Erik Asgeirsson, CEO and president of CPA.com.
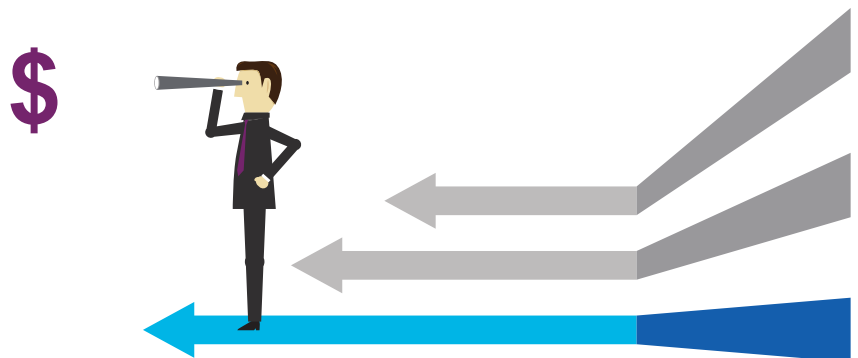
EXECUTIVE SUMMARY

Navigating the Future' is designed to help firms viscerally understand the forces reshaping the accounting profession in order to prepare for the future. "Technology is changing exponentially and we felt firms had to come to grips with the implications much more rapidly than they are now," Asgeirsson said. "You can have a theoretical grasp of what change means, but it's a different thing to apply it to your own practice or to your clients' businesses."

That was one of the main goals of the year-long program: provide actionable tools that take concepts with theoretical and practical application to a business. "This process provides us the ability to take our anticipatory insights for clients, rank them and then develop real tangible action items," said Joey Havens, Managing Partner at HORNE, a regional accounting firm that participated in a virtual session. "This discipline is something we should be consistently deploying across the firm's market segments at least annually."

This paper focuses on key insights derived from the Navigating the Future program, drawing on research, interviews, interactive exercises, and working sessions to:

Explore frameworks for thinking about exponential change

Present strategies for identifying disruptors across a variety of industries, along with their 2nd and 3rd level implications

Empower firms to begin future-proofing their organizations and create an action plan for the years ahead

UNDERSTANDING THE SPEED
AND SCALE OF CHANGE

A rtificial intelligence, machine learning, blockchain, automation, and big data... these are really at a tipping point," Finette said in an interview with CPA.com.

If this feels like a familiar refrain, it's because it is. For the last five decades, we've watched these technologies steadily advance to much fanfare. And yet, despite their real potential and growing sophistication, they've historically fallen short of the hype. "The development of an exponential technology at first underperforms the linear expectation," said Jeffrey Rogers, principal facilitator at Singularity Universi-
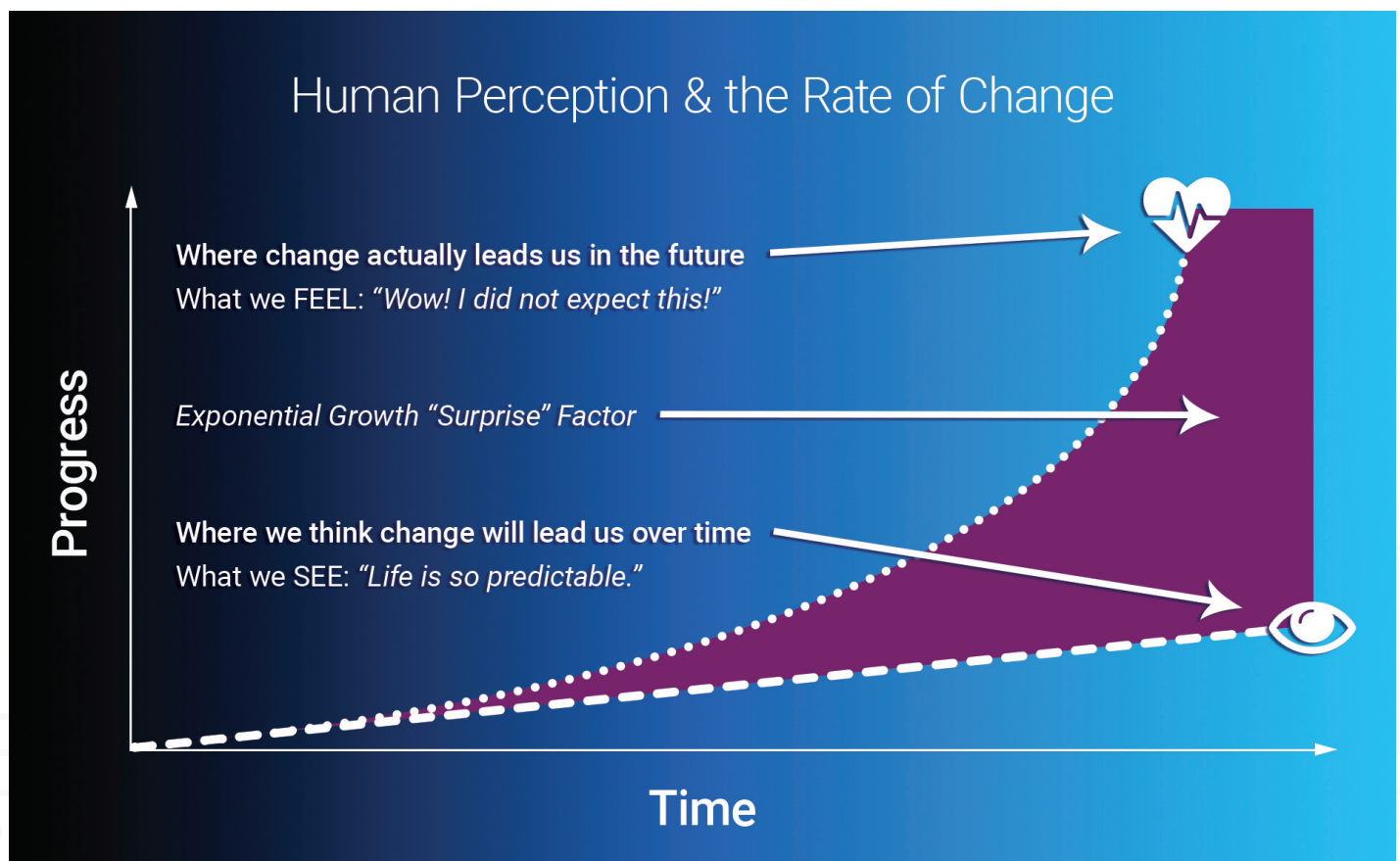
ty, during a keynote presentation at the AICPA's Fall Council meeting. But at some point, exponential growth pushes the technology past a critical point – the 'good enough' threshold – introducing a powerful market substitute.

Today, it's clear that artificial intelligence has passed the "good enough" threshold. Already, it has transformed everything from the way CT scans

are read, to how fraud is detected, to the way ads are served to consumers, among a dizzying array of real-world applications.

This is true for a number of technologies that aren't just used in individual applications, but are incorporated into the underlying support systems. (More on this later.) "The change we are seeing is dramatic," Barry Melancon, President and CEO of the AICPA said. Unlike the steady progression we've grown accustomed to over the past 40 or 50 years, "it's like someone flipping on the light switch." The world is one way and then, in an instant, it looks entirely different.

As humans, we are ill-equipped to pro-

Human Perception & the Rate of Change

Where change actually leads us in the future
What we FEEL: *"Wow! I did not expect this!"*

Exponential Growth "Surprise" Factor

Where we think change will lead us over time
What we SEE: *"Life is so predictable."*

Progress

Time

cess change at such speed and scale. Our brains evolved in a slower world, one where transformation was a linear process that typically spanned generations. As a result, we're bad with dramatic discontinuities.

In his keynote at Digital CPA, Finette drew on visual examples to illustrate this point.

First, he asked the audience to envision the distance they'd cover if they took 30 linear steps. The answer – 30 yards, give or take – is intuitive. "You feel it in your stomach," he said.

Next, Finette asked the audience to picture the distance they'd cover if they took 30 exponential steps, in which every step measures twice the distance of the step before. Save for the mathematically-gifted few, the answer is elusive. It's 2 to the power of 30, which works out to roughly a billion meters.

Even armed with the correct answer, this distance remains vague, amorphous, more a concept than a reality.

"The question becomes: how far do a billion meters feel?" Finette said. Unlike with the previous example, the answer – 25 times around the planet – is far from intuitive. "I've done this particular part of the talk all over the world, and I've yet to find a single human being who could give me the right answer. You cannot feel it."

A shared blind spot also exists in reverse. If shown a flock of sheep, most people would be able to correctly determine, at a glance, whether it numbered in the tens, hundreds, or thousands. "What you can't tell me is if it's 86 or 87 without counting," Finette said. "We are blind both ways."

It's important to keep this double blind spot in mind when peering into the future; we can't rely on instincts alone to accurately predict what is coming in large part because, as a species, we're wired to make predictions based on what has come before. The past has a tendency to look flat and linear and not particularly exciting. If we were granted the ability to see the future, by compari-

son it would look steep and unattainable.

This is the reality of existing on an exponential curve: The past looks linear, while the future arcs ever upwards. Put another way, we are living in the middle of Hemingway's Law of Motion, a principle derived from the novel *A Sun Also Rises*, which features the following exchange:

"How did you go bankrupt?" Bill asked.

"Two ways," Mike said. "Gradually and then suddenly."

"The greatest shortcoming of the human race is our inability to understand the exponential function," Finette said, quoting the late physics professor Albert Allen Bartlett.

'Navigating the Future' is designed to help organizations overcome this mental block by 1) communicating the scale, pace, and visceral urgency of technological change, 2) providing strategies for predicting how these changes will impact the future and 3) sharing insights, frameworks, and models for how to respond to them.

The process is similar to running data through a simulator in order to determine how altering one variable can impact not just an organization, but an entire industry or profession. The future, of course, is always blurry, but by using existing data points to predict its contours in as much detail as possible, businesses can better position themselves for success.

THE IMPACT OF TECHNOLOGICAL CHANGE ON THE PROFESSION

One consequence of the seismic shifts taking place around us: a crisis of trust. This manifests in a variety of ways, including an overarching wariness of leaders and organizations.

According to a 2017 report from Edelman, which surveyed tens of thousands of people[3] on their levels of trust regarding various institutions, 63% of respondents worldwide think CEOs aren't trustworthy, while 48% go as far as saying they do not trust businesses to do what is right, period. Technology isn't solely to blame, of course. But it has helped usher in our current age of polarization, disinformation, and income inequality, all of which have eroded a collective sense of security in underlying systems.

As is often the case, technology offers potential solutions to the very problems it's helped create. Take blockchain. A peer-to-peer chain of immutable transactions, the technology eliminates the role of a governing, central institution. Theoretically, it makes trust, at least in the traditional top-down sense of the word, obsolete. Moving from a world where trust is bestowed to centralized institutions to one in which trust exists within the decentralized systems themselves has implications for virtually every major industry, from banking to finance to healthcare.

For CPA firms, this shift represents an opportunity – and a great responsibility. "We have an incredibly important role in providing trust – we as a society

don't trust anything. We don't trust our government to a large degree, we don't trust our media, we don't trust big companies, we don't trust religious leaders, we don't trust the Internet," Melancon said in a keynote address at Digital CPA. As one of the last vanguards of public trust, the profession is well-positioned to verify the safety, reliability, and security of the blockchain itself. It's an integral role. Blockchain's value rests in its immutability: once a transaction is conducted using the technology, it cannot be altered. As a result, the system must be verified before it can be deployed.

This holds true across a number of emerging technologies. "In today's fast-paced world, we have earned and enjoy trust we can build on to help the world and to help our clients sort things out," Melancon said.

"I believe your profession has a massive opportunity to actually become the trusted advisor, the trusted source in making sure these things are actually accurate," Finette said. "I am bullish on you, as a profession, stepping into this new world and becoming the source of trust for many of these systems."

To take advantage of this new role, CPA firms must develop and strengthen

their technological capabilities. This will require hiring employees with skill sets that reach far beyond traditional accounting.

RESEARCH AND TOOLS

The knowledge adoption curve is a mental framework that futurists use to help organizations better understand the breakneck pace of change, particularly how advances in blockchain and artificial intelligence will feel more like a switch than a gradual progression.

A good example that illustrates these impending sea-changes: the iPhone. Prior to the iPhone, we had 15 years of smartphones, none of which flipped the market. The launch of the iPhone, which was well-designed and intuitive to use, changed everything. Smartphones went mainstream seemingly overnight, ushering in the mobile age. (In 2018, roughly 52% of global web pages were accessed via a mobile phone, according to Statista[4].)

A similar switch is poised to happen in multiple categories. Predicting when and how it will take place requires companies to truly understand the pace of technological advancement. Consider Moore's Law. Named for Gordon Moore, the co-founder of Intel, it is based on the observation that the number of transistors in a dense integrated circuit doubles about every two years, while the cost is halved in the same period. (Today, this doubling has condensed to roughly a year-and-a-half.)

For the past 120 years, computing power at the same price point has doubled every two years, a principle that continues to hold true. You can take a ruler, extrapolate it into the future, and can become a futurist. "This is the exponential trend we are the most familiar with because we live with it," Rogers said.

You can apply this model to a wide array of technological applications, including AI, which has become 300,000 times more powerful in the last seven years. In his keynote, Finette used the example of the number of calculations a $1,000 computing device can perform. Based on the exponential model, such a device will possess the raw computing power of a human brain in 10 years. In less than two years, it doubles. Less than two years after that, it will possess the computing power of two human brains. Two years after that, four. Then eight. Then sixteen, and so on. Within the next three or four decades, a $1,000 device will possess the raw computing power of the entire global population.

"What does it mean to have all this power?'" Rogers asked the audience in his keynote. "And to know that four billion people around the world are walking around with the same thing? All of these devices are networked, equipped with dozens of sensors collecting an endless amount of data." It's hard for the human mind to fully grasp the myriad of ways this computing power will shape the world; it will change everything.

DISRUPTION MAPS

Throughout 2019, CPA.com and Finette facilitated hundreds of live and virtual Disruption Map exercises: a future-proofing framework that has been used by futurists for over 40 years.

Broadly speaking, disruption maps help companies better understand the process through which change occurs. Disruption happens at the outer edges of the implications of other implications. It often feels unexpected because transformation, instead of developing in plain sight, begins outside the immediate view of most practitioners.

In practice, a Disruption Map is similar to a mind map, in which the relationships between various components of a topic are explored via a visual diagram.

To build a Disruption Map, you must first pick a disruptor or topic whose impact you want to forecast. To see an example, or download a free Disruption Map Toolkit, visit www.cpa.com/videos/navigating-future[5].

A CASE STUDY

As part of his partnership with the AICPA and CPA.com, Finette worked with a number of firms to help them anticipate — and plan for — the future. These included:

Horne[6], a Top 100 business consulting and accounting firm that works with private, public, and government organizations.

Withum[7], a Top 25 advisory, tax, and audit firm with clients in a wide range of industries, including construction, financial services, and real estate.

HeinfeldMeech[8], a specialized audit and consulting firm working with governments and nonprofits in Arizona and New Mexico.

After working with Finette on a Disruption Map exercise, one firm devised scorecards that listed the tasks it wanted to accomplish in 2020, the various steps each would require, and, perhaps most importantly, the person responsible for making sure each card was completed. Another walked out of a session with an action plan, i.e. in the next three months not only are we going to accomplish X, Y, and Z, but here are the people who are tasked with overseeing each step.

James C. Bourke, Partner and Managing Director of Advisory Services at Withum, commented on the experiential exercise, "Having our senior team walk through the actual building of a disruption map was priceless. The deep dive gave our team a much better understanding of future opportunities and threats that could impact our business related to the disruptive threats that we debated during that season."

Sometimes, a plan of action takes the form of developing an entirely new product to fill an emerging customer

Remote Work Disruption Map
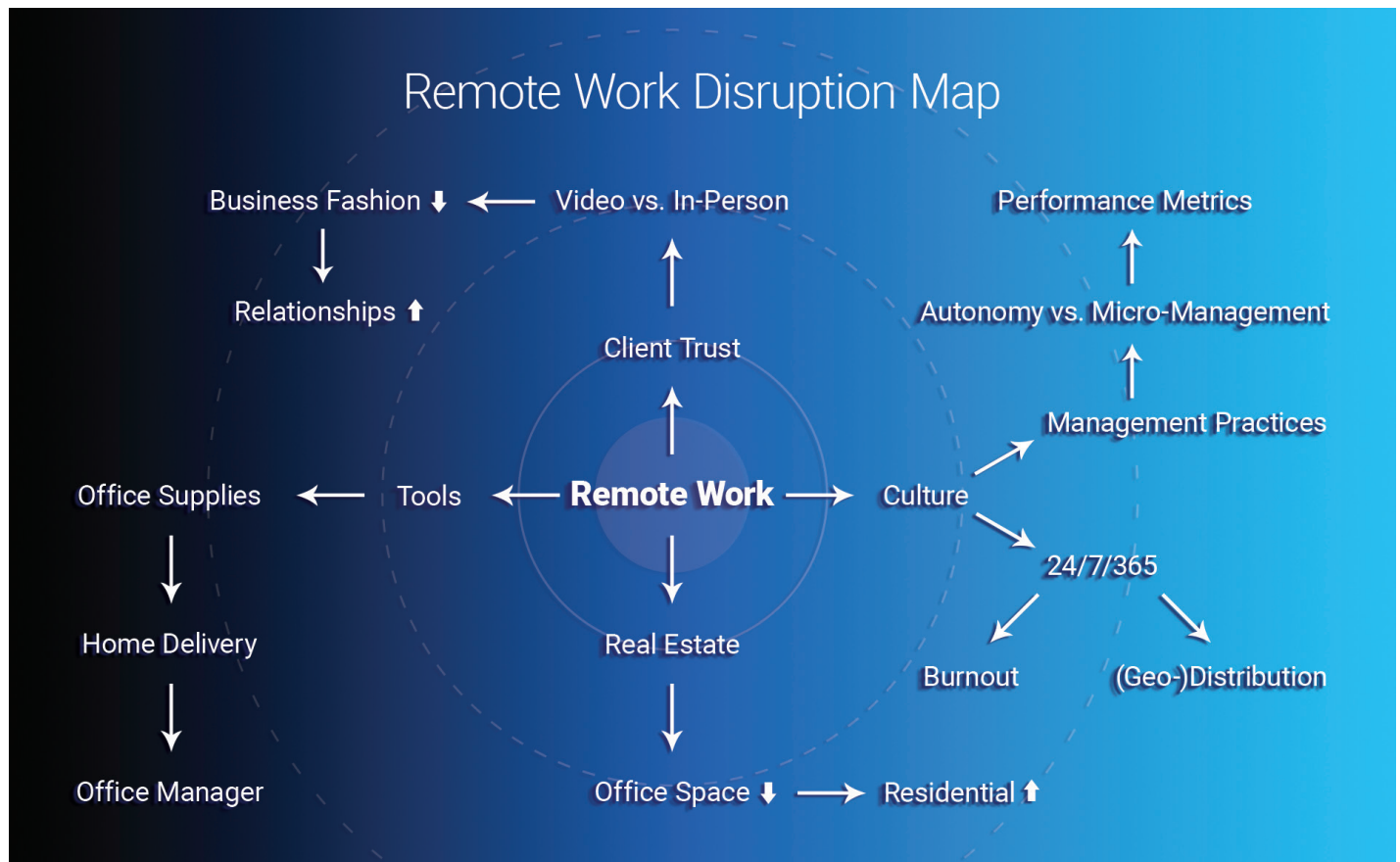
need. In others, the aim is to rework and reposition existing services in order to better serve clients whose industries are rapidly evolving.

Horne serves many clients in healthcare, an industry being disrupted by, among other factors, payment model reform. With CPA.com's guidance, a handful of Horne's executives built a Disruption Map around the issue. Together, they determined potential implications stemming from payment model reform, including regulatory uncertainty, the creation of more data to make health decisions, and a change in how providers manage care.

Before the group began mapping in earnest, the group has asked to rank each implication's importance based both on the likelihood it would come to pass and its estimated timeline. (A development that is already beginning to happen is typically more pressing than something just visible on the horizon.) "Knowing what we know, which of these [branches] directly influence how we want to do business today and tomorrow?" he asked. Beyond that, how does each branch impact the firm's existing services and internal practices? Does the map reveal potential revenue opportunities or new challenges?

At Horne, this meant focusing on reimbursement declines, a development that is already affecting some of its clients. In addition to the expected challenges, examining the implications unearthed new opportunities: as payment models evolve and clients are forced to adapt, it presents an opening for Horne to further specialize and segment its services into high-value categories, such as advising clients on how to generate more revenue and reduce expenses.

A DISRUPTION MAP IN ACTION

In an interactive session at Digital CPA, 500 attendees were led through a sample exercise. Attendees were asked to map out how one of three potential dis-

ruptors – artificial intelligence, remote work, or blockchain – would impact their firms. What opportunities and challenges does it present? Groups of 8-10 people spent 20 minutes running their own Disruption Map exercises and then read out their results.

The responses streamed in. Remote work, one group shared, would mean their firm would likely require less office space, reducing overhead. Similarly, employees could use their own devices, reducing spend on electronics. On the flip side, the firm would have to invest more money in remote interfaces and secure networks.

What's more, because remote work means employees are no longer bound by geography, firms could hire across the globe in order to provide 24/7 service for clients. One possible implication of a truly global workforce? "We'd need to invest in translation software," the group's presenter said. More importantly, the firm would have to develop culture-building techniques that allow remote employees to feel as if they are part of a cohesive whole.

The same exercise took place a month later at the AICPA Major Firms Group Meeting, a gathering of leaders from the top 100 CPA firms.

Jeffrey Weiner, chairman and CEO of the accounting and advisory firm Marcum, was in attendance and participated in the exercise. From the beginning of the discussion, "the benefits of a remote workforce were evident – seasonal staff, access to a broader talent pool, increased diversity of talent, and real estate savings, to name but a few," he wrote in a LinkedIn post[9] detailing the experience.

But potential obstacles quickly emerged, too. Creating a healthy culture isn't easy even when the majority of employees work in the same physical location. Creating a culture strong enough to survive when employees are scattered across time zones is another task altogether.

For firms that depend on the strength of their culture to maintain client relationships, the stakes are high. During the discussion, "a dark thought came to mind," Weiner wrote.

What if culture and loyalty (the values so essential to us as mid-sized firms) were not at all the core factors driving the gig economy workforce?

What if employees of the future approach their work as purely transactional, as 'moment-in-time' projects with a firm of their choosing, which could change from one season to another… from one year to another? What if they prioritize independence over loyalty and culture? Would there be one big talent pool that floats among the various firms? How would we maintain consistency of client teams and deep relationships, and how would we handle knowledge transition? How would this impact our talent model and the partnership structure? And so forth.

Rife with significant benefits as well as drawbacks, remote work was a recur-ring topic of interest throughout CPA.com's work in the 2019 exercises. Obviously we did not know at that time that in the 1st quarter 2020 almost all firms and businesses would be forced to move to home offices and manage distributed teams. As part of the Navigating the Future program, Finette also led a virtual session with accounting technology thought leaders focused exclusively on remote work.

"Security and the need for new tools was an obvious implication that we found. However, when we drilled down further into shadow IT and the client deliverables, it led to interesting insights around communication protocols, even as granular as the timing of messages sent to respect personal boundaries and not set an implicit expectation around work hours," said Kacee Johnson, strategic advisor at CPA.com.

Remote work was such a prevalent topic in the 2019 program, that the AICPA and CPA.com has engaged Finette to take a deeper dive into best practice frameworks and collaboratively develop a toolkit for 2020. As the coronavirus pandemic paralyzed much of the world, and sent millions of employees into a work-from-home model, the case for an extended program, and additional tools for firms, has never been more evident.

APPLYING CONCEPTS TO THE
PROFESSION AT LARGE

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It helps them expand their horizons. The experiential exercises are designed to tackle individual disruptors and technology triggers. But they also provide a platform for firms to begin thinking about the future more broadly. It helps them expand their horizons. This not only applies to a firm's internal operations, but extends to how evolving technologies will impact its clients' businesses. What are the tools, processes, products, and services firms can, and need, to offer to support their clients on this journey? For example, as automation continues to transform the accounting profession, it is simultaneously altering the way clients operate —which changes what they, in turn, need from the profession.

One area of intense interest, both within and outside the profession: demographic shifts in terms of workers' skill sets and training. As rote tasks are automated and technology solutions become an integral part of how firms operate, they will require fewer workers trained in accounting and more employees with technology backgrounds, such as data scientists, analysts, and engineers. According to some estimates, 31% of new hires at accounting and CPA firms do not have accounting degrees[10]. In 2018, hiring of recent accounting graduates fell by 11%[11], a

development offset by an increase in demand for new graduates with other degrees.

"The marketplace continues to demand different competencies and, while accounting graduates are still being hired, firms are seeking other skill sets to expand services," the AICPA wrote in its 2019 trend report[12]. "We are seeing that the gap in skills required in the profession, especially as it relates to technology needs, is being met with non-accounting graduates."

Finette recounted a recent conversation he had with a major firm group in which this issue was brought up. "If you think about audit for example,

there might be a future where [in that group] only 10% of the people are actually CPAs." The rest require additional specialized skills, many of them related to technology.

The profession is already moving swiftly in a broad way to address the need for upskilling. The CPA Evolution Initiative[13], a joint effort of the AICPA and National Association of State Boards of Accountancy (NASBA), seeks to transform the CPA licensure model to recognize the rapidly changing skills and competencies the practice of accounting requires now and in the future. In this model, technology would become a core skill along with tax, accounting and audit, and CPAs would specialize in one of three disciplines such as information systems and controls.
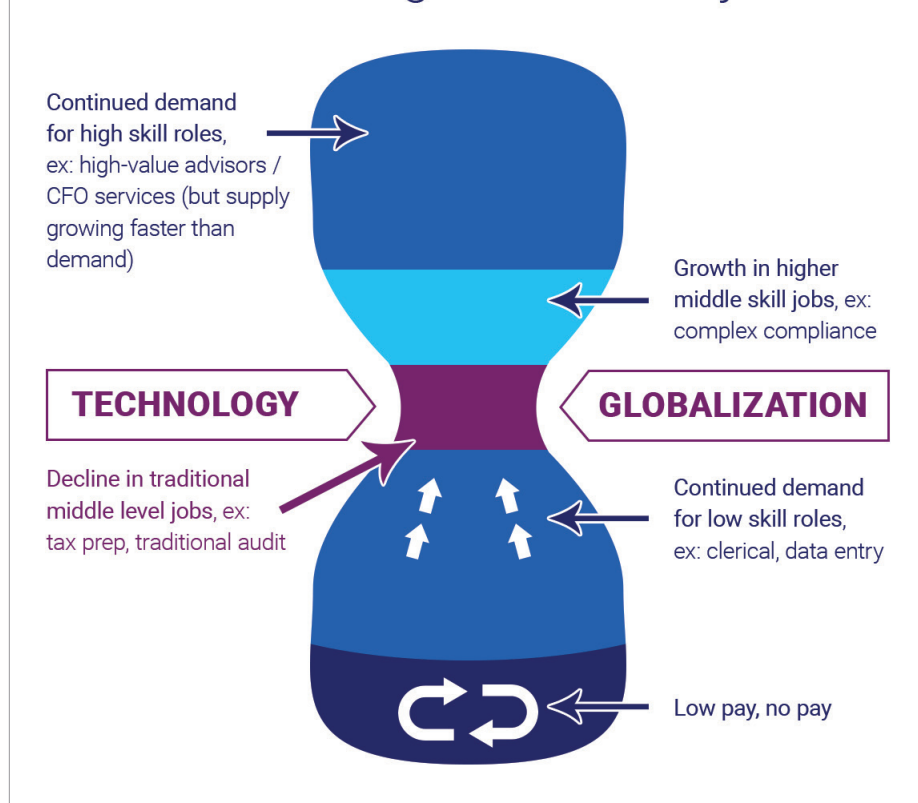
The evolution this represents is a massive change for not just the profession, but also for the way firms are run and positioned. As with most seismic shifts, significant opportunities exist for those who see the change and are able to proactively strategize and be agile.

THE HOURGLASS ECONOMY

In addition to examining how individual disruptors will affect the way firms operate, Finette's Digital CPA keynote addressed technology's impact on underlying economic systems.

Enter the Hourglass Economy[14], a phenomenon "we're seeing in every industry around the world," he said.

The Hourglass Economy

Continued demand for high skill roles, ex: high-value advisors / CFO services (but supply growing faster than demand)

Growth in higher middle skill jobs, ex: complex compliance

TECHNOLOGY

GLOBALIZATION

Decline in traditional middle level jobs, ex: tax prep, traditional audit

Continued demand for low skill roles, ex: clerical, data entry

Low pay, no pay

Traditionally, business-to-consumer companies form a pyramid. At the top are organizations that provide bespoke products and services (low volume, high margins). At the bottom are organizations that flip the equation (high volume, low margins), providing products and services that compete on price and incorporate automation. Between the tip and base are companies that fall in-between this low volume/high margins – high volume/low margins divide. Historically, most economic activity has taken place somewhere in the middle.

Technology, particularly the accessibility of artificial intelligence and auto-

mation, is transforming this model as economic activity moves towards the tip and the bottom of the pyramid. The middle, unfortunately, gets squeezed out, we call this the disappearing middle. Hence, the Hourglass Economy.

This trend is taking place in virtually every client-facing industry. Accounting is no exception, as evidenced by the data: Since 2000, 39% of the top 100 firms outside the Big Four have been squeezed out due to mergers, acquisitions, and consolidations.

In accounting, a perch at the top of the hourglass is a very lucrative position. These firms typically have a thin stack,

which means they don't run their own systems but instead outsource much of the technology applications and automation services to third-party vendors. This enables them to focus on providing personalized, bespoke services to clients, often specializing in a specific vertical or geographic area.

A position at the bottom of the pyramid generally means you own the stack, operating on economies of scale and scope. Instead of specialization, you provide the infrastructure, which can also be a lucrative position. Consider the commoditization of bookkeeping, which offers basic services at a minimal cost. In many cases, services are fully automated.

The challenge is for the undifferentiated firm in the middle, i.e. firms that aren't sufficiently specialized and therefore can't command high margins but don't have the stack support to provide automated, low-cost services.

Moving to the bottom of the hourglass is an involved, costly, highly competitive proposition that involves battling entrenched players. For most firms, moving upwards, to the top of the hourglass, is a more realistic progression. The question then becomes: how can your firm provide a competitive advantage that justifies higher margins? This might be a vertical specialization or specialization in a particular niche. The notion that you are a medium sized company that is everything to everyone is an increasingly tenuous position.

CONCLUSION

There is a connecting thread running throughout this year-long collaboration: Change isn't just coming, it's hurtling towards us at an exponential rate. Today is the slowest day of the rest of your life; the rate of change and the amount of change will only increase.

Such sweeping, radical transformation can be unsettling, and for good reason – we didn't evolve to readily process the speed at which the ground is shifting under our feet.

That's why it's vital to utilize future-proofing tools, such as the Disruption Map and Hourglass Economics model, to not only process technological innovation, but predict and prepare for the challenges and opportunities that disruption will inevitably bring.

The firms that read the signals and are able to build a future-ready practice are the ones that will thrive going forward. "If you look at the history of technological innovation, we have actually been pretty early adopters," Melancon said. "The challenge we have today is that it even has to be quicker than we've ever done it before."

Navigating the Future has been extend through 2020, with a focus on building remote workforce frameworks in addition to how emerging technologies will continue to impact the profession.

The program is just one component of CPA.com's overarching mission in supporting research and innovation to drive the profession forward. "We must proactively work to reskill ourselves and be agile when it comes to the technologies that will transform our way of business," Asgeirsson said. "Adaptability will be one of the greatest success factors for firm leaders over the next decade."

FOOTNOTES

1   www.cpa.com/navigating-future

2   www.cpa.com/dcpa/sessions/25

3   hbr.org/2017/01/survey-peoples-trust-has-declined-in-business-media-government-and-ngos

4   www.statista.com/statistics/241462/global-mobile-phone-website-traffic-share

5   www.cpa.com/videos/navigating-future

6   hornellp.com

7   www.withum.com/all-services

8   www.heinfeldmeech.com

9   www.linkedin.com/pulse/thoughts-week-role-culture-gig-economy-workforce-jeffrey-weiner/?trackingId=hnp0%2FH-1qsJjT26icwQ4G1w%3D%3D

10   www.accountingtoday.com/news/non-accountants-comprise-31-percent-of-new-hires-in-firms-report-finds

11   www.aicpa.org/content/dam/aicpa/interestareas/accountingeducation/newsandpublications/downloadabledocu-ments/2019-trends-report.pdf

12   www.aicpa.org/content/dam/aicpa/interestareas/accountingeducation/newsandpublications/downloadabledocu-ments/2019-trends-report.pdf

13   www.evolutionofcpa.org

14   www.youtube.com/watch?v=StEx7lE_W3s&feature=youtu.be